IBM

eserver

pSeries 655

Service Guide

SA38-0618-00

eserver

pSeries 655

Service Guide

SA38-0618-00

First Edition (November 2002)

Before using this information and the product it supports, read the information in “Safety Notices” on page xi, Appendix A, “Environmental Notices”, on page 619, and Appendix B, “Notices”, on page 623.

A reader’s comment form is provided at the back of this publication. If the form has been removed, address comments to Information Development, Department H6DS-905-6C006, 11501 Burnet Road, Austin, Texas 78758-3493. To send comments electronically, use this commercial internet address: `aix6kpub@austin.ibm.com`. Any information that you supply may be used without incurring any obligation to you.

Contents

Safety Notices

A *danger* notice indicates the presence of a hazard that has the potential of causing death or serious personal injury. *Danger* notices appear on the following pages:

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A *caution* notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury. *Caution* notices appear on the following pages:

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For a translation of the safety notices contained in this book, see the *System Unit Safety Information*.

Electrical Safety

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.
D05

DANGER

Do not attempt to open the covers of the power supply. Power supplies are not serviceable and are to be replaced as a unit.
D02

DANGER

To prevent electrical shock hazard, disconnect all power cables from the electrical outlet before relocating the system.
D01

CAUTION:
Hazardous ac Voltage is present within the BPA with the UEPO off. Hazardous dc voltage is also present on IBF connectors on all BPRs with the UEPO off. Under normal conditions, access to these voltages is restricted. Use caution when servicing BPA components.
C33

CAUTION:
This product is equipped with a four-wire (three-phase and ground) power cable for the user's safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.
C27

CAUTION:
This unit has more than one power supply cord. Follow procedures for removal of power from the system when directed.
C28

CAUTION:
A lithium battery can cause fire, explosion, or a severe burn. Do not recharge, disassemble, heat above 100 degrees C (212 degrees F), solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace only with the part number specified for your system. Use of another battery may represent a risk of fire or explosion.

The battery connector is polarized; do not attempt to reverse the polarity.

Dispose of the battery according to local regulations.
C9

CAUTION:
If the reading is other than infinity, do not proceed! Have the customer make necessary wiring connections before continuing. Do not turn on the branch circuit CB until all the above steps are satisfactorily completed.
C03

CAUTION:
This unit weighs more than 55 kg (121.2 pounds). Material handling systems such as levers, slings, or lifts are required to safely move it. When this is not possible, specially trained persons or services (such as riggers or movers) must be used.
C06

Laser Safety Information

CAUTION:
This product may contain a CD-ROM, DVD-ROM, or laser module on a PCI card, which are class 1 laser products.
C30

Laser Compliance

All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with the IEC 825 (first edition 1984) as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:
All IBM laser modules are designed so that there is never any human access to laser radiation above a class 1 level during normal operation, user maintenance, or prescribed service conditions. Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. Only trained service personnel should perform the inspection or repair of optical fiber cable assemblies and receptacles.
C25, C26

Data Integrity and Verification

IBM computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check the IBM support websites for updated information and fixes applicable to the system and related software.

About This Book

This book provides maintenance information that is specific to the @server pSeries 655, adapters, and attached devices that do not have their own service information. It also contains Maintenance Analysis Procedures (MAPs) that are not common to other systems.

MAPs that are common to all systems are contained in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

This book is used by the service representative to repair system failures. This book assumes that the service representative has been trained for performing service on the system.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

References to AIX Operating System

This document may contain references to the AIX operating system. If you are using another operating system, consult the appropriate documentation for that operating system.

This document may describe hardware features and functions. While the hardware supports them, the realization of these features and functions depends upon support from the operating system. AIX provides this support. If you are using another operating system, consult the appropriate documentation for that operating system regarding support for those features and functions.

Accessing Information

Documentation for the IBM @server pSeries is available online. Visit the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base.

- To access the pSeries publications, click **Hardware documentation**.
- To view information about the accessibility features of @server pSeries hardware and the AIX operating system, click **AIX and pSeries accessibility**.

Related Publications

The following publications are available:

- The *System Unit Safety Information*, order number SA23-2652, contains translations of safety information used throughout this book.

- The *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590, contains information on how to set up and cable the hardware system console and verify system operation.
- The *Hardware Management Console for pSeries Maintenance Guide*, order number SA38-0603, contains MAPS, removal and replacement procedures, error codes, and parts information that help trained service representatives diagnose and repair the hardware system console.
- The *@server pSeries 655 Installation Guide*, order number SA38-0616, contains information on how to set up and cable the system, install and remove options, and verify system operation.
- The *@server pSeries 655 User's Guide*, order number SA38-0617, contains information on how to use the system, use diagnostics, use service aids, and verify system operations.
- The *@server pSeries Diagnostic Information for Multiple Bus Systems*, order number SA38-0509, contains common diagnostic procedures, error codes, service request numbers, and failing function codes. This manual is intended for trained service technicians.
- The *Adapters, Devices, and Cable Information for Multiple Bus Systems*, order number SA38-0516, contains information about adapters, external devices, and cabling. This manual is intended to supplement information found in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.
- The *PCI Adapter Placement Reference*, order number SA38-0538, contains information regarding slot restrictions for adapters that can be used in this system.
- The *Site and Hardware Planning Information*, order number SA38-0508, contains information to help you plan your installation.
- The *Electronic Service Agent For pSeries and RS/6000 User's Guide*, order number LCD4-1060, contains information for use by the service representative to help set up and use the Service Director package.
- The *AIX Installation Guide and Reference*, order number SC23-4389, describes how to install systems, to use a network server, and to install the operating system or diagnostics on systems connected to a network.

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- @server
- IBM
- pSeries
- RS/6000
- LANstreamer

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Chapter 1. Reference Information

This chapter provides an overview of the @server pSeries 655, including a logical description and a physical overview of the system. Additional details pertaining to the @server pSeries 655 are also provided. They include the following:

- General system description
- I/O subsystem description
- Power subsystem description
- System data flow
- System location rules and descriptions
- System location codes
- Specifications
- Powering on and powering off the system

System Overview

System Components

A configured system consists of the following components:

- 7040 Model W42, a 24-inch wide and 42-EIA unit high rack that also contains the following:
  - An 8-EIA unit power subsystem that distributes bulk power at 350 V to each of the processor subsystems.
  - An optional 2-EIA-unit integrated battery feature (IBF) (one provided per BPR), which is available in either a redundant or nonredundant configuration.
- Model 651 processor subsystem (machine type 7039), a 4-EIA-unit processor subsystem that contains the processors, L3 cache, memory, and service processor. There are two DASD bays, each having its own SCSI bus and sharing a dual bus controller, three PCI-X slots for I/O, and two integrated Ethernet (for booting) also included. Two processor subsystems can be installed in a rack side-by-side at the drawer location.
- Model 61D I/O Subsystem, 4 EIA units, which can have up to 20 PCI adapters and up to 16 DASD disk drives.
- A Hardware Management Console (HMC), which provides a standard user interface for configuring and operating partitioned systems. One HMC can support multiple partitions on multiple systems.
- 7040 Model W42 Integrated Battery Feature (IBF), an optional battery backup for the system. One to six IBFs can be installed in a rack.

  There are no media devices (CD-ROM, DVD, tape, or floppy disk drive) in this subsystem.

Processor Subsystem Overview

The pSeries 655 Model 651 is a multiprocessor, multibus system packaged as a single processor node. Two processor nodes can be packaged in a single drawer. The processor subsystem contains a single MCM (4-way or 8-way) with I/O, which occupies a 4-EIA-high half-width position in a 24-inch wide rack. Up to 16 processor subsystems can be installed in one 24-inch wide rack. The processor subsystem contains the following:

- One processor module supporting 8-way processing at 1.1 GHz or 4-way processing at 1.3 GHz
- Four L3 cache modules at 32 MB each (128 MB total)
- Four memory cards, 4 GB and 8 GB sizes
- Three internal PCI-X hot-pluggable blind-swap slots using 64-bit 133 MHz PCI-X
- Two external RIO expansion ports supporting 500 MB/sec
- Embedded Ultra 3 LVD SCSI controller supporting two internal SCSI buses
- Two 10/100 Ethernet ports
- Two DASD bays with integrated SCSI controller supporting 18, 36, or 72 GB devices
- Nonredundant DCA and cooling
- Two HMC ports
- Service processor

Note: This system contains no media devices (CD-ROM, tape, or floppy drive).

Up to five 20-slot, full-width I/O subsystem drawers can be mounted in the same rack with the processor subsystems.

Each processor subsystem supports up to two logical partitions. Processors and I/O can be selected to run independently within each partition. Logical partitioning requires the use of a Hardware Management Console (HMC) that operates outside the scope of any single operating system image and is used to manage and monitor the platform resources, as well as provide a service focal point.

A number of cables connect the base system, I/O subsystem drawers, and HMC. These cables include:

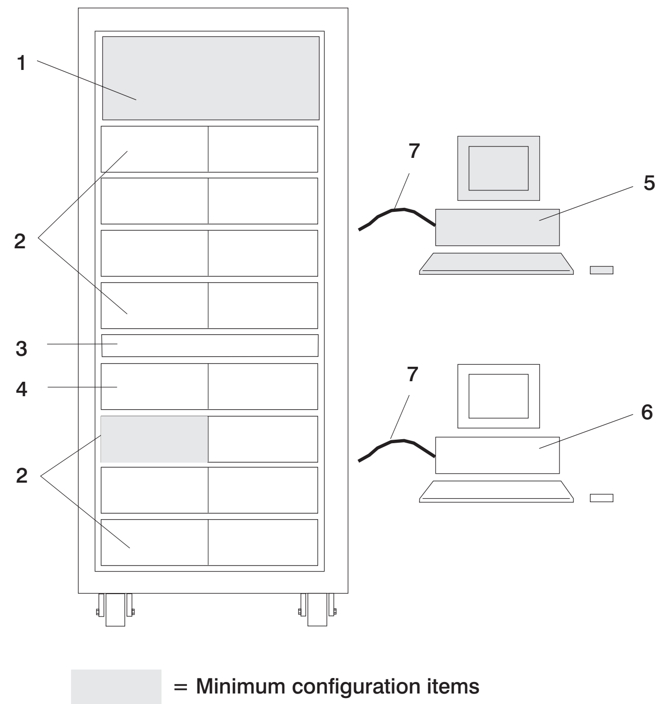
- SPCN (System Power Control Network) cables
- RIO (Remote Input Output) cables
- RS-232 cables
- RS-422 cables

Server Configurations

The following illustrations show some single-frame configurations.

Typical Server Configuration

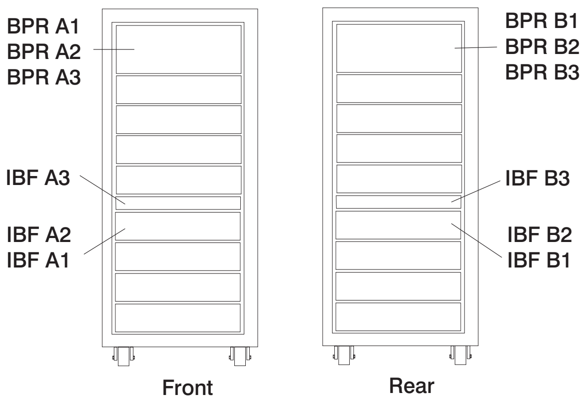
A typical server configuration can consist of one to 16 nodes and a 350 V bulk power subsystem. When options are installed (integrated battery feature and I/O subsystems), the number of nodes is reduced. Any rack position can be substituted with an I/O drawer. A maximum of five I/O subsystems can be installed.



1	7040 W42 Bulk Power Subsystem (2)	
2	Model 651 Processor Subsystems or 7040 Model 61D I/O Subsystem	• Various configurations are possible (16 processor subsystems maximum). • Five or six processor subsystems maximum with 5 I/O drawers installed.
3	7040 Model W42 Integrated Battery Feature (IBF)	Fifth and sixth (optional) IBF. Drawer location for the IBF is fixed.
4	Model 651 Processor Subsystems or 7040 Model 61D I/O Subsystem or 7040 Model W42 Integrated Battery Feature (IBF)	This drawer may contain one or two processor subsystems or One I/O subsystem or The first four IBFs. One IBF is mounted in the front of the rack; the other is mounted in the rear of the rack. Drawer location for the IBF is fixed.
5 - 6	Hardware Management Console	One standard; one optional
7	Cables	• 16 RS-232 cables for each HMC. One cable from each HMC to each processor subsystems. A maximum of 32 RS-232 cables per rack is possible. • Two RS-422 cables for each HMC. Two RS-422 cables from each HMC attach to each Bulk Power Controller (BPC). A maximum of four RS-422 cables per rack.

It is recommended that an Ethernet network be connected to the system. Each HMC can connect to each processor subsystem through the Ethernet network to enable implementation of the service functions that are available. The Ethernet network is used for the Service Focal Point application (see the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for detailed information).

Redundant Integrated Battery Feature (IBF): For a redundant IBF, both the IBF A and B must be installed. IBF A is installed in the front of the rack. IBF B is installed in the rear of the rack. The IBFs attach to the corresponding bulk power regulators (BPRs) at the top of the rack. See the following illustration:

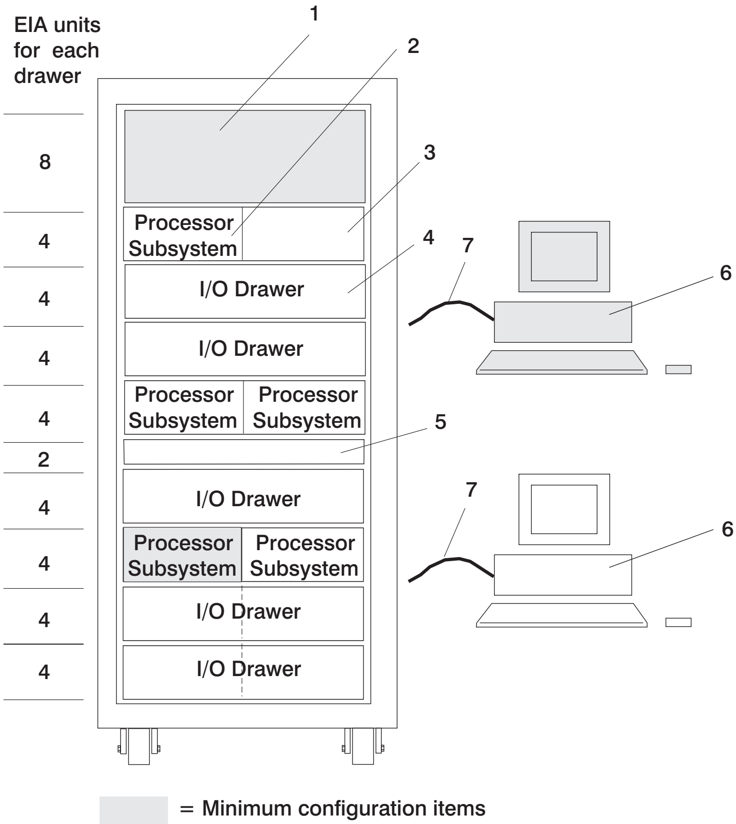


Nonredundant Integrated Battery Feature (IBF): For a nonredundant IBF, only IBF A is installed in the front of the rack. See the previous illustration.

Maximum I/O Subsystem and Processor Subsystem Configuration

A maximum I/O drawer configuration consists of five I/O subsystems and five or six processor subsystems.

To get to the maximum configuration of five I/O subsystems, the IBF feature cannot be used. The drawer designated for the first four IBFs may be used for a fifth I/O subsystem; therefore, the first four IBFs could not be installed. The drawer locations for the fifth I/O subsystem or first through fourth IBFs are U1.13 and U1.15 (drawer immediately below item 4 in the following illustration). The five I/O subsystem configuration results in the fifth and sixth IBFs never being installed because the first four IBFs are not installed.



1	7040 W42 Bulk Power Subsystem	
2	Model 651 Processor Subsystem	• Five or six processor subsystems maximum with five I/O drawers.
3	May contain sixth Model 651 Processor Subsystem or may be empty	
4	7040 Model 61D I/O Subsystem	At least four of the five I/O subsystems must be daisy-chained to processor subsystems to achieve the 5 drawer maximum.
5	Empty in this maximum I/O configuration	No IBF installed.
6	Hardware Management Console	One standard; one optional
7	Cables	• Five RS-232 cables (one to each processor subsystem for the 5-processor configuration). • Six RS-232 cables for the 6-processor configuration. • Two RS-422 cables from each HMC attach to each BPC. A maximum of four RS-422 cables per rack.

I/O drawers are ordered as a single unit, consisting of two identical functional halves. An entire I/O drawer can be cabled to a single processor subsystem when the two halves of the I/O drawer are daisy-chained together. Each half of an I/O drawer can also be cabled to a separate processor subsystem.

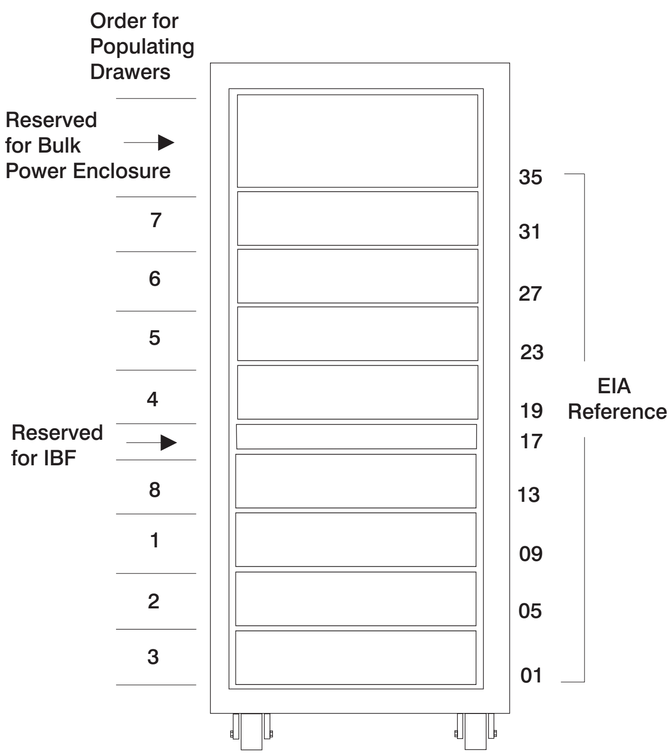
It is recommended that an Ethernet network be connected to the system. Each HMC can connect to each processor subsystem through the Ethernet network to enable implementation of the service functions that are available. The Ethernet network is used for the Service Focal Point application (see the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for detailed information).

Subsystem Placement Rules

Placement of processor subsystems, I/O subsystems, and IBFs in the rack must conform to the following rules:

- Processor subsystems and I/O drawers must be populated in a specified order in a rack.
- Processor subsystems must be installed in each frame cage from left to right (facing the front of the rack).
- Drawer locations for the bulk power enclosure and IBFs are fixed.

The following illustration shows the order for populating drawers in a rack.



Expanding the System

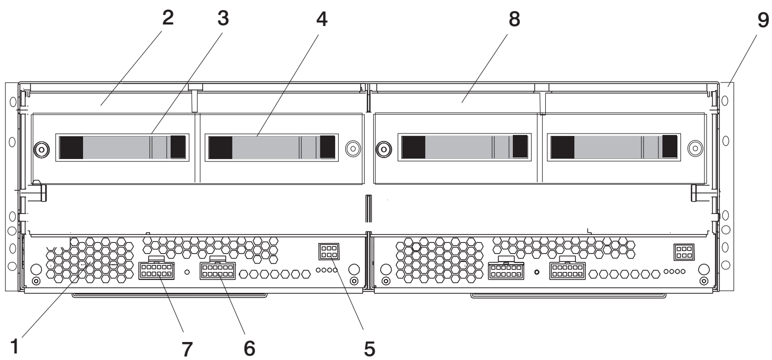
The system can be expanded by adding a maximum of five I/O subsystems in a rack. The configuration of subsystems in a rack must conform to placement rules.

pSeries 655 Model 651 Processor Subsystem Description

This section provides details on the pSeries 655 Model 651 (Machine Type 7039).

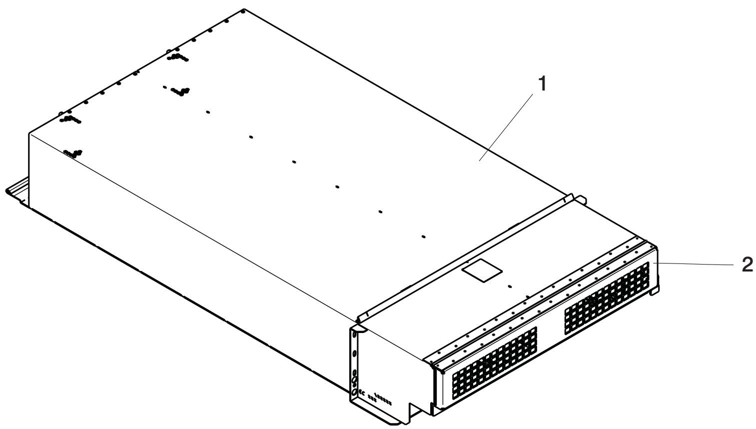
Front View

The following illustration shows the front view of processor systems in a frame cage. Two processor systems are contained in a single frame cage in a rack drawer position.



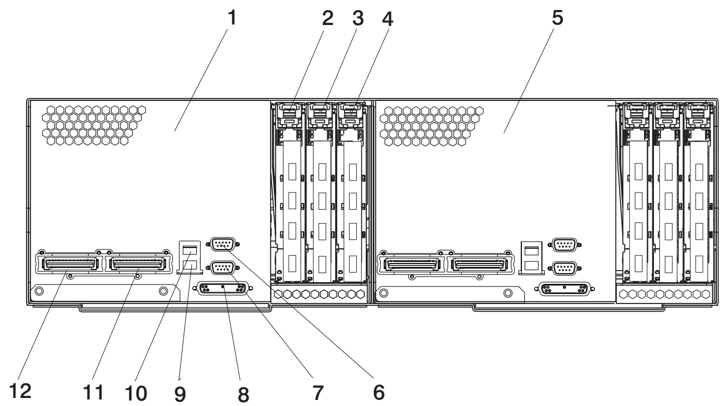
1 DCA Power Assembly (DCA)
2 First Processor Subsystem
3 DASD Drive
4 DASD Drive
5 Fan Assembly Power Connector
6 DCA Power Connector (J1)
7 DCA Power Connector (J0)
8 Second Processor Subsystem
9 Outer Chassis (Frame Cage)

Processor subsystems are installed in a frame cage in the rack. Each frame cage has a front cover that must be lifted and secured in the up position to access the front of the processor subsystems. The following illustration shows the frame cage with the front cover.



1 Frame Cage
2 Front Cover

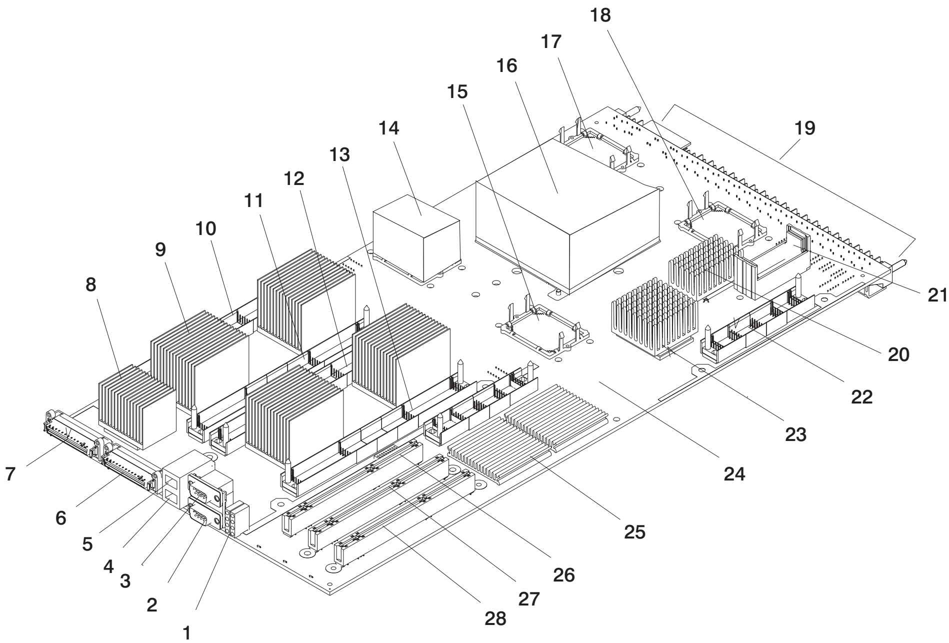
Rear View



1	Second Processor Subsystem	**7**	HMC Connector 1
2	PCI Adapter Slot 1 (64-bit, 133 MHz PCI-X)	**8**	Debug Connector
3	PCI Adapter Slot 2 (64-bit, 133 MHz PCI-X)	**9**	Ethernet Connector 1
4	PCI Adapter Slot 3 (64-bit, 133 MHz PCI-X)	**10**	Ethernet Connector 2
5	First Processor Subsystem	**11**	RIO Connector A0
6	HMC Connector 2	**12**	RIO Connector A1

System Board

The following illustration shows the location of components on the system board.

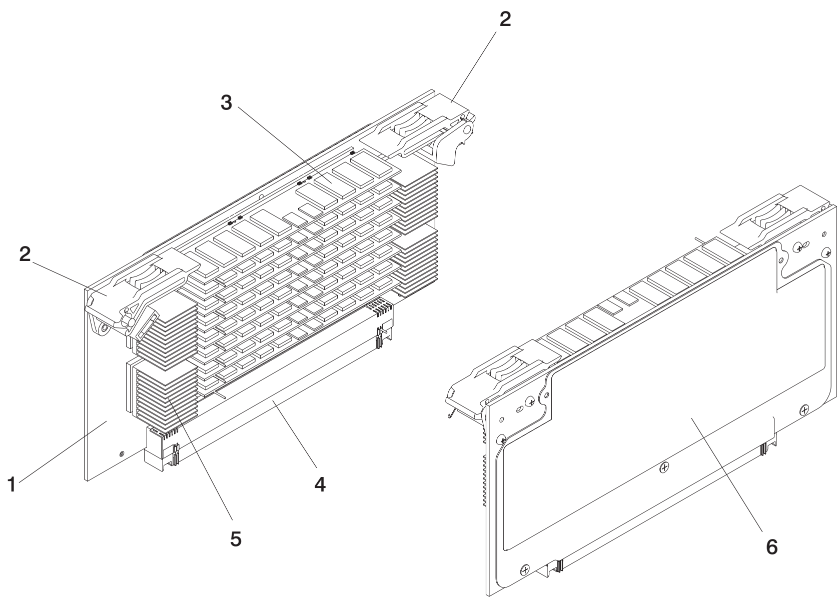


1	LED Dial Light (2)	
2	RS-232 HMC Connector 1	
3	RS-232 HMC Connector 2	
4	Ethernet Connector 1	
5	Ethernet Connector 2	
6	RIO Port 1 (A0)	
7	RIO Port 2 (A1)	
8	RIO Adapter (with heatsink)	
9	Memory Controller (with heatsink) (4)	
10	Memory Card Slot 1	Location: U1.x-P1-M1
11	Memory Card Slot 2	Location: U1.x-P1-M2
12	Memory Card Slot 3	Location: U1.x-P1-M3
13	Memory Card Slot 4	Location: U1.x-P1-M4
14	L3 Cache Module (with heatsink)	Location: U1.x-P1-C5
15	L3 Cache Module (location only shown)	Location: U1.x-P1-C4
16	MCM Module	Location: U1.x-P1-C2
17	L3 Cache Module (location only shown)	Location: U1.x-P1-C3
18	L3 Cache Module (location only shown)	Location: U1.x-P1-C1
19	Power Connector (from DCA)	
20	SCSI Controller (with heatsink)	
21	DASD Ribbon Cable Connector	
22	Service Processor/VPD Card Connector	
23	RIO-PCI-X Bridge (with heatsink)	
24	System Planar	Location: U1.x-P1
25	PCI Bridge and Hot-Plug Controller	
26	PCI Adapter Slot 1	Location: U1.x-P1-I1
27	PCI Adapter Slot 2	Location: U1.x-P1-I2
28	PCI Adapter Slot 3	Location: U1.x-P1-I3

System Memory

All of the system memory for each processor subsystem is on riser cards. There are four memory riser card slots in the processor subsystem. Both 4 GB and 8 GB memory riser cards are available. The minimum memory in each processor subsystem is 4 GB, and the maximum memory is 32 GB.

The following illustration shows the components on the memory card.



1 Memory Card
2 Card-Retaining Latch (2)
3 PDIMM (8 -not removable)
4 Card Connector
5 SMI-E Module (4)
6 Back View of Memory Card

The entire memory card assembly is a FRU; the PDIMMs are not removable.

The memory card slots are shown in "System Board" on page 9.

Memory Plug Rules

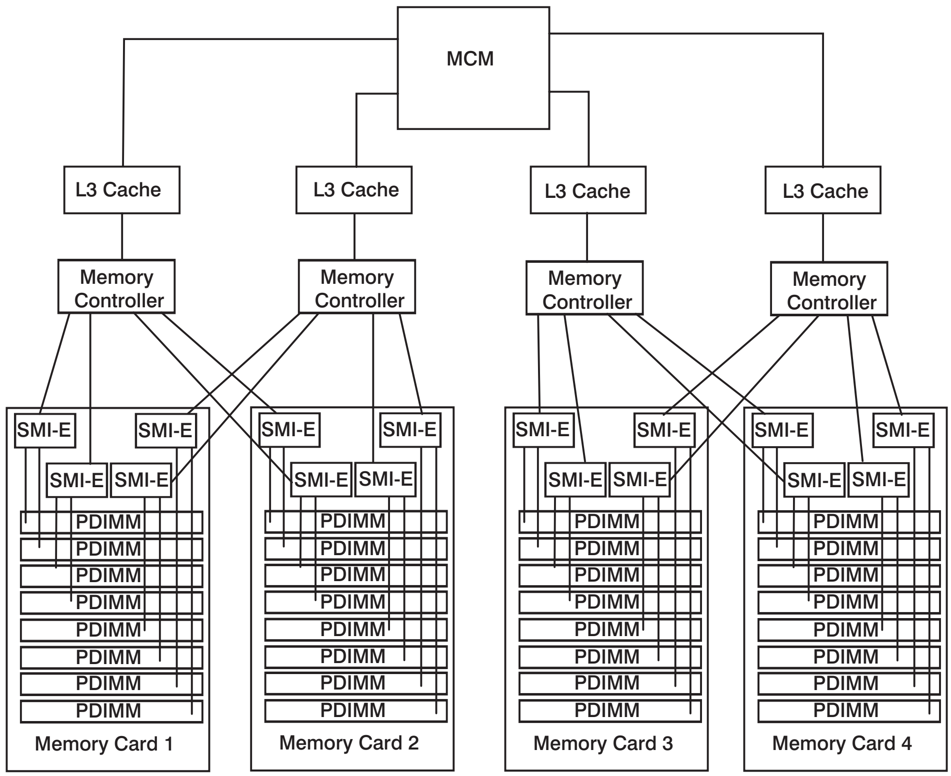
The following table lists the rules for populating memory slots in the processor subsystem. The memory configurations shown in the table are the only supported configurations. Memory cards, containing 4 GB or 8 GB of memory, must be populated in memory card slots as shown in the following table.

Total Memory	Slot 1	Slot 2	Slot 3	Slot 4
4 GB	4 GB			
8 GB	4 GB		4 GB	

Total Memory	Slot 1	Slot 2	Slot 3	Slot 4
16 GB	4 GB	4 GB	4 GB	4 GB
16 GB	8 GB		8 GB	
32 GB	8 GB	8 GB	8 GB	8 GB

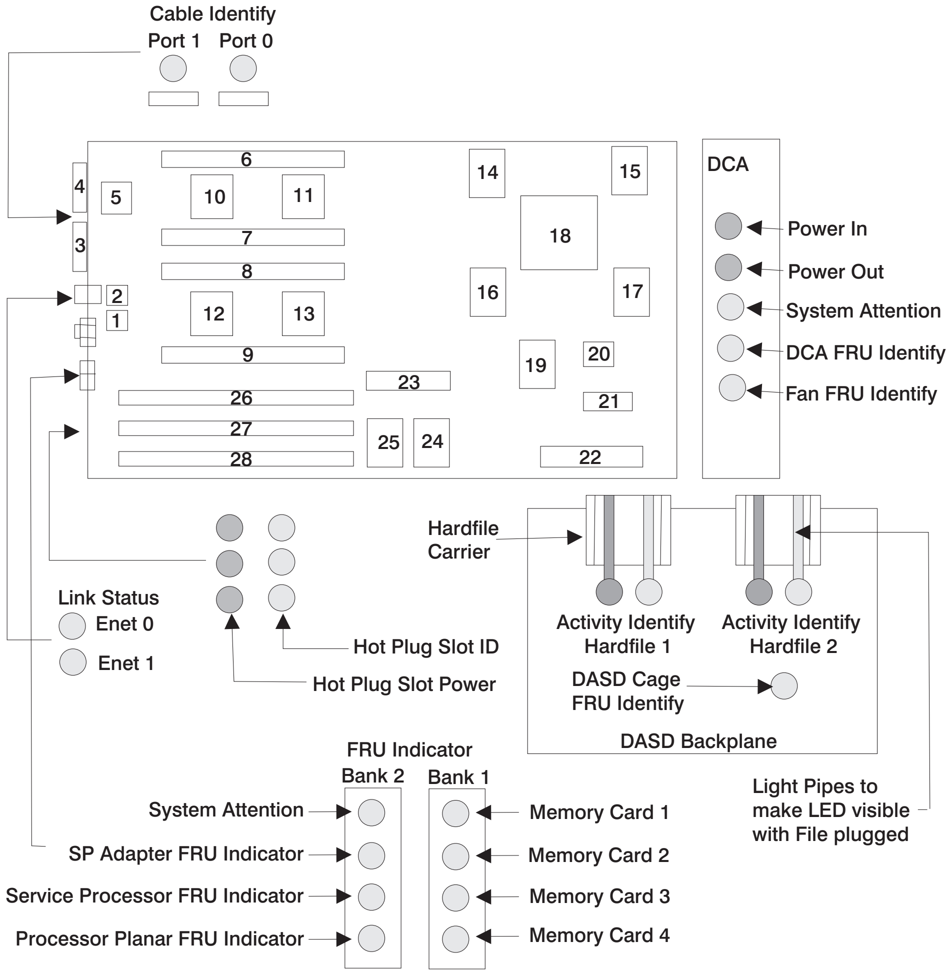
Memory to Processor Relationships

The following illustration shows the relationship between the memory riser cards, L3 cache, and the MCM module:



FRU Identify LED

Individual LEDs are located on or near the failing components. The following illustration identifies the location of the LEDs.



1 Ethernet Port 1
2 Ethernet Port 0
3 RIO Port 0 (A0)
4 RIO Port 1 (A1)
5 RIO Adapter
6 Memory Card Slot 1
7 Memory Card Slot 2
8 Memory Card Slot 3
9 Memory Card Slot 4
10 Memory Controller 0
11 Memory Controller 1
12 Memory Controller 3
13 Memory Controller 2
14 L3 Cache Module 0
15 L3 Cache Module 1
16 L3 Cache Module 3
17 L3 Cache Module 2
18 MCM Module (processor)
19 RIO/PCI-X Bridge
20 SCSI Controller
21 DASD Ribbon Cable Connector
22 Service Processor/VPD Card Connector
23 SP Adapter Connector
24 PCI-X Bridge (PH2)
25 PCI-X Bridge (PH0)
26 PCI Adapter Slot 1
27 PCI Adapter Slot 2
28 PCI Adapter Slot 3

Disturbance or System Attention LED

The system attention LED lights on solid when an event occurs that either needs customer intervention or IBM service. The system attention LED is turned on when an entry is made in the service processor error log. The error entry is transmitted to the following:

- System-level error logs
- AIX error log
- As an entry in the service action event log in the Service Focal Point application. For example, the loss of surveillance from the HMC to a logical partition.

HMC Attached System Error Interrogation

On systems attached to an HMC, when the system attention LED turns on, you should refer to the Service Action Event Log in the Service Focal Point application on the HMC and check the open service events using the procedure described in Working with Serviceable Events in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

Note: For information on Service Focal Point settings, refer to Setting Up Surveillance and Enabling Surveillance Notifications in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

Events requiring customer intervention are marked as Call Home Candidate? NO. For all of these events, examine the description in the serviceable event error details. If actions are listed in the description, perform those actions. If the error indicates a loss of surveillance between the HMC and a partition, check the status of the partition, the network, and the cabling between the HMC and the partition. If the surveillance eror persists, call service support.

If the problem (other than surveillance) persists after performing any actions described above, begin processing any service action events with error codes. Go to “MAP 1321: Quick Entry MAP for Systems with Service Focal Point” on page 161.

Whether a user intervention error or an IBM serviceable error is detected, the system attention light can be reset by following the procedures in “Resetting the System Attention LED”. The preferred method to reset the attention indicator is by following the HMC Attached Systems procedures. Either the HMC Attached Systems procedures or the alternate procedures will reset the attention indicator.

Resetting the System Attention LED

The system attention LED can be turned off by using either of the HMC-Attached Systems or alternate methods.

Resetting the System Attention LED on HMC-Attached Systems: To reset the system attention LED on HMC-attached systems, do the following:

1. On the HMC interface, click **Service Applications**.
2. Double-click **Service Focal Point**.

3. In the Contents area of the screen, select **Hardware Service Functions**. The LED Management window opens.
4. In the LED Management window, select one or more managed systems from the table.
5. Select **Deactivate LED**. The associated system attention LED is turned off.

For more information about the virtual operator panel on the HMC, see the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

Alternate Method of Resetting the System Attention LED Using the AIX Command Line: As a user with root authority, enter `diag` on the AIX command line, and do the following:

1. Select **Task Selection**.
2. On the Task Selection Menu, select **Identify and Attention Indicators**.
3. When the list of LEDs displays, use the cursor to highlight **Set System Attention Indicator to Normal**.
4. Press Enter, and then press F7 to commit. This action turns off the LED

Alternate Method of Resetting the System Attention LED Using the Service Processor: If the system is powered off, access the service processor menus. From the service processor main menu, do the following:

1. Select the **System Information Menu**.
2. Select **LED Control Menu**.
3. Select **Clear System Attention Indicator**. This action turns off the LED.

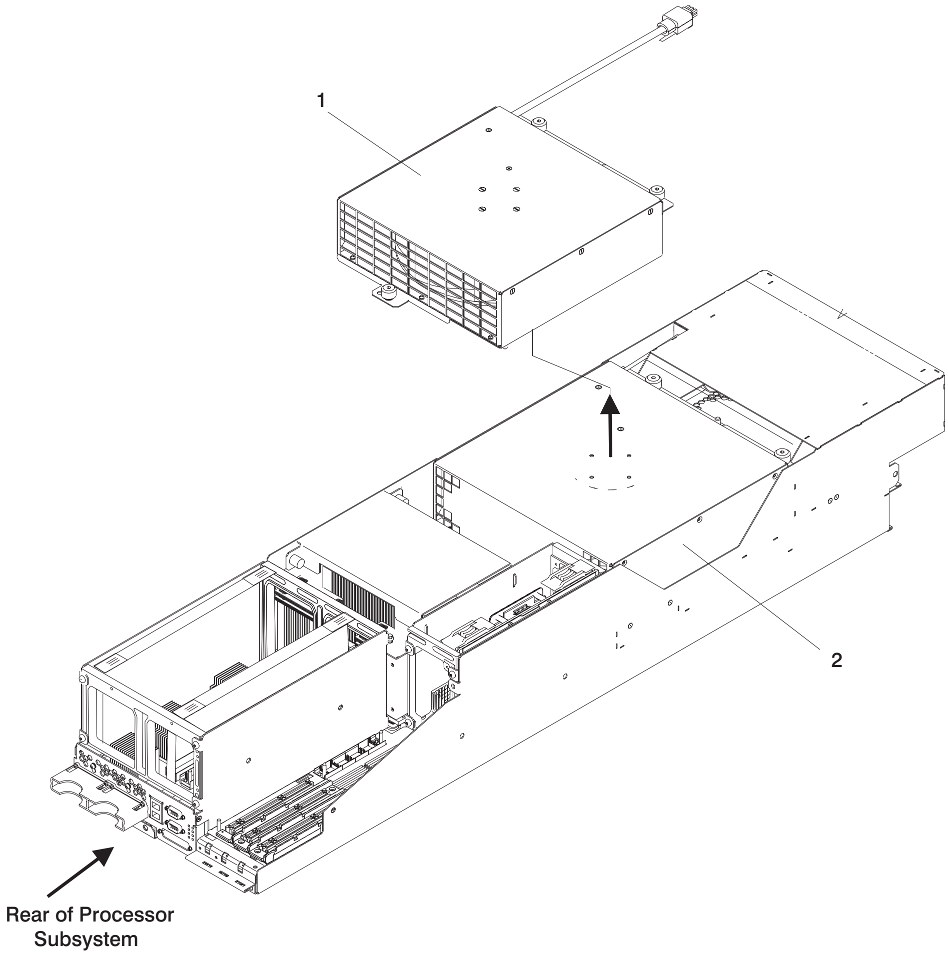
PCI Adapter-Slot LEDs

The following table describes the possible states of the PCI Power-On LED (Green) associated with the PCI slots. The LEDs are located at the rear of the processor subsystem. Each PCI slot has one LED.

Status of LED	PCI Slot Status	Definition
Off	Off	Slot power is Off. It is safe to remove or replace the adapter.
On (not flashing)	On	Slot power is On. Do not remove or replace the adapter.
Flashing slowly (one flash per second)	Identify	Indicates that the slot has been identified by the software. Do not remove or replace the adapter at this time.
Flashing rapidly (six to eight flashes per second)	Action	Indicates that the slot is ready for removing or replacing the adapter.

Fan Assembly

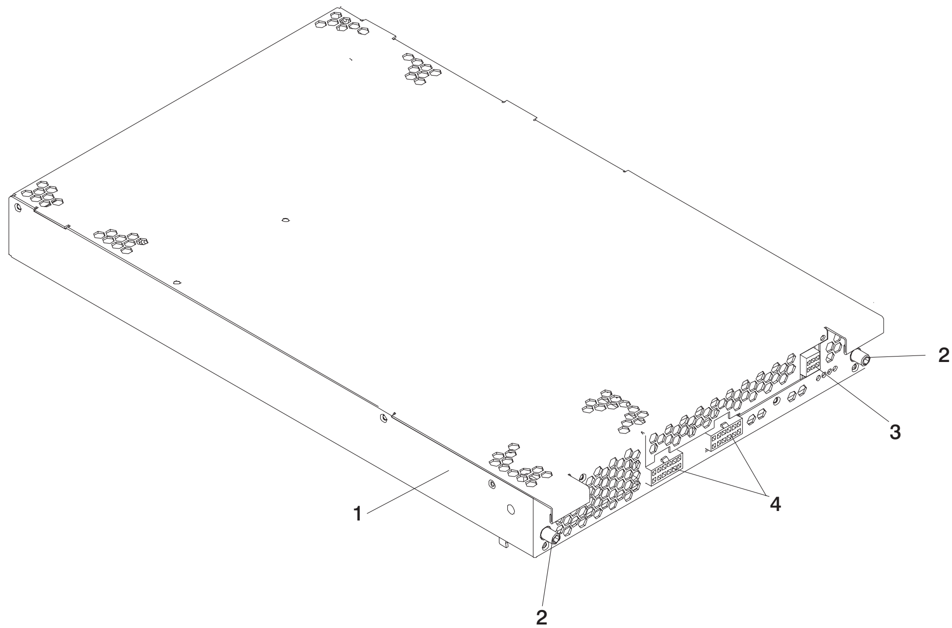
The fan assembly location is shown in the following illustration.



1 Fan Assembly (removed from chassis)
2 Fan Assembly (top view in chassis)

Distributed Converter Assembly (DCA)

The processor subsystem contains a single DCA that is a bulk power to logic supply voltage converter. The DCA is located in the front of the processor subsystem as shown in the processor subsystem "Front View" on page 7 The following illustration shows the DCA, and identifies connectors located on the front of the DCA. A connector at the rear of the DCA connects to the processor subsystem planar to supply power to the processor subsystem (see “System Board” on page 9).



1 DCA

2 Captive Screw (2)

3 Fan Connector

4 Power Connector

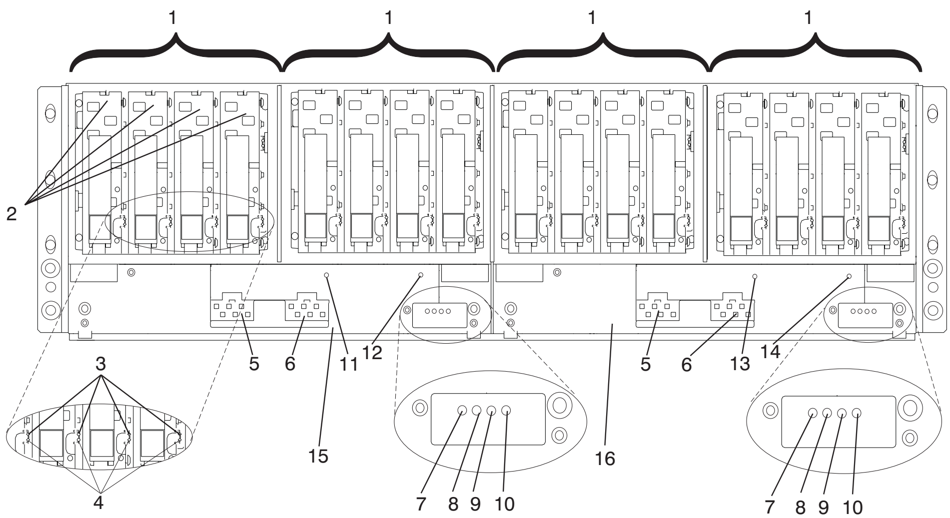
7040 Model 61D I/O Subsystem Description

This section describes the I/O subsystem. A front view and a rear view, with descriptions and locations for each part of the I/O subsystem, are shown.

I/O subsystems have two pairs of redundant power supplies. One of the power supplies, in each pair, is capable of providing the necessary voltages and currents, independent of the other power supply. The left and right power-supply output voltages are connected and monitored by the power distribution board in the I/O subsystem.

The left and right power supplies, in a pair, are hot-pluggable and can be changed one at a time while the system is operational. Each power supply provides 5 V direct current (dc), 3.3 V dc, 12 V dc, and 5 V dc standby.

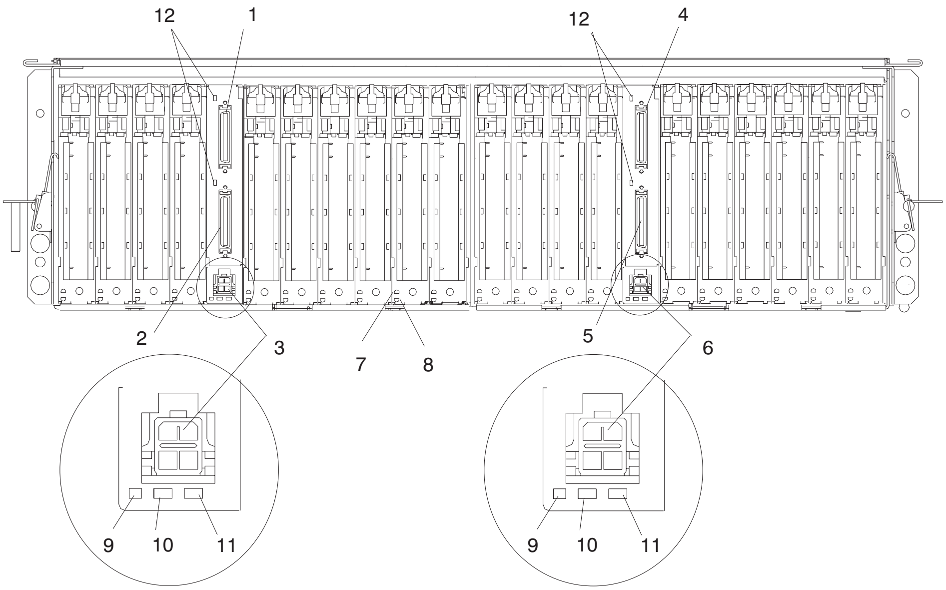
Front View



1	DASD 4-Pack	**9**	Drawer Fault/Identify LED (Amber)
2	DASD Disk Drive	**10**	Power Good Out LED (Green)
3	Disk Activity LED (Green)	**11**	Fan Fault LED (Amber) U1.x-F1
4	Disk Drive Fault/Identify LED (Amber)	**12**	Fan Fault LED (Amber) U1.x-F3
5	BPD 1 (Front) Cable In	**13**	Fan Fault LED (Amber) U1.x-F2
6	BPD 2 (Rear) Cable In	**14**	Fan Fault LED (Amber) U1.x-F4
7	Power Good In LED (Green)	**15**	I/O Subsystem Left DCA U1.x-V1
8	DCA Fault LED (Amber)	**16**	I/O Subsystem Right DCA U1.x-V2

Note: The fan fault LEDs shown in the preceding illustration indicate if an internal fan has a fault. The fan assemblies inside are positioned from left to right behind the DASD 4-packs in order of fan assembly 1, fan assembly 2, fan assembly 3, and fan assembly 4.

Rear View



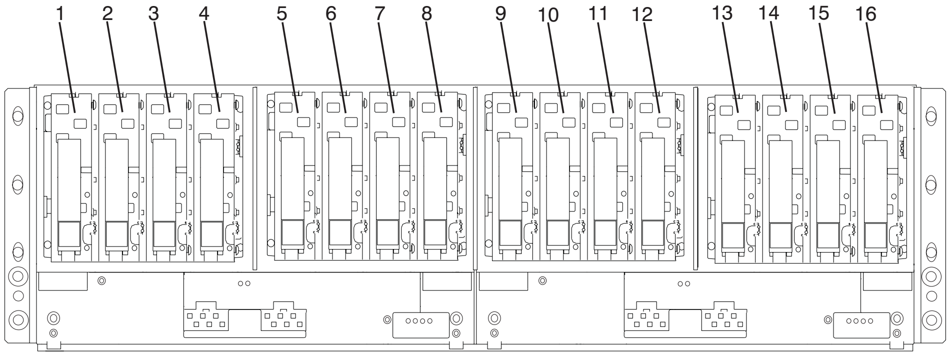
1	I/O port connector 1 (U1.x-P1/Q2)	**7**	I/O Card Power On LED (Green)
2	I/O port connector 0 (U1.x-P1/Q1)	**8**	I/O Adapter Fault/Identify LED (Amber/Bottom)
3	Media subsystem power connector (U1.x-P1-V1/Q3)	**9**	Auxiliary Power Good (Green)
4	I/O port connector 1 (U1.x-P2/Q2)	**10**	I/O Subsystem Backplane Fault (Amber)
5	I/O port connector 0 (U1.x-P2/Q1)	**11**	I/O Subsystem Backplane Power On (Green)
6	Media subsystem power connector (U1.x-P2-V1/Q3)	**12**	I/O LED (Currently Unused)

I/O Subsystem DASD Description

The following figures show the DASD drive positions in an I/O subsystem.

Note: The SCSI IDs are set when the drive is installed into the DASD 4-pack.

DASD Locations

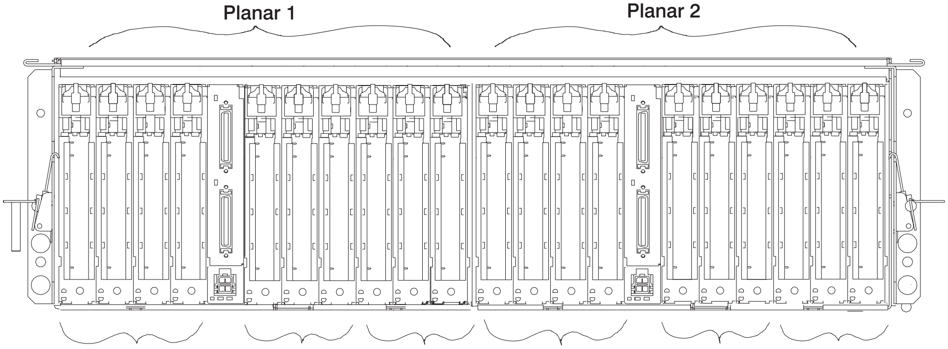


1	Ux.y-P2/Z2-A8	**9**	Ux.y-P1/Z2-A8
2	Ux.y-P2/Z2-A9	**10**	Ux.y-P1/Z2-A9
3	Ux.y-P2/Z2-Aa	**11**	Ux.y-P1/Z2-Aa
4	Ux.y-P2/Z2-Ab	**12**	Ux.y-P1/Z2-Ab
5	Ux.y-P2/Z1-A8	**13**	Ux.y-P1/Z1-A8
6	Ux.y-P2/Z1-A9	**14**	Ux.y-P1/Z1-A9
7	Ux.y-P2/Z1-Aa	**15**	Ux.y-P1/Z1-Aa
8	Ux.y-P2/Z1-Ab	**16**	Ux.y-P1/Z1-Ab

Note: In the preceding table, *x* is equal to the rack number and *y* is equal to the I/O subsystem position in the rack. The SCSI ID for each drive is set when the drive is installed. Each I/O subsystem can have up to four DASD 4-packs installed. The SCSI IDs for the drives in each 4-pack are 8, 9, a, and b, from left to right.

I/O Subsystem PCI Primary Host Bus and PCI Slot Locations

The following illustration shows the PCI primary host bus (PHB) and PCI slot locations in the I/O subsystem.



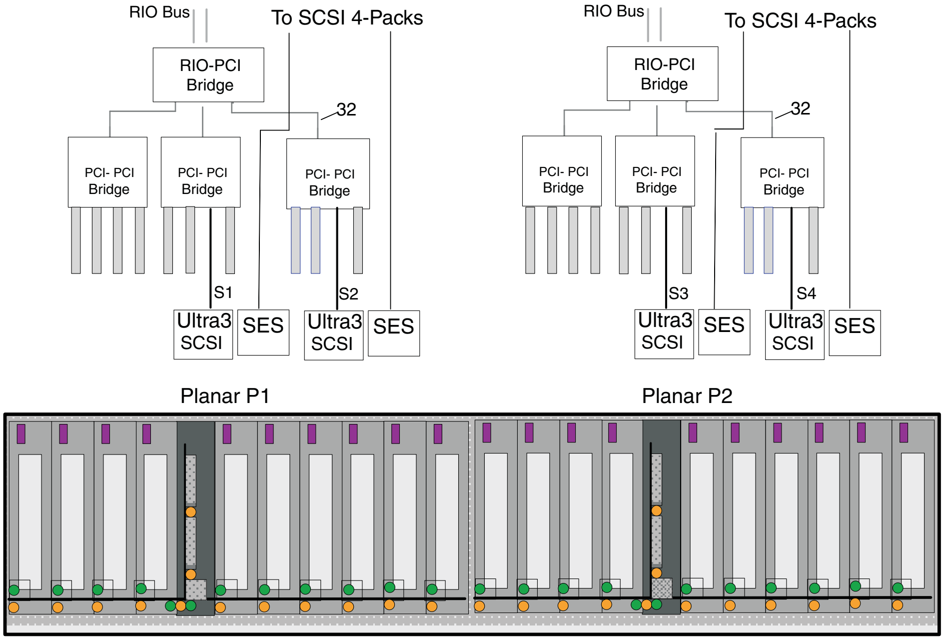
PHB 1	PHB 2	PHB 3	PHB 1	PHB 2	PHB 3
Loc. Codes	Loc. Codes	Loc. Codes	Loc. Codes	Loc. Codes	Loc. Codes
Ux.y-P1-I1	Ux.y-P1-I5	Ux.y-P1-I8	Ux.y-P2-I1	Ux.y-P2-I5	Ux.y-P2-I8
Ux.y-P1-I2	Ux.y-P1-I6	Ux.y-P1-I9	Ux.y-P2-I2	Ux.y-P2-I6	Ux.y-P2-I9
Ux.y-P1-I3	Ux.y-P1-I7	Ux.y-P1-I10	Ux.y-P2-I3	Ux.y-P2-I7	Ux.y-P2-I10
Ux.y-P1-I4			Ux.y-P2-I4		
	Ux.y-P1-Z1 (integrated SCSI)	Ux.y-P1-Z2 (integrated SCSI)		Ux.y-P2-Z1 (integrated SCSI)	Ux.y-P2-Z2 (integrated SCSI)
64-bit 3.3V 33/66 MHz	64-bit 3.3V 33/66 MHz	64-bit 5V 33MHz	64-bit 3.3V 33/66MHz	64-bit 3.3V 33/66 MHz	64-bit 5V 33MHz

Ux.y - HMC location code reference wherein x = rack location and y = drawer position.

PHBs 2 and 3 on both planars contain integrated SCSI adapters (slots P1-Z1, P1-Z2, P2-Z1, P2-Z2).

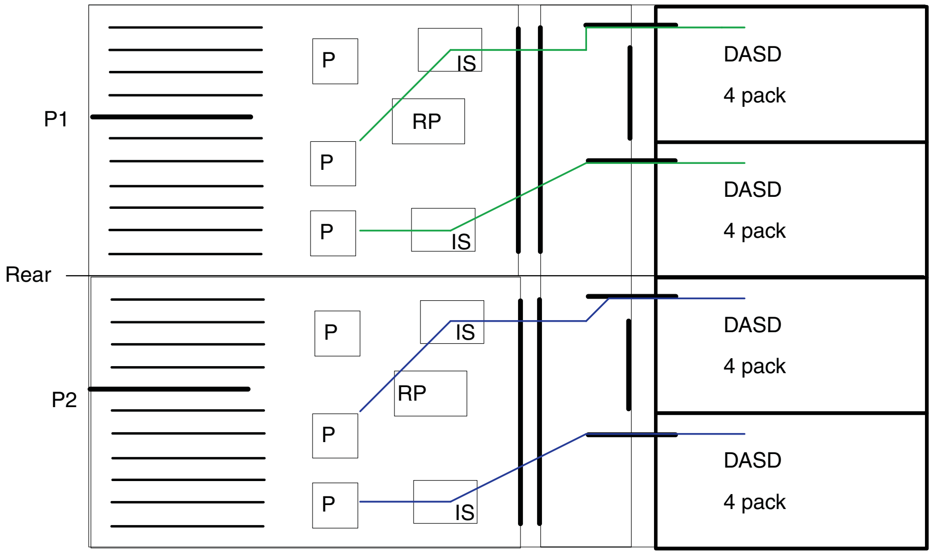
I/O Subsystem Rear View with Numbered Slots

The PCI functional block diagram is shown in the following illustration.



I/O Subsystem Internal SCSI Distribution

The following illustration shows the internal SCSI distribution for each planar, P1 and P2, in the I/O subsystem.

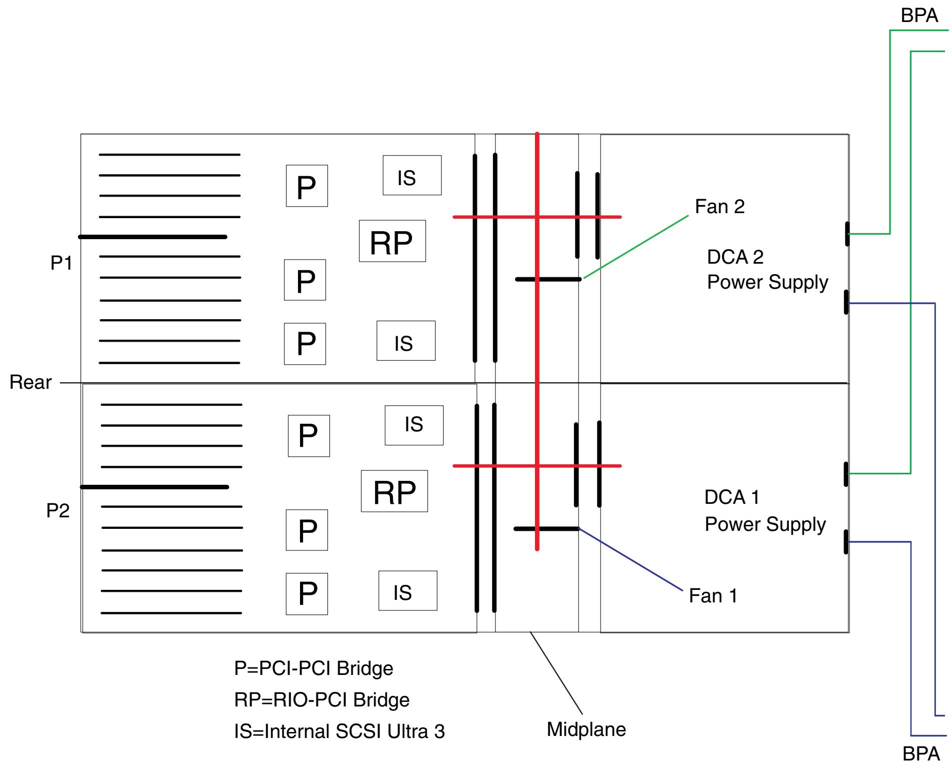


P=PCI-PCI bridge

RP=RIO-PCI bridge

IS=Internal SCSI Ultra 3

I/O Subsystem Power Distribution

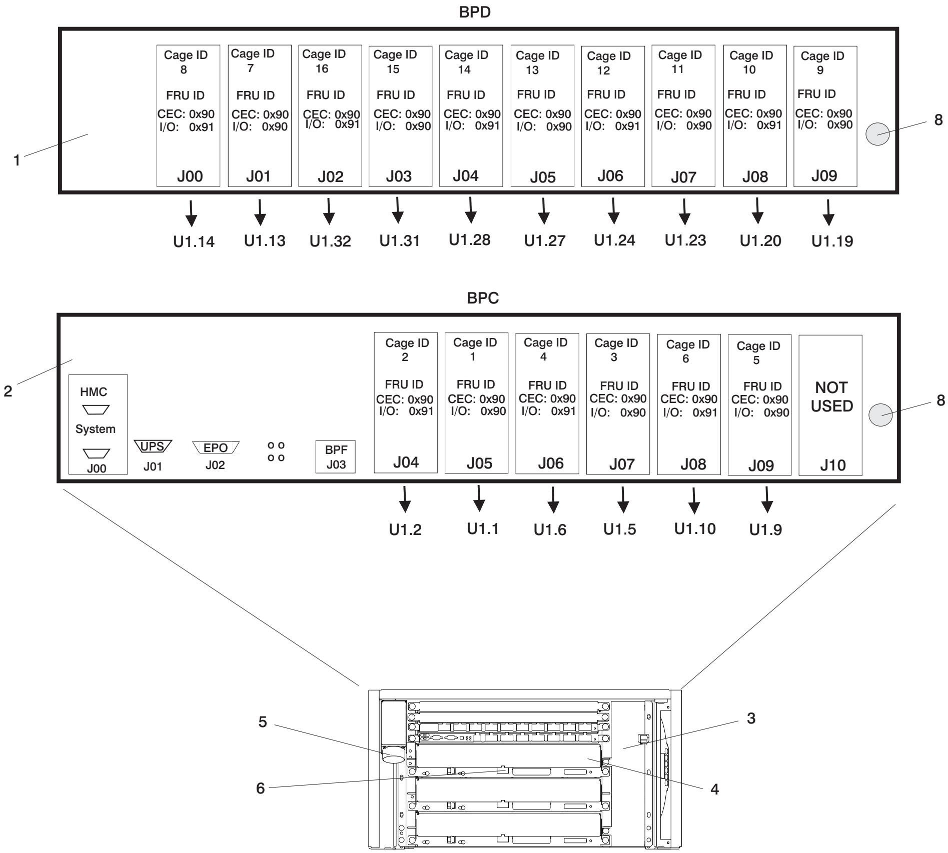


I/O Subsystem Power Supply (DCA) LED Status

Use the following table to determine the condition of the I/O subsystem power supply (DCA) based on the status of the power supply LEDs.

Status of LED	Right Power Supply LED	Left Power Supply LED
Off	No power connected or system power connected, not turned on, power supply detects no faults	No power connected or system power connected, not turned on, power supply detects no faults
On, fast blinking green, on for one second, off for one second	System power connected, not turned on, power supply detected fault	System power connected, not turned on, power supply detected fault
On, slow blinking green, on for two seconds, off for two seconds	System power connected, not turned on, power supply detected system power control network fault	System power connected, not turned on, power supply detected system power control network fault
On, steady green	System power connected and turned on	System power connected and turned on

Power Subsystem Description



Note: BPD connectors J04 and J05 are for I/O subsystem 4 when the IBF is installed.

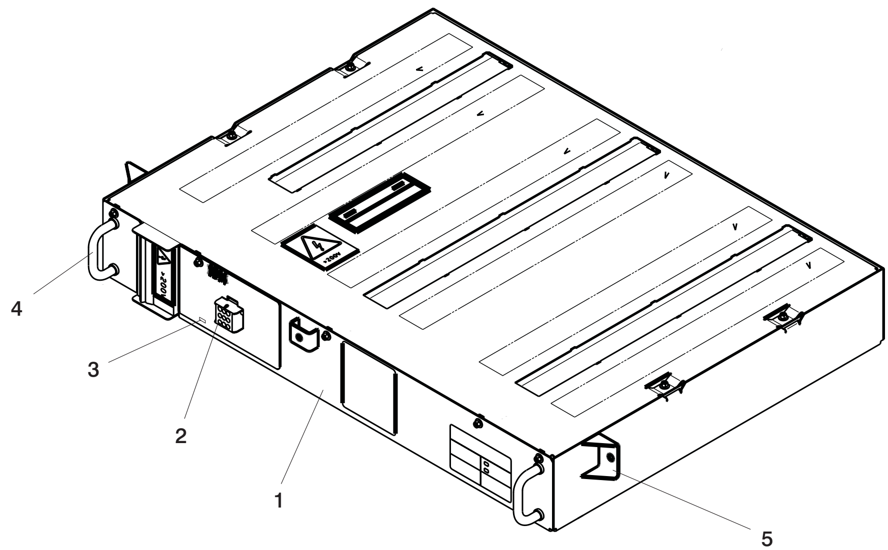
- **1** Bulk Power Distributor (BPD)
- **2** Bulk Power Controller (BPC)
- **3** Bulk Power Fan (BPF)
- **4** Bulk Power Regulator (BPR)
- **5** ac Power In Connector
- **6** Connectors to IBF
- **7** UEPO Power LED (PWR) and UEPO Power Complete LED (CMDPLT)
- **8** Power Good LED

Integrated Battery Feature (IBF) Description

The IBF is optional. If the IBF is installed, specific drawer locations are required. One to six IBFs can be installed in the rack at the required drawer locations. For information about IBFs in the rack, refer to “Redundant Integrated Battery Feature (IBF)” on page 4 and “Nonredundant Integrated Battery Feature (IBF)” on page 4.

A single cable on each IBF connects from the front of the IBF to the front of a Bulk Power Regulator (BPR). Each IBF connects to a separate BPR.

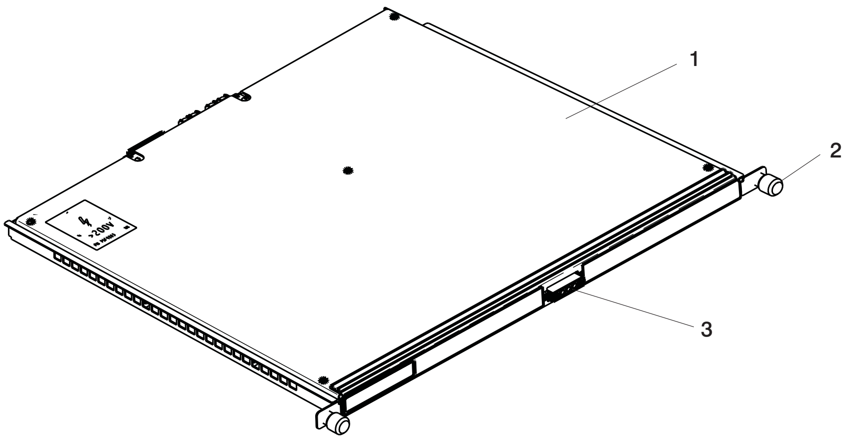
For information about cable routing in the rack, refer to “Integrated Battery Feature (IBF) Cabling” on page 36.



1 7040 Model 42 IBF
2 Power Connector (J1)
3 Battery Enabled LED
4 Hand Grip (2)
5 Mounting Flange

Bulk Power Jumper (BPJ)

The BPJ is shown in the following illustration.



1 BPJ
2 Captive-Mounting Screws
3 Connector

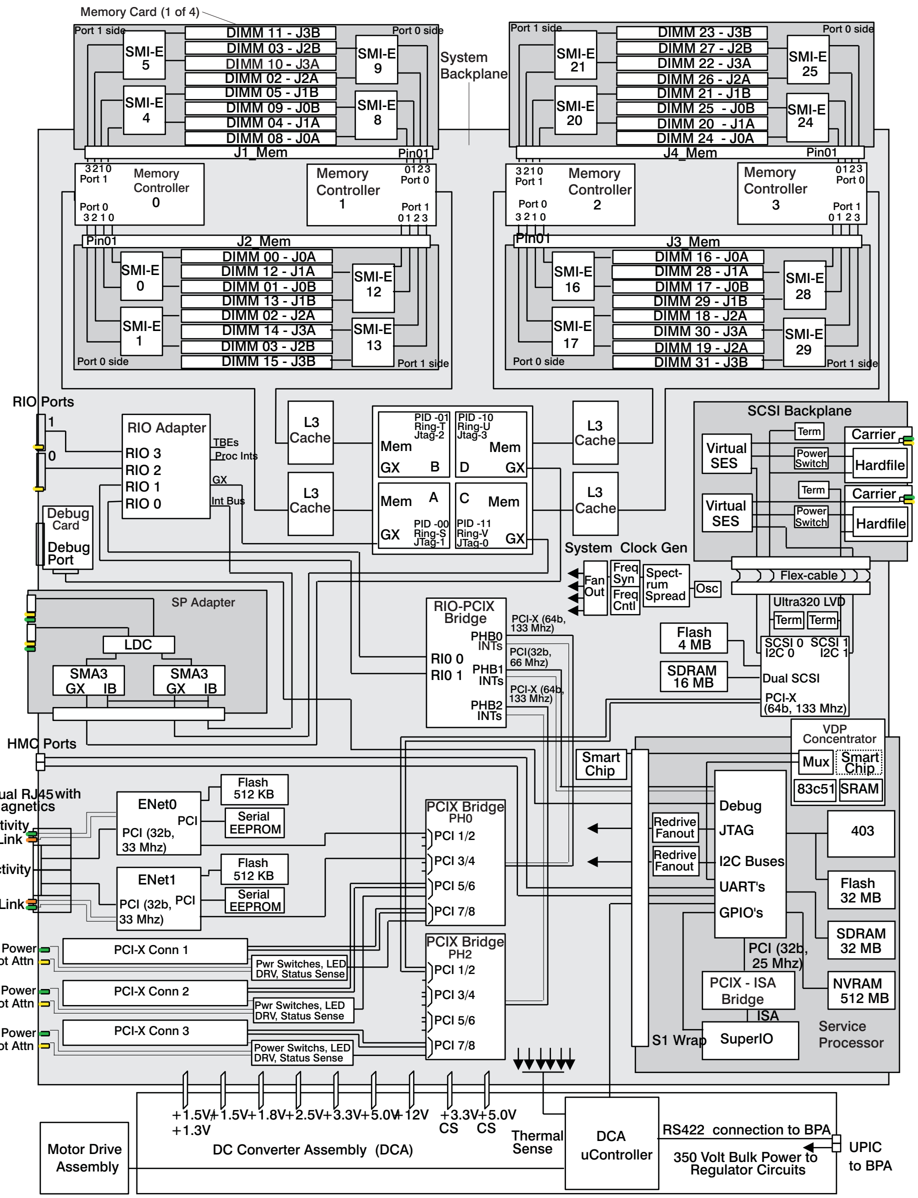
The BPJ is a fused jumper that connects the 350 V power source from side A to side B of the system BPA. Two BPJ units are cabled to connect the BPA. The BPJ is unused except when BPR faults occur, when concurrent BPR service is attempted, or when there is a power distribution fault (a BPC or BPD fails) in the case of 11 or more processor subsystems installed.

One side of the BPA is not capable of supplying sufficient power to more than 10 processor subsystems. On a system with more than 10 processor subsystems, current flows through the BPJ and allows the BPRs on the side with the failure to supply additional current to the functioning side to keep the system running.

To determine the number of BPR and BPJ units required for a configuration, refer to "Bulk Power Jumper (BPJ)" on page 500.

System Data Flow

The following figure shows the data flow for the system.

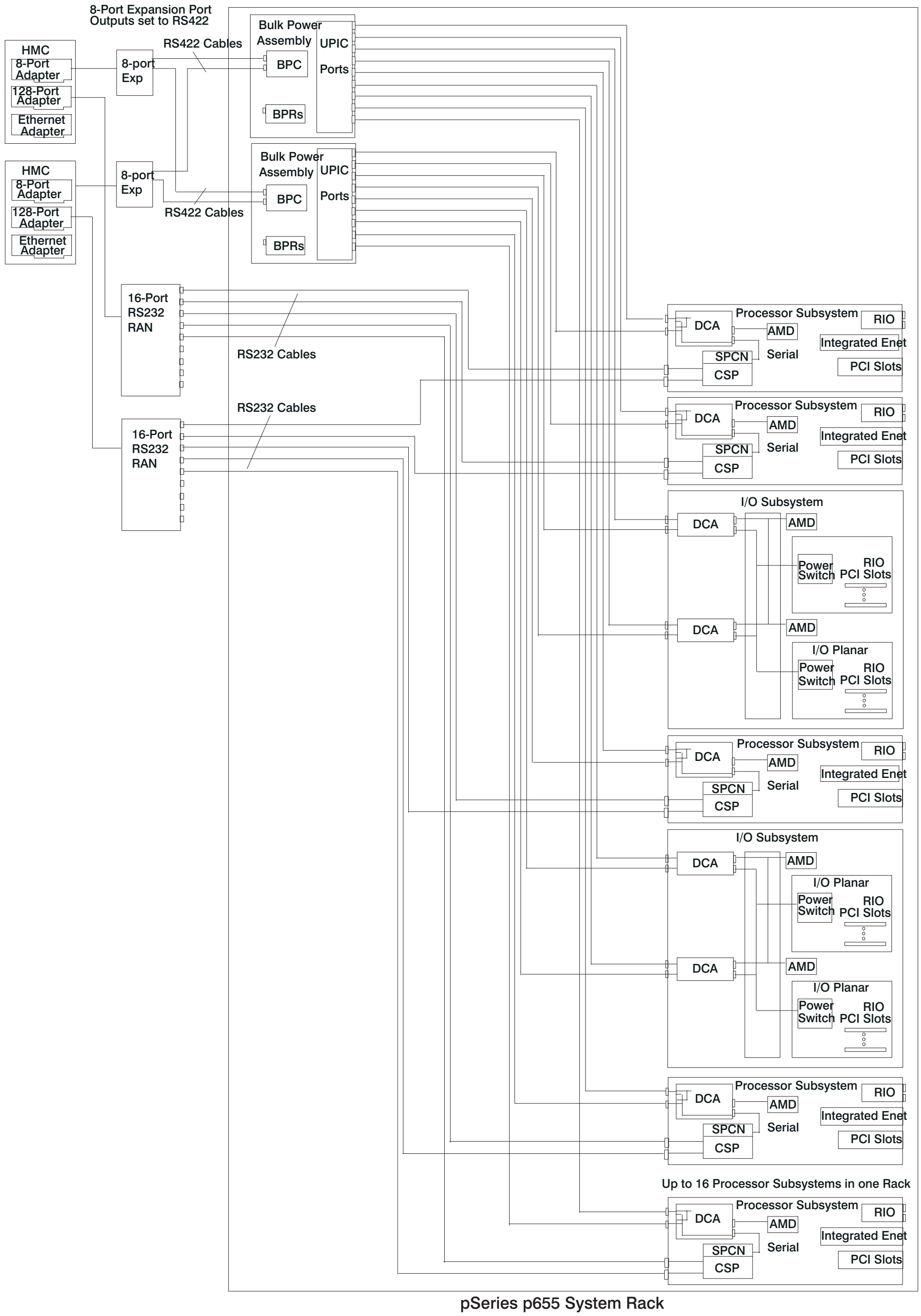


System Cables

Various cables connect the power, processor subsystem(s), battery, and I/O subsystems. These include:

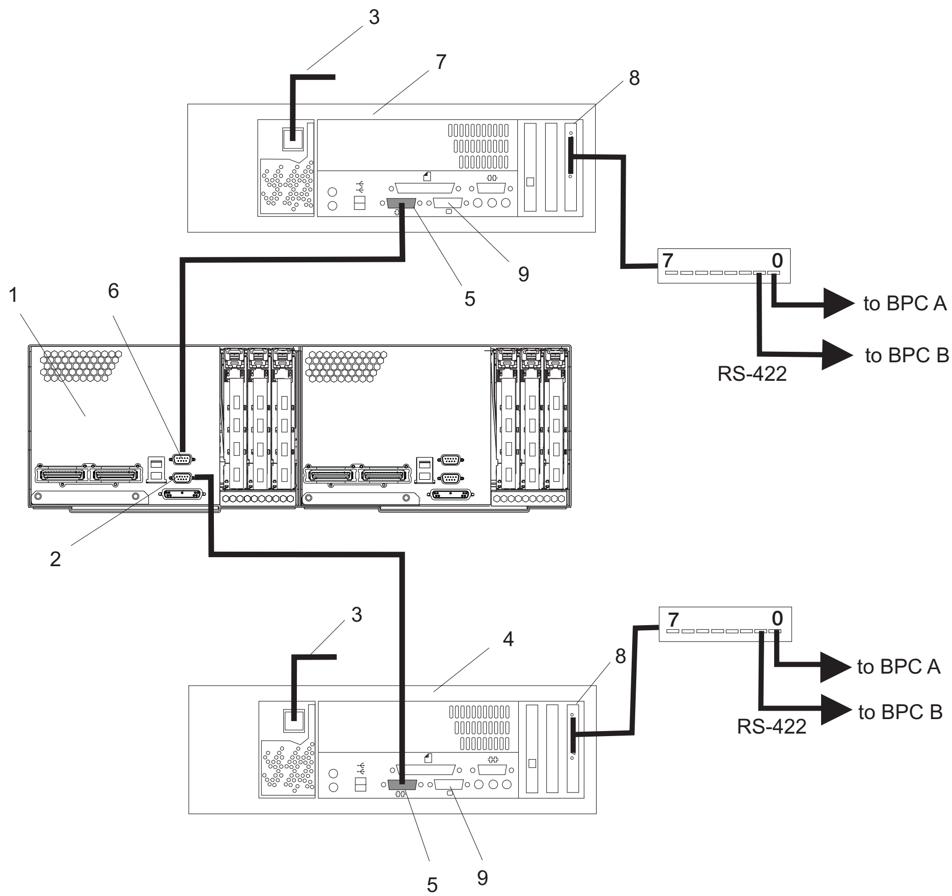
- Universal Power Interface Controller (UPIC) cables are the power cables for the processor subsystem(s).
- Remote Input/Output (RIO) cables are the cables connecting the processor subsystem(s) with the I/O subsystems.
- RS-422 cables connect the Hardware Management Console to the Bulk Power Controllers (BPCs) in the Bulk Power Assembly (BPA) through the 8-port adapter connector box.
- RS-232 cables connect the processor subsystems to the HMC 128-port adapters and their 16-port remote asynchronous nodes (RANs).

The following illustration shows cables for an expanded configuration using 8-port and 128-port asynchronous adapters.


8-Port Expansion Port
Outputs set to RS422
HMC
8-Port Adapter
128-Port Adapter
Ethernet Adapter
8-port Exp
RS422 Cables
Bulk Power Assembly
UPIC
Ports
BPC
BPRs
16-Port RS232 RAN
RS232 Cables
Processor Subsystem
DCA
AMD
RIO
Integrated Enet
PCI Slots
SPCN
Serial
CSP
I/O Subsystem
Power Switch
RIO PCI Slots
I/O Planar
Up to 16 Processor Subsystems in one Rack
pSeries p655 System Rack

HMC Cabling

The following illustration shows the cabling from the HMC to an 8-port asynchronous adapter. Two ports of the 8-port asynchronous adapter are connected to the BPC (side A and side B) to control power to processor subsystems.



1 pSeries 655 Processor Subsystem (rear view of connection on one processor subsystem)

2 HMC Connector 1 (connection for primary HMC)

3 Power Plug to External Power Source (wall plug)

4 Primary HMC

5 Serial Port on HMC

6 HMC Connector 2 (connection for secondary HMC)

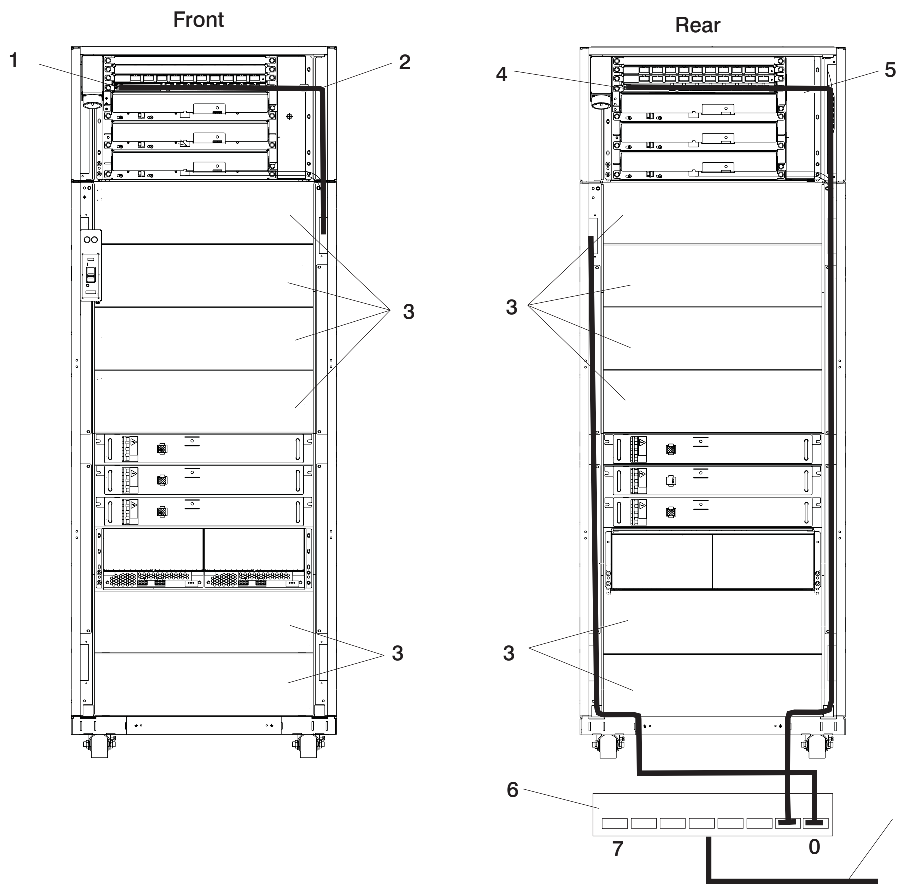
7 Secondary HMC (optional)

8 8-Port Asynchronous Adapter

9 Serial Port Reserved for Modem

Cabling for HMC to Bulk Power Controllers

The following illustration shows the cabling from the BPCs (side A and side B) to the 8-port asynchronous adapter on the HMC.



1 BPC (A side) Cable Connector (Front of Rack)

2 BPC Cable Route at Front of Rack

3 Processor Subsystem or I/O Subsystem

4 BPC (B side) Cable Connector (Rear of Rack)

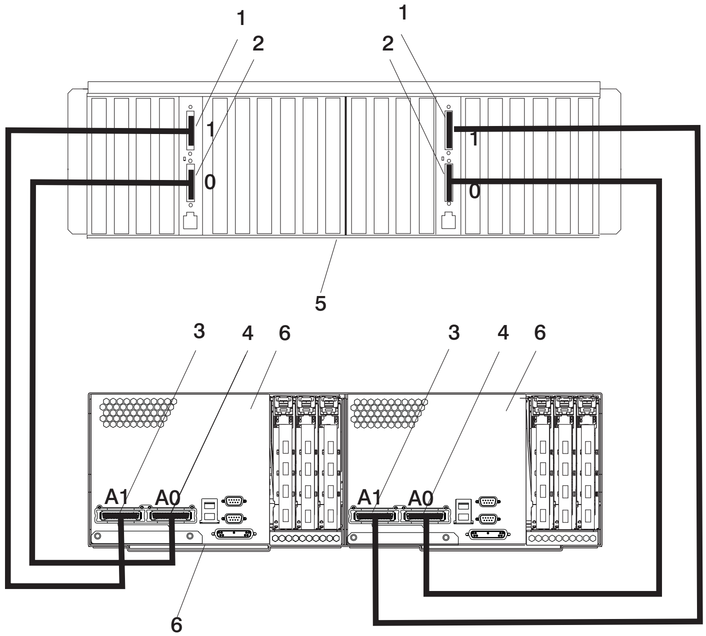
5 BPC Cable Route at Rear of Rack

6 8-Port Connector Box

7 RS-422 Cable (from 8-Port Asynchronous Adapter) to HMC

Cabling for I/O Subsystem to Processor Subsystem (Split I/O Drawer)

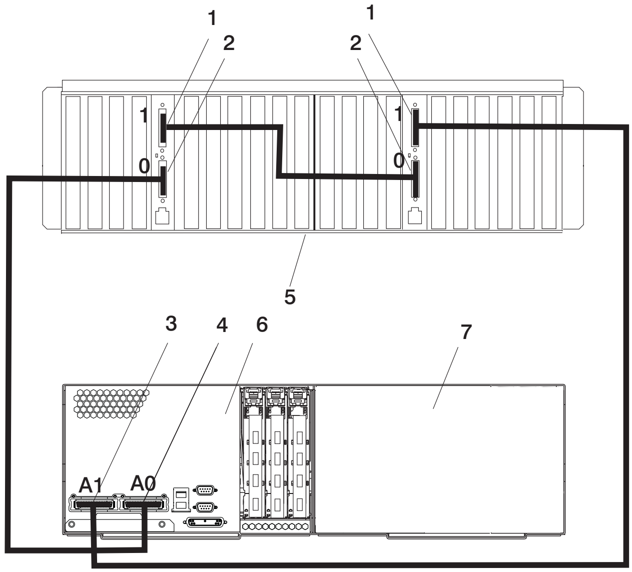
The following illustration shows cabling for an I/O subsystem connecting to two processor subsystems for the performance priority (split I/O drawer) mode.



1 I/O Subsystem Port 1
2 I/O Subsystem Port 0
3 RIO Port A0
4 RIO Port A1
5 7040 Model 61D I/O Subsystem
6 pSeries 655 Model 651

Cabling I/O Subsystem to Processor Subsystem (Looped)

The following illustration shows cabling for an I/O subsystem connecting a processor subsystem for the fail-safe (looped) mode.



1 I/O Subsystem Port 1
2 I/O Subsystem Port 0
3 RIO Port A0
4 RIO Port A1
5 7040 Model 61D I/O Subsystem
6 pSeries 655 Model 651
7 Empty

I/O Subsystem Cabling

The I/O drawers can be installed in any open location in the frame. There are no fixed locations for I/O subsystems. The I/O drawer should be installed as close as possible to the processor subsystem that it will be connected to (either above or below the processor subsystem).

The UPIC cables are connected to BPA A and B using the UPIC cable connections identified for the processor subsystem in the U location in the frame. For example, an I/O subsystem installed in frame location U19 will be identified as U1.19. The I/O subsystem is attached to the BPA connections from:

- DCA 1 to BPD1-A and BPD1-B connector P09
- DCA 2 to BPD1-A and BPD1-B connector P08

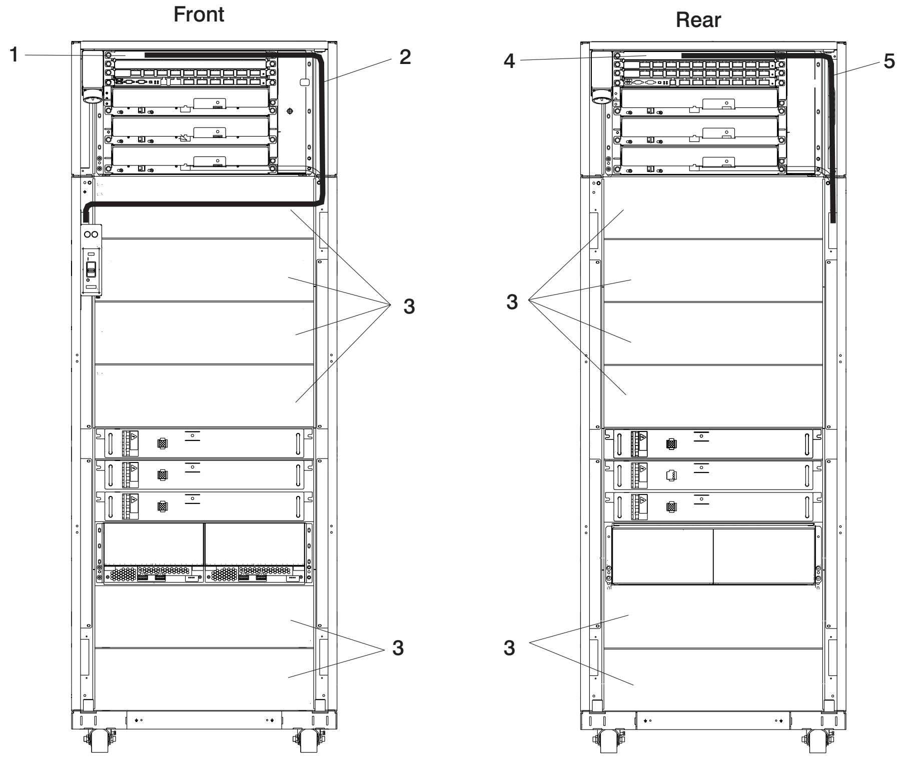
The following subsections show examples of I/O subsystem cabling for performance priority and fail-safe modes.

Power Distribution Cabling

Power to the I/O subsystems, DCAs, fans, IBFs, and optional BPJs is connected from the bulk power distribution connectors to each subsystem through cables.

Bulk Power Jumper (BPJ) Cabling

The following illustration shows the cabling from a BPJ to another BPJ.



1 BPJ Cable Connector (Front of Rack)

2 BPJ Cable Route at Front of Rack

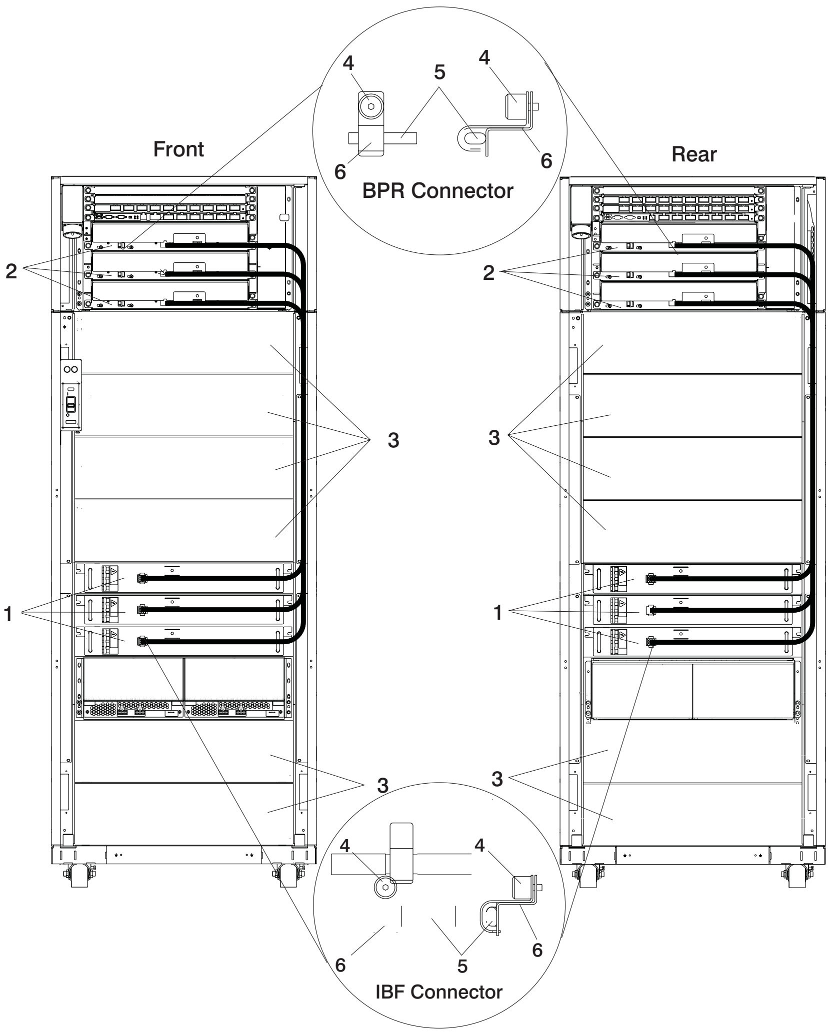
3 Processor Subsystem or I/O Subsystem

4 BPJ Cable Connector (Rear of Rack)

5 BPJ Cable Route at Rear of Rack

Integrated Battery Feature (IBF) Cabling

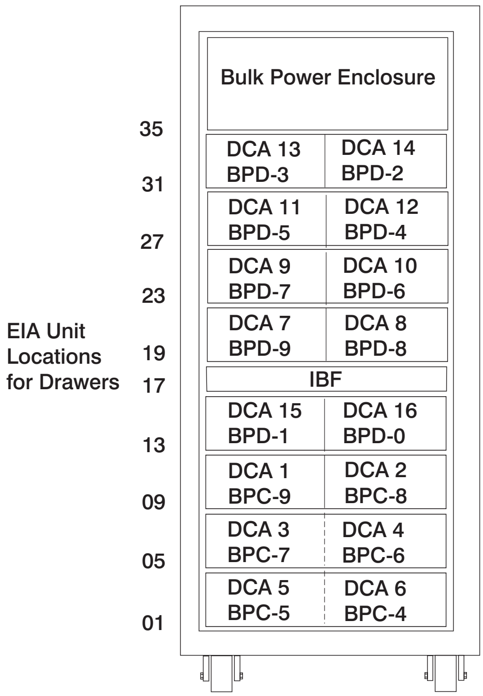
The following illustration shows the cabling from the bulk power regulators (BPRs) to the IBFs in a maximum configuration of IBFs on a system rack. The IBF is optional.



1 IBF (Optional, 6 maximum)
2 BPR
3 Processor Subsystem or I/O Subsystem
4 Captive Screw
5 Cable
6 Bracket

BPC, BPD, and DCA Power Cabling

The following illustration shows the rack configurations, placement code sequence, and assigned BPC and BPD connections. Use this illustration and the following table to determine the routing of power cables and the part numbers for the power cables.



Processor Subsystem Power Cable Routing

The following table lists the BPC and BPD power connectors, processor subsystem locations, power cable part numbers, and DCA connector descriptions and locations.

Cable from Power Subsystem Connector	Cable to Subsystem (Processor or I/O Location Code)	Power Subsystem Cable Part Number	Connector Description
P09	U1.9	44P1876	DCA 1 BPC (A-9) to Left DCA at EIA position 9
		44P1877	DCA 1 BPC (B-9) to Left DCA at EIA position 9
P08	U1.10	44P1878	DCA 2 BPC (A-8) to Right DCA at EIA position 9
		44P1879	DCA 2 BPC (B-8) to Right DCA at EIA position 9

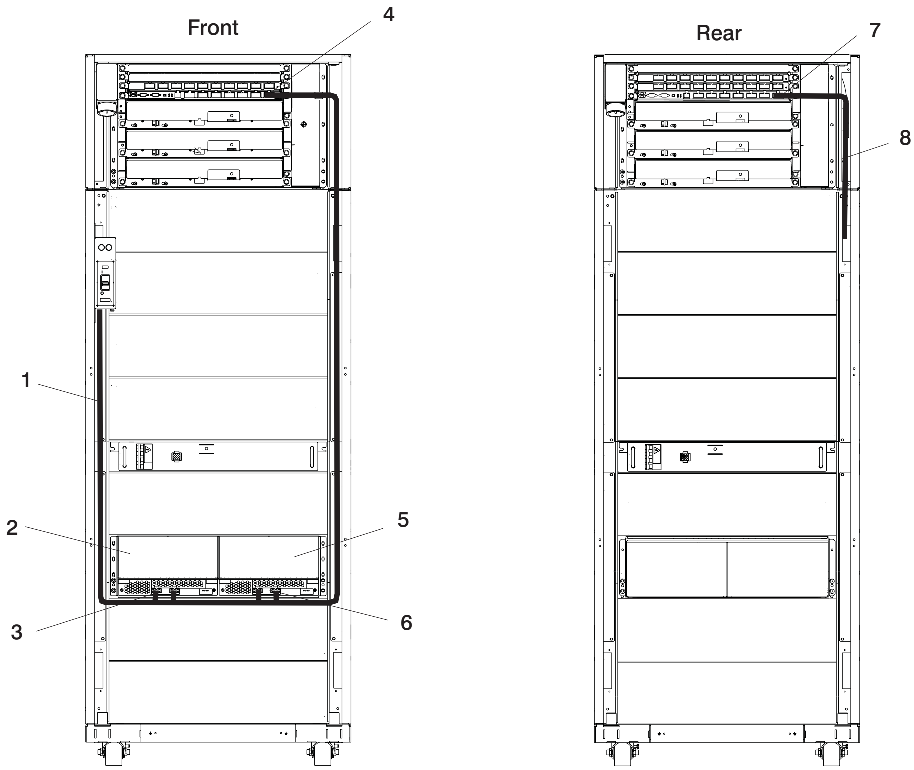
Cable from Power Subsystem Connector	Cable to Subsystem (Processor or I/O Location Code)	Power Subsystem Cable Part Number	Connector Description
P07	U1.5	44P2212	DCA 3 BPC (A-7) to Left DCA at EIA position 5
		44P2213	DCA 3 BPC (B-7) to Left DCA at EIA position 5
P06	U1.6	44P2212	DCA 4 BPC (A-6) to Right DCA at EIA position 5
		44P2213	DCA 4 BPC (B-6) to Right DCA at EIA position 5
P05	U1.1	44P2212	DCA 5 BPC (A-5) to Left DCA at EIA position 1
		44P2213	DCA 5 BPC (B-5) to Left DCA at EIA position 1
P04	U1.2	44P2212	DCA 6 BPC (A-4) to Right DCA at EIA position 1
		44P2213	DCA 6 BPC (B-4) to Right DCA at EIA position 1
P09	U1.19	44P1888	DCA 7 BPD (A-9) to Left DCA at EIA position 19
		44P1889	DCA 7 BPD (B-9) to Left DCA at EIA position 19
P08	U1.20	44P1890	DCA 8 BPD (A-8) to Right DCA at EIA position 19
		44P1891	DCA 8 BPD (B-8) to Right DCA at EIA position 19
P07	U1.23	44P1898	DCA 9 BPD (A-7) to Left DCA at EIA position 23
		44P1899	DCA 9 BPD (B-7) to Left DCA at EIA position 23
P06	U1.24	44P1900	DCA 10 BPD (A-6) to Right DCA at EIA position 23
		44P1901	DCA 10 BPD (B-6) to Right DCA at EIA position 23
P05	U1.27	44P1902	DCA 11 BPD (A-5) to Left DCA at EIA position 27
		44P1903	DCA 11 BPD (B-5) to Left DCA at EIA position 27
P04	U1.28	44P1904	DCA 12 BPD (A-4) to Right DCA at EIA position 27
		44P1905	DCA 12 BPD (B-4) to Right DCA at EIA position 27

Cable from Power Subsystem Connector	Cable to Subsystem (Processor or I/O Location Code)	Power Subsystem Cable Part Number	Connector Description
P03	U1.31	44P1906	DCA 13 BPD (A-3) to Left DCA at EIA position 31
		44P1907	DCA 13 BPD (B-3) to Left DCA at EIA position 31
P02	U1.32	44P1908	DCA 14 BPD (A-2) to Right DCA at EIA position 31
		44P1909	DCA 14 BPD (B-2) to Right DCA at EIA position 31
P01	U1.13	44P1910	DCA 15 BPD (A-1) to Left DCA at EIA position 13
		44P1911	DCA 15 BPD (B-1) to Left DCA at EIA position 13
P00	U1.14	44P1912	DCA 16 BPD (A-0) to Right DCA at EIA position 13
		44P1913	DCA 16 BPD (B-0) to Right DCA at EIA position 13

Notes:
1. P10 connector is not used.
2. Cable clamp (part number 11P4606) is used with all cables.
3. Cable hook-and-loop fastener (part number 07H6655) is used with all cables.

Power Cable Routing for Processor Subsystems 1 and 2

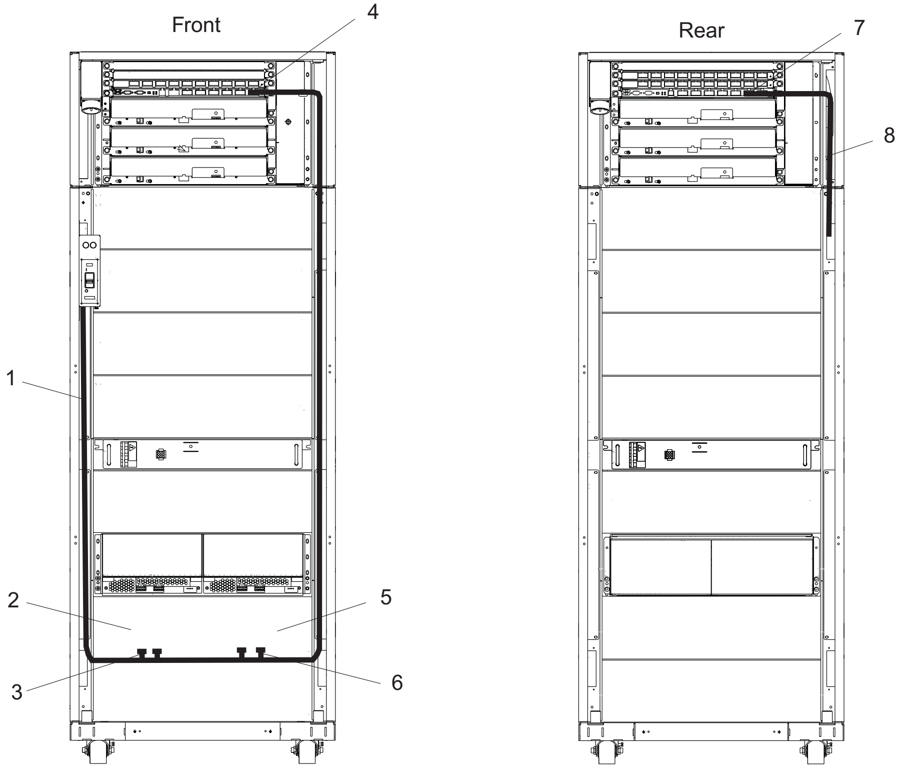
The following illustration shows power cable routing for processor subsystems 1 and 2.



1 Power Cable Route (Front)
2 Processor Subsystem 1
3 DCA 1 (P0 and P1 Connectors)
4 BPC A (A9 and B9 Connector)
5 Processor Subsystem 2
6 DCA 2 (P0 and P1 Connectors)
7 BPC B (A8 and B8 Connector)
8 Power Cable Route (Rear)

Power Cable Routing for Processor Subsystems 3 and 4

The following illustration shows processor subsystems 3 and 4 power cable routing in the rack.

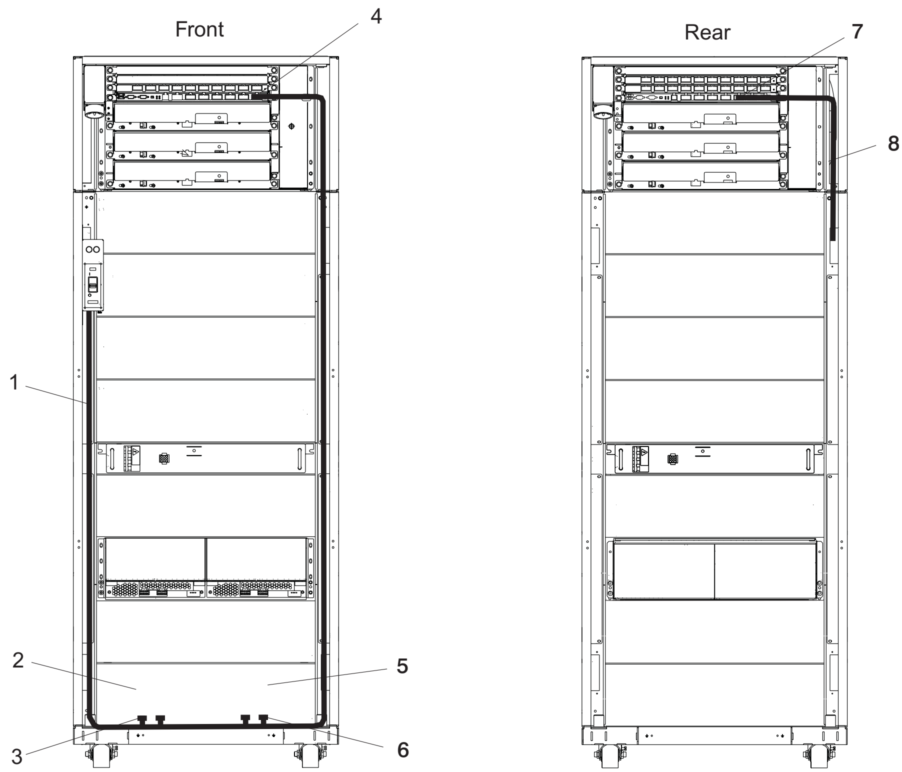


1 Power Cable Route (Front)
2 Processor Subsystem 3
3 DCA 3 (P0 and P1 Connectors)
4 BPC A (A7 and B7 Connector)
5 Processor Subsystem 4
6 DCA 4 (P0 and P1 Connectors)
7 BPC B (A6 and B6 Connector)
8 Power Cable Route (Rear)

Note: An I/O Subsystem may be substituted for Processor Subsystems (items 2 and 5).

Power Cable Routing for Processor Subsystems 5 and 6

The following illustration shows processor subsystems 5 and 6 power cable routing in the rack.

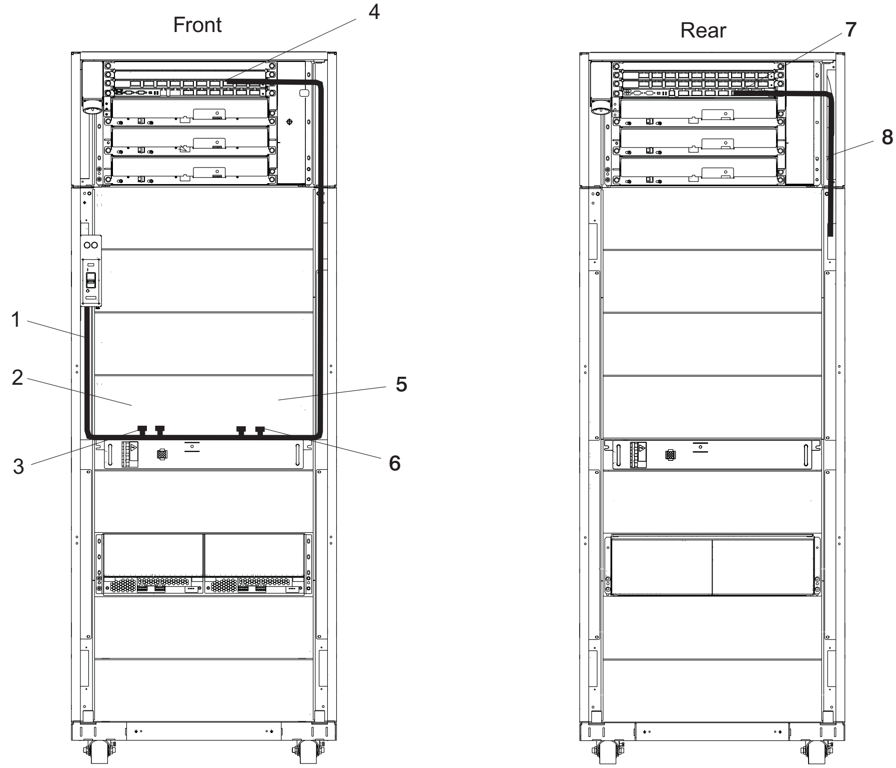


1 Power Cable Route (Front)
2 Processor Subsystem 5
3 DCA 5 (P0 and P1 Connectors)
4 BPC A (A5 and B5 Connector)
5 Processor Subsystem 6
6 DCA 6 (P0 and P1 Connectors)
7 BPC B (A4 and B4 Connector)
8 Power Cable Route (Rear)

Note: An I/O Subsystem may be substituted for Processor Subsystems (items 2 and 5).

Power Cable Routing for Processor Subsystems 7 and 8

The following illustration shows processor subsystems 7 and 8 power cable routing in the rack.

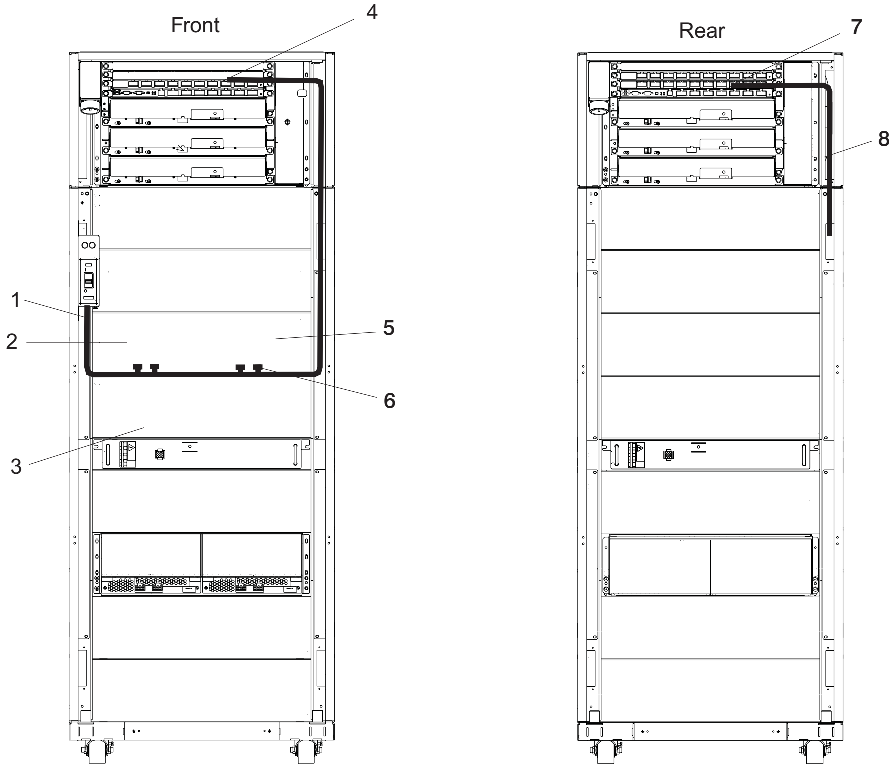


1 Power Cable Route (Front)
2 Processor Subsystem 7
3 DCA 7 (P0 and P1 Connectors)
4 BPC A (A9 and B9 Connector)
5 Processor Subsystem 8
6 DCA 8 (P0 and P1 Connectors)
7 BPC B (A8 and B8 Connector)
8 Power Cable Route (Rear)

Note: An I/O Subsystem may be substituted for Processor Subsystems (items 2 and 5).

Power Cable Routing for Processor Subsystems 9 and 10

The following illustration shows processor subsystems 9 and 10 power cable routing in the rack.

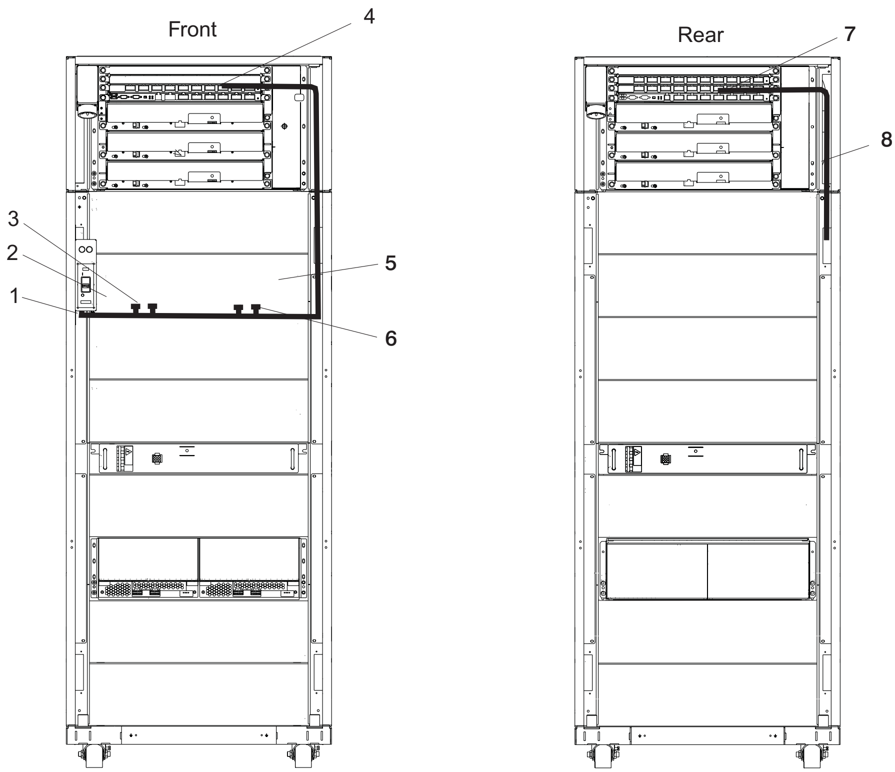


1 Power Cable Route (Front)
2 Processor Subsystem 9
3 DCA 9 (P0 and P1 Connectors)
4 BPC A (A7 and B7 Connector)
5 Processor Subsystem 10
6 DCA 10 (P0 and P1 Connectors)
7 BPC B (A6 and B6 Connector)
8 Power Cable Route (Rear)

Note: An I/O Subsystem may be substituted for Processor Subsystems (items 2 and 5).

Power Cable Routing for Processor Subsystems 11 and 12

The following illustration shows processor subsystems 11 and 12 power cable routing in the rack.

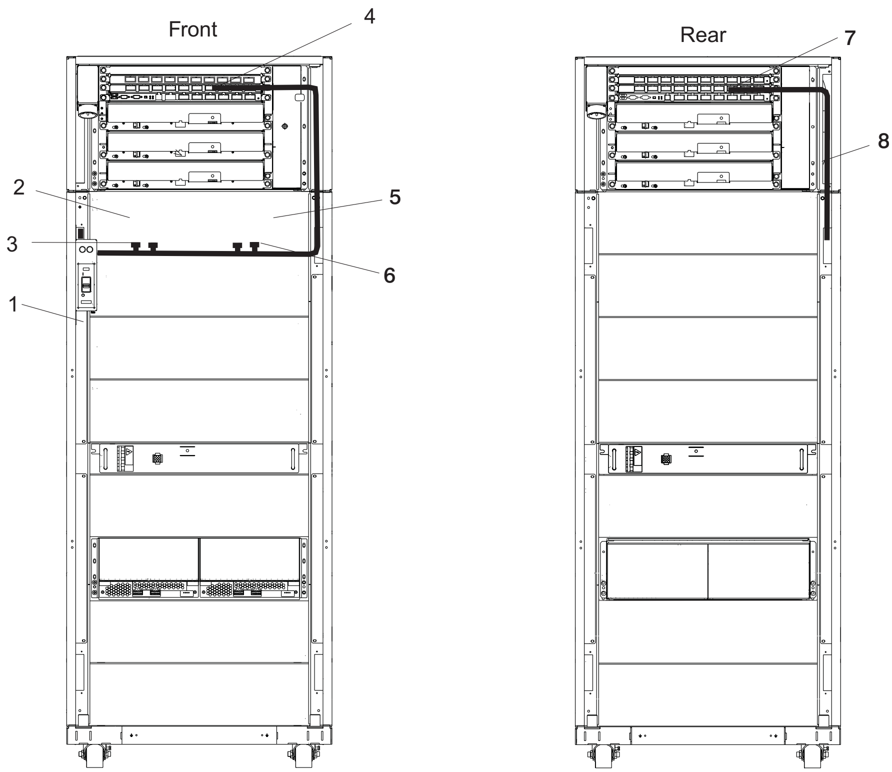


- **1** Power Cable Route (Front)
- **2** Processor Subsystem 11
- **3** DCA 11 (P0 and P1 Connectors)
- **4** BPC A (A5 and B4 Connector)
- **5** Processor Subsystem 12
- **6** DCA 12 (P0 and P1 Connectors)
- **7** BPC B (A4 and B4 Connector)
- **8** Power Cable Route (Rear)

Note: An I/O Subsystem may be substituted for Processor Subsystems (items 2 and 5).

Power Cable Routing for Processor Subsystems 13 and 14

The following illustration shows processor subsystems 13 and 14 power cable routing in the rack.

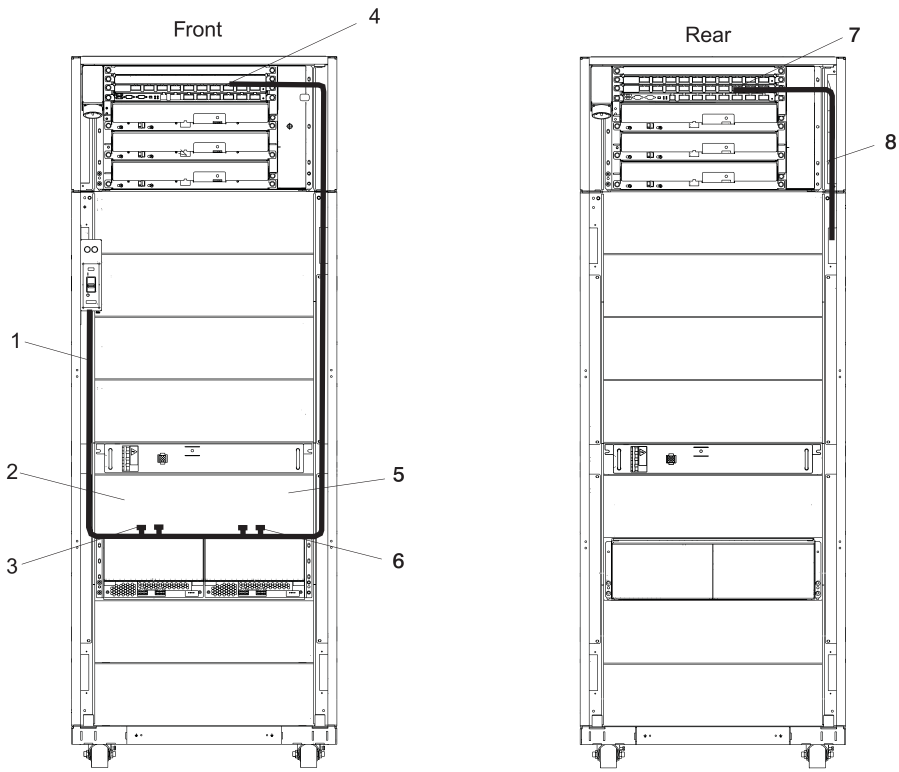


1 Power Cable Route (Front)
2 Processor Subsystem 13
3 DCA 13 (P0 and P1 Connectors)
4 BPC A (A3 and B3 Connector)
5 Processor Subsystem 14
6 DCA 14 (P0 and P1 Connectors)
7 BPC B (A2 and B2 Connector)
8 Power Cable Route (Rear)

Note: An I/O Subsystem may be substituted for Processor Subsystems (items 2 and 5).

Power Cable Routing for Processor Subsystems 15 and 16

The following illustration shows processor subsystems 15 and 16 power cable routing in the rack.



1 Power Cable Route
2 Processor Subsystem 1
3 DCA 15 (P0 and P1 Connectors)
4 BPC A (A1 and B1 Connector)
5 Processor Subsystem 2
6 DCA 16 (P0 and P1 Connectors)
7 BPC B (A0 and B0 Connector)
8 Power Cable Route (Rear)

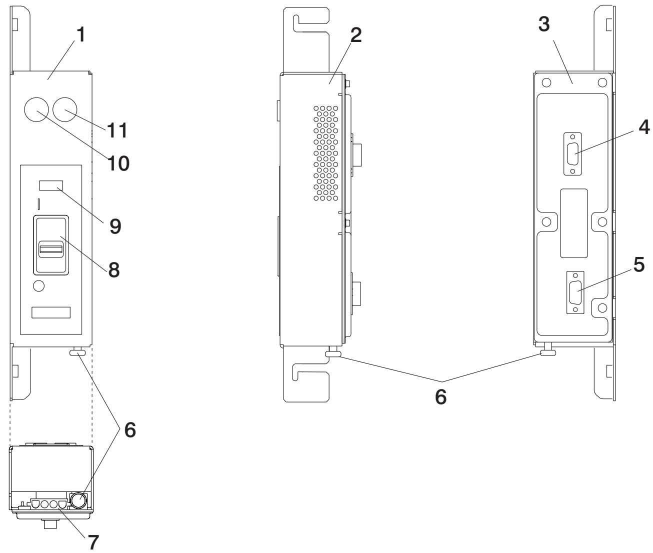
Note: An I/O Subsystem or IBFs may be substituted for Processor Subsystems (items 2 and 5).

Unit Emergency Power Off (UEPO) Switch

The UEPO switch is accessible through the external cover. The switch contains the following:

- Room emergency power off (EPO) interlock connector and bypass switch
- Dual element rack service amber LED (one element driven per bulk power controller)
- Service complete button (white)
- Start service (green) button
- Off button
- Four thermistors for BPC ambient temperature sensing

The UEPO switch is shown in the following illustration.



1	UEPO Front Panel	**7**	J02 Connector
2	UEPO Side Panel	**8**	Power Switch
3	UEPO Rear Panel	**9**	System Fault LED
4	J00 Connector Front BPA (Rear)	**10**	Start Service Button (Green)
5	J01 Connector Rear BPA (Rear)	**11**	Service Complete Button (White)
6	Room EPO Bypass Interlock		

The UEPO switch disables 350 V bulk power conversion and isolates all battery power to the battery compartments, without having to disconnect the heavy line cords under the customer's raised floor.

CAUTION:
Hazardous ac Voltage is present within the BPA with the UEPO off. Hazardous dc voltage is also present on IBF connectors on all BPRs with the UEPO off. Under normal conditions, access to these voltages is restricted. Use caution when servicing BPA components.
C33

At the system level, the UEPO switch is connected to each of the two BPCs through two interface connectors. The switch can be concurrently replaced by forcing the BPCs into UEPO bypass mode, using the small slide switches on the face of the BPCs. The switch is mounted in the side pocket area of the rack and remains stationary when the front cover of the system is opened.

The service buttons are used by service personnel to repair the power subsystem. If the system is off when the service complete button is pressed, the system will power on. A sliding plastic cover over the red switch prevents it from being accidentally activated in the user environment.

Hardware Management Console (HMC)

The Hardware Management Console (HMC) supports the system with features that allow you to manage configuration and operation of the system. For details on how to use the HMC to manage the system, refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

Logical and Physical Locations

ThepSeries 655 system uses physical location codes in conjunction with AIX location codes to provide mapping of the failing field replaceable units (FRUs). The location codes are produced by the system's firmware and the AIX operating system.

Physical Location Codes

Physical location codes provide a mapping of logical functions in a platform (or expansion sites for logical functions, such as connectors or ports) to their specific locations within the physical structure of the platform.

Location Code Format

The format for the location code is a string of alphanumeric characters separated by a dash (-), slash (/), pound sign (#) or period (.) character. The base location is all of the information preceding the slash (/) or pound sign (#). The base location identifies a device that is connected to or plugged into the parent. Extended location information follows the slash (/). Extended location information identifies a device that is part of the parent, a connector, or a cable. Cable information follows the pound sign (#). Cable information identifies a cable that is connected to parent. The following are examples:

- P1-C1 identifies a processor card C1 (MCM) plugged into planar (backplane) P1.
- P1-M1 identifies a memory card (book) M1 plugged into planar (backplane) P1.
- P1-H2/S1 identifies serial port 1 controller on planar (backplane) P1, the connector for serial port 1, the cable attached to serial port 1 would be represented by a # sign after the S1.
- P1-I2/E3 identifies a Ethernet controller 3 on the card in slot 2 (I2) on planar (backplane) P1, the connector for Ethernet controller 3, or the cable attached to Ethernet controller 3.
- P1-I2#E3 identifies the cable attached to Ethernet controller 3 on the card in slot 2 (I2) on planar (backplane) P1.

The period (.) identifies sublocations (SCSI addresses, cables). The following are examples:

- P1-C1.1 identifies processor 1 on processor card (MCM) plugged into planar (backplane) P1.
- P2-Z1-A3.1 identifies a SCSI device with SCSI address of LUN 1 at SCSI ID 3 attached to SCSI bus 1 from planar (backplane) 2.

- P1-I2#E3.2 identifies the second in a series of cables attached to Ethernet controller 3 on the card in slot 2 (I2) on planar (backplane) P1.

Depending on the AIX and firmware levels, AIX diagnostics may include the extended location information when identifying a planar (backplane) or card. The extended location information or cable information is always included when identifying a cable or connector. Location codes with extended location information that are displayed without a description identifying the devices always identify the cable attached to the port.

Multiple FRU Callout Instructions

If an eight-digit error code displays in the operator panel value on the HMC or in Chapter 5, “Error Code to FRU Index”, on page 345, a location code for a failing part may also be specified. If the location code includes a blank space followed by a lowercase *x* followed by a number; this is an error code with multiple FRU callouts. This error can typically happen with memory books or processors, and might involve mixed types of parts. In this case, check the system’s configuration for FRU part numbers to determine the appropriate set of FRUs.

You can determine the FRU part numbers of the electronic assemblies in the entire system by using the service processor menus. From the General User menu, select **Read VPD Image from Last System Boot**, then enter `90` to display detailed Vital Product Data (VPD).

You can determine the FRU part numbers of the electronic assemblies in a partition by using the **lscfg -vp | pg** command on the AIX command line to display the detailed VPD of all assemblies. Notice that the FRU part number information for processors and memory books may be at the bottom of the command output.

FRU Identify LEDs

This system is configured with an arrangement of LEDs that help identify various components of the system. These include, but are not limited to:

- Rack identify LED
- Processor subsystem drawer identify LED
- I/O drawer identify LED
- RIO port identify LED
- FRU identify LED
  - Power subsystem FRUs
  - Processor subsystem FRUs
  - I/O subsystem FRUs
- I/O adapter identify LED
- DASD identify LED

The identify LEDs are arranged hierarchically with the FRU identify LED at the bottom of the hierarchy, followed by the corresponding processor subsystem or I/O drawer identify LED, and the corresponding rack-identify LED to locate the failing FRU more easily.

Any identify LED in the system may be flashed (when the processor subsystem is in the failed state and power is on).by using the service processor LED Control Menu contained in the System Information Menu of the Privileged User Menus. To use operate the LED Control Menu, see page 453.

Any identify LED in the system can also be flashed by using the Identify and Attention Indicators task in diagnostics. The procedure to use the Identify and Attention Indicators task in diagnostics is outlined in *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

If the service processor menus and AIX diagnostics are not available, the FRU identify LEDs can be flashed by one of the following procedures:

- If the system is configured as a full partition, the system may be booted to the open firmware prompt and the command **FRU-LED-MENU** entered. A menu displays that allows you to enable the desired FRU identify LED. See “System Power Control Menu” on page 445 for instructions on setting up the boot mode to enable the boot to the open firmware prompt.
- If the system is logically partitioned, the HMC must be attached. You can use the HMC to enable any FRU identify LED to be flashed. See the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for instructions on activating and deactivating a FRU identify LED.

AIX Location Codes

The basic formats of the AIX location codes are as follows:

- For non-SCSI devices/drives:
  AB-CD-EF-GH
- For SCSI devices/drives:
  AB-CD-EF-G,H

Non-SCSI Devices

For planars (backplanes), cards, and non-SCSI devices, the location code is defined as follows:

```
AB-CD-EF-GH
 |  |  |  |
 |  |  |  Device/FRU/Port ID
 |  |  Connector ID
 |  devfunc Number, Adapter Number or Physical Location
 Bus Type or PCI Parent Bus
```

- The AB value identifies a bus type or PCI parent bus as assigned by the firmware.
- The CD value identifies adapter number, adapter's devfunc number, or physical location. The devfunc number is defined as the PCI device number times 8, plus the function number.
- The EF value identifies a connector.
- The GH value identifies a port, address, device, or FRU.

Adapters and cards are identified only with AB-CD.

The possible values for CD depend on the adapter/card. For pluggable PCI adapters/cards, CD is the device's devfunc number (PCI device number times 8, plus the function number). The C and D are characters in the range of 0-9, and A-F (hex numbers). The location codes therefore uniquely identify multiple adapters on individual PCI cards.

EF is the connector ID, used to identify the adapter's connector to which a resource is attached.

GH is used to identify a port, device, or FRU. For example:

- For asynchronous devices, GH defines the port on the fanout box. The values are 00 to 15.
- For a diskette drive, H identifies either diskette drive 1 or 2. G is always 0.
- For all other devices, GH is equal to 00.

For integrated adapter, EF-GH is the same as the definition for a pluggable adapter. For example, the location code for a diskette drive is 01-D1-00-00. A second diskette drive is 01-D1-00-01.

SCSI Devices

For SCSI devices, the location code is defined as follows:

```
AB-CD-EF-G,H
 |  |  | | |
 |  |  | | Logical Unit address of the SCSI Device
 |  |  | Control Unit Address of the SCSI Device
 |  |  Connector ID
 |  devfunc Number, Adapter Number or Physical Location
 Bus Type or PCI Parent Bus
```

Where:

- AB-CD-EF are the same as non-SCSI devices.
- G defines the control unit address of the device. Values of 0 to 15 are valid.
- H defines the logical unit address of the device. Values of 0 to 255 are valid.

A bus location code is also generated as '00-XXXXXXXX', where XXXXXXXX is equivalent to the node's unit address.

Examples of physical location codes and AIX location codes are:

PCI adapter in first I/O subsystem, slot 1 (primary rack):
- Physical location code U1.9-P1-I1
- AIX location code 2V-08

PCI adapter in fifth I/O subsystem, slot 1 (secondary rack):
- Location Code U2.1-P1-I1
- AIX location Code 8V-08

Determining the AIX Location Code of a Physical Slot

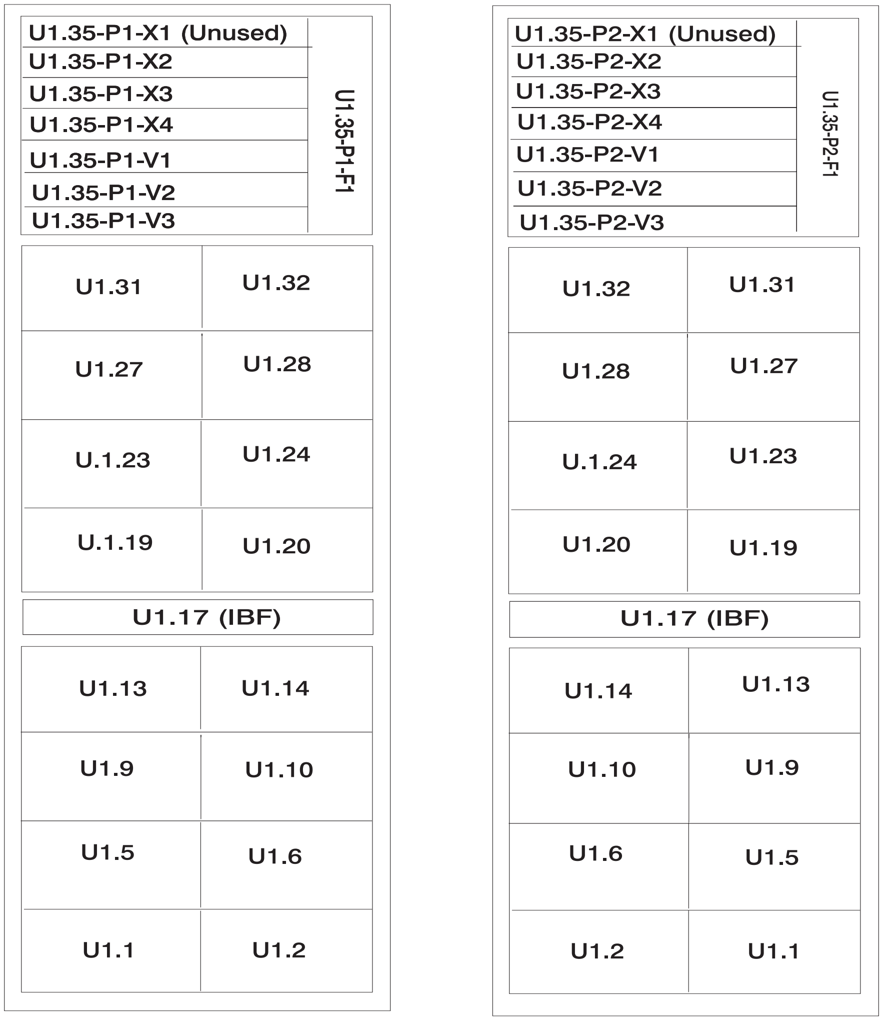
Every slot of every I/O drawer has a unique AIX location code assigned to it. For instance, the PCI adapter in the left slot 1 of I/O subsystem 1 is 2V-08.

If you have only the AIX location code, you can determine which is the associated I/O subsystem by performing the following steps at the AIX *root* command prompt.

1. Enter the command `lsdev -Ccadapter |pg`. The resulting list that is displayed gives the logical AIX name of all resources and the corresponding AIX location code. Look for the desired AIX location code and record the corresponding AIX logical name of the resource.
2. Enter the command `lsslot -c pci |pg`. A list is displayed that relates the AIX logical name of all resources to location code. Look for the AIX logical name that you recorded from the step above, and read the location code of the resource. You can then determine the physical location of the resource by flashing the FRU identify LED corresponding to the location code (see "FRU Identify LED" on page 12).

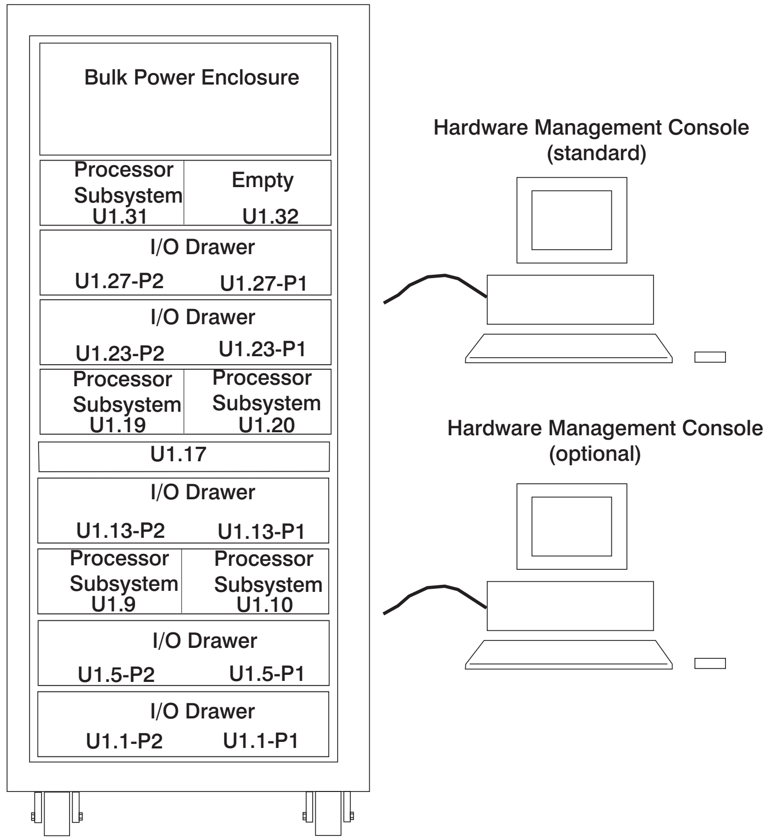
AIX and Physical Location Code Reference

The following illustration shows the location codes for a typical server configuration with the maximum of 16 processor subsystems. These codes are used to identify the major functional units in the system rack.



Front Rear

The following illustration shows the location codes for a maximum I/O configuration with five processor subsystems and five I/O drawers.



Notes:

1. A sixth processor subsystem may be installed in location U1.32, but a dedicated, full-drawer I/O subsystem for this sixth processor subsystem is not available. If a sixth processor subsystem is installed to share half of one of the I/O subsystems with another processor subsystem, the sixth processor subsystem would have access to half of an I/O subsystem.
2. If IBFs are installed, the following applies:
   - The first and second IBF must be installed in location U1.13-P1 and U1.13-P2
   - The third and fourth IBF must be installed in location U1.15-P1 and U1.15-P2
   - Location U1.17 is reserved for the fifth and sixth IBF. If only one to four IBFs are installed, location U1.17 remains empty.
3. The I/O drawers can be installed in any open location in the frame. There are no fixed locations for I/O subsystems. The I/O drawer should be installed as close as possible to the processor subsystem that it will be connected to, either above or below the processor subsystem.

Processor Subsystem Location Codes to Cage ID Cross-Reference

The following table provides cross-references for processor subsystem location codes to cage IDs.

Location Code	Cage ID
U1.1	1
U1.2	2
U1.5	3
U1.6	4
U1.9	5
U1.10	6
U1.13	7
U1.14	8
U1.19	9
U1.20	10
U1.23	11
U1.24	12
U1.25	13
U1.28	14
U1.31	15
U1.32	16

BPA Location Codes

FRU Name	Location Code	AIX Location Code
System Rack	(MT/M Serial #) U1	
Bulk Power Subsystem 1 Locations		
Bulk Power Enclosure A (front)	U1.35	
BPE Backplane A	U1.35-P1	
AC to BPE (A) Line Cord Connector	U1.35-P1/Q1	
AC to BPE (A) Line Cord	U1.35-P1/Q1#	
Bulk Power Reg 1 (BPR)	U1.35-P1-V1	
BPR 1 Connector	U1.35-P1-V1/Q1	
BPR 1 Cable to IBF 1A	U1.35-P1-V1/Q1#	
Bulk Power Reg 2 (BPR)	U1.35-P1-V2	
BPR 2 Connector	U1.35-P1-V2/Q1	
BPR 2 Cable to IBF 1A	U1.35-P1-V2/Q1#	
Bulk Power Regulator 3	U1.35-P1-V3/Q1	
BPR3 Connector	U1.35-P1-V3/Q1#	

FRU Name	Location Code	AIX Location Code
Bulk Power Distributor 3 (Unused)	**U1.35-P1-X1**	
BPD connector to port 1 to Frame Z - Spare	U1.35-P1–X1/Q1	
Spare Cable	U1.35-P1-X1/Q1#	
Spare Cable	U1.35-P1-X1/Q2	
Spare	U1.35-P1-X1/Q2	
Spare Cable	U1.35-P1-X1/Q2#	
Spare	U1.35-P1-X1/Q3	
Spare Cable	U1.35-P1-X1/Q3#	
Spare	U1.35-P1-X1/Q4	
Spare Cable	U1.35-P1-X1/Q4#	
Spare	U1.35-P1-X1/Q5	
Spare Cable	U1.35-P1-X1/Q5#	
Spare	U1.35-P1-X1/Q6	
Spare Cable	U1.35-P1-X1/Q6#	
Spare	U1.35-P1-X1/Q7	
Spare Cable	U1.35-P1-X1/Q7#	
Spare	U1.35-P1-X1/Q8	
Spare Cable	U1.35-P1-X1/Q8#	
Spare	U1.35-P1-X1/Q9	
Spare Cable	U1.35-P1-X1/Q9#	
Spare	U1.35-P1-X1/Q10	
Spare Cable	U1.35-P1-X1/Q10#	
Bulk Power Distributor 2 (Not Used)	**U1.35-P1-X2**	
P00	U1.35-P1-X2/Q1	
P00 Cable	U1.35-P1-X2/Q1#	
P01	U1.35-P1-X2/Q2	
P01 Cable	U1.35-P1-X2/Q2#	
P02	U1.35-P1-X2/Q3	
P02 Cable	U1.35-P1-X2/Q3#	
P03	U1.35-P1-X2/Q4	
P03 Cable	U1.35-P1-X2/Q4#	
P04	U1.35-P1-X2/Q5	
P04 Cable	U1.35-P1-X2/Q5#	
P05	U1.35-P1-X2/Q6	
P05 Cable	U1.35-P1-X2/Q6#	

FRU Name	Location Code	AIX Location Code
P06	U1.35-P1-X2/Q7#	
P06 Cable	U1.35-P1-X2/Q7#	
P07	U1.35-P1-X2/Q8	
P07 Cable	U1.35-P1-X3/Q8#	
P08	U1.35-P1-X2/Q9	
P08 Cable	U1.35-P1-X2/Q9#	
P09	U1.35-P1-X2/Q10	
P09 Cable	U1.35-P1-X2/Q10#	
Bulk Power BPJ to BPJ. Only installed when more than 10 processor subsystems are installed in the rack.		
BPJ Connector	U1.35-P1-X2/Q1	
BPJ to BPJ Cable	U1.35-P1-X2/Q1#	
Bulk Power Distributor 1	**U1.35-P1-X3**	
P00 Connector 1, Processor Subsystem 16 (DCA 16)	U1.35-P1-X3/Q1	
P00 Cable	U1.35-P1-X3/Q1#	
P01 Connector 2, Processor Subsystem 15 (DCA 15)	U1.35-P1-X3/Q2	
P01 Cable	U1.35-P1-X3Q2#	
P02 Connector 3, Processor Subsystem 14 (DCA 14)	U1.35-P1-X3/Q3	
P02 Cable	U1.35-P1-X3/Q3#	
P03 Connector 4, Processor Subsystem 13 (DCA 13)	U1.35-P1-X3/Q4	
P03 Cable	U1.35-P1-X3/Q4#	
P04 Connector 5, Processor Subsystem 12 (DCA 12)	U1.35-P1-X3/Q5	
P04 Cable	U1.35-P1-X3/Q5#	
P05 Connector 6, Processor Subsystem 11 (DCA 11)	U1.35-P1-X3/Q6	
P05 Cable	U1.35-P1-X3/Q6#	
P06 Connector 7, Processor Subsystem 10 (DCA 10)	U1.35-P1-X3/Q7	
P06 Cable	U1.35-P1-X3/Q7#	
P07 Connector 8, Processor Subsystem 9 (DCA 9)	U1.35-P1-X3/Q8	
P07 Cable	U1.35-P1-X3/Q8#	
P08 Connector 9, Processor Subsystem 8 (DCA 8)	U1.35-P1-X3/Q9	

FRU Name	Location Code	AIX Location Code
P08 Cable	U1.35-P1-X3/Q9#	
P09 Connector 10, Processor Subsystem 7 (DCA 7)	U1.35-P1-X3/Q10	
P09 Cable	U1.35-P1-X3/Q10#	
Bulk Power Controller A	**U1.35-P1-X4**	
P03 Connector 1, P03 Not Used	U1.35-P1-X4/Q1	
P03 Cable	U1.35-P1-X4/Q1#	
P004 Connector 2 to Processor Subsystem 6 (DCA6)	U1.35-P1-X4/Q2	
P04 Cable	U1.35-P1-X4/Q2#	
P05 Connector 3 to Processor Subsystem 5 (DCA 4)	U1.35-P1-X4/Q3	
P05 Cable	U1.35-P1-X4/Q3#	
P06 Connector 4 to Processor Subsystem 4 (DCA4)	U1.35-P1-X4/Q4	
P06 Cable	U1.35-P1-X4/Q4#	
P07 Connector 5 to Processor Subsystem 3 (DCA 3)	U1.35-P1-X4/Q5	
P07 Cable	U1.35-P1-X4/Q5#	
P08 Connector 6 to Processor Subsystem 2 (DCA 2)	U1.35-P1-X4/Q6	
P08 Cable	U1.35-P1-X4/Q6#	
P09 Connector 7 to Processor Subsystem 1 (DCA 1)	U1.35-P1-X4/Q7	
P09 Cable	U1.35-P1-X4/Q7#	
UEPO Switch	U1	
BPC A To UEPO A Connector	U1-Q2	
BPC A To UEPO A Cable	U1-Q2#	
Uart	U1.35-P1-X4/Q11	
EPO	U1.35-P1-X4/Q8	
UPS	U1.35-P1-X4/Q9	
BPF to BPF	U1.35-P1-X4/Q10	
BPC to BPF Connector	U1.35-P1-X4/Q11	
BPC to BPF Cabler	U1.35-P1-X4/Q11#	
Bulk Power Enclosure B (Rear)	**U1.35**	
BPE Backplane B	U1.35-P2	
AC TO BPE (A) Line Cord Connector	U1.35-P2/Q1	
AC TO BPE (A) Line Cord	U1.35-P2/Q1#	

FRU Name	Location Code	AIX Location Code
Bulk Power Regulator (BPR) 1	U1.35-P2-V1	
BPR 1 Connector	U1.35-P2-V1/Q1	
BPR 1 cable to IBF 1A	U1.35-P2-V1/Q1#	
Bulk Power Regulator 2	U1.35-P2-V2	
BPR 2 Connector	U1.35-P2-V2/Q1	
BPR 2 Cable to IBF 2A	U1.35-P2-V2/Q1#	
Bulk Power Regulator 3	U1.35-P2-V3	
BPR 3 Connector	U1.35-P2-V3/Q1	
BPR 3 Cable to IBF 3A	U1.35-P2-V3/Q1#	
Bulk Power Distributor 3 (Unused)	**U1.35-P2-X1**	
Spare	U1.35-P2-X1/Q1	
Spare Cable	U1.35-P2-X1/Q1#	
Spare	U1.35-P2-X1/Q2	
Spare Cable	U1.35-P2-X1/Q2#	
Spare	U1.35-P2-X1/Q3	
Spare Cable	U1.35-P2-X1/Q3#	
Spare	U1.35-P2-X1/Q4	
Spare Cable	U1.35-P2-X1/Q4#	
Spare	U1.35-P2-X1/Q5	
Spare Cable	U1.35-P2-X1/Q5#	
Spare	U1.35-P2-X1/Q6	
Spare Cable	U1.35-P2-X1/Q6#	
Spare	U1.35-P2-X1/Q7	
Spare Cable	U1.35-P2-X1/Q7#	
Spare	U1.35-P2-X1/Q8	
Spare Cable	U1.35-P2-X1/Q8#	
Spare	U1.35-P2-X1/Q9	
Spare Cable	U1.35-P2-X1/Q9#	
Spare	U1.35-P2-X1/Q10	
Spare Cable	U1.35-P2-X1/Q10#	
Bulk Power Fan	U1.35-P2-F1	
BPF to BPC Connector	U1.35-P2-F1/Q1	
BPF to BPC Cable	U1.35-P2-F1/Q1#	
Bulk Power Distributor 2	**U1.35-P2-X2**	
P00	U1.35-P1-X2/Q1	
P00 Cable	U1.35-P1-X2/Q1#	
P01	U1.35-P1-X2/Q2	

FRU Name	Location Code	AIX Location Code
P01 Cable	U1.35-P1-X2/Q2#	
P02	U1.35-P1-X2/Q3	
P02 Cable	U1.35-P1-X2/Q3#	
P03	U1.35-P1-X2/Q4	
P03 Cable	U1.35-P1-X2/Q4#	
P04	U1.35-P1-X2/Q5	
P04 Cable	U1.35-P1-X2/Q5#	
P05	U1.35-P1-X2/Q6	
P05 Cable	U1.35-P1-X2/Q6#	
P06	U1.35-P1-X2/Q7	
P06 Cable	U1.35-P1-X2/Q7#	
P07	U1.35-P1-X2/Q8	
P07 Cable	U1.35-P1-X3/Q8#	
P08	U1.35-P1-X2/Q9	
P08 Cable	U1.35-P1-X2/Q9#	
P09	U1.35-P1-X2/Q10	
P09 Cable	U1.35-P1-X2/Q10#	
Bulk Power Distributor 1	**U1.35-P2-X3**	
P00 Connector 1, Processor Subsystem 16 (DCA 16)	U1.35-P2-X3/Q1	
P00 Cable	U1.35-P2-X3/Q1#	
P01 Connector 2, Processor Subsystem 15 (DCA 15)	U1.35-P2-X3/Q2	
P01 Cable	U1.35-P2-X3/Q2#	
P02 Connector 3, Processor Subsystem 14 (DCA 14)	U1.35-P2-X3/Q3	
P02 Cable	U1.35-P2-X3/Q3#	
P03 Connector 4, Processor Subsystem 13 (DCA 13)	U1.35-P2-X3/Q4	
P03 Cable	U1.35-P2-X3/Q4#	
P04 Connector 5, Processor Subsystem 12 (DCA 12)	U1.35-P2-X3/Q5	
P04 Cable	U1.35-P2-X3/Q5#	
P05 Connector 6, Processor Subsystem 11 (DCA 11)	U1.35-P2-X3/Q6	
P05 Cable	U1.35-P2-X3/Q6#	
P06 Connector 7, Processor Subsystem 10 (DCA 10)	U1.35-P2-X3/Q7	
P06 Cable	U1.35-P2-X3/Q7#	

FRU Name	Location Code	AIX Location Code
P07 Connector 8, Processor Subsystem 9 (DCA 9)	U1.35-P2-X3/Q8	
P07 Cable	U1.35-P2-X3/Q8#	
P08 Connector 9, Processor Subsystem 8 (DCA 8)	U1.35-P2-X3/Q9	
P08 Cable	U1.35-P2-X3/Q9#	
P09 Connector 10, Processor Subsystem 7 (DCA 7)	U1.35-P2-X3/Q10	
P09 Cable	U1.35-P2-X3/Q10#	
Bulk Power Controller B	**U1.35-P2-X4**	
P03 Connector 1, P03 Not Used	U1.35-P2-X4/Q1	
P03 Cable	U1.35-P2-X4/Q1#	
P04 Connector 2, Processor Subsystem 6 (DCA 6)	U1.35-P2-X4/Q2	
P04 Cable	U1.35-P2-X4/Q2#	
P05 Connector 3, Processor Subsystem 5 (DCA 5)	U1.35-P2-X4/Q3	
P05 Cable	U1.35-P2-X4/Q3#	
P06 Connector 4, Processor Subsystem 4 (DCA 4)	U1.35-P2-X4/Q4	
P06 Cable	U1.35-P2-X4/Q4#	
P07 Connector 5, Processor Subsystem 3 (DCA 3)	U1.35-P2-X4/Q5	
P07 Cable	U1.35-P2-X4/Q5#	
P08 Connector 6, Processor Subsystem 2 (DCA 2)	U1.35-P2-X4/Q6	
P08 Cable	U1.35-P2-X4/Q6#	
P09 Connector 7, Processor Subsystem 1 (DCA 1)	U1.35-P2-X4/Q7	
P09 Cable	U1.35-P2-X4/Q7#	
UEPO Switch	U1.35-P2-X4/Q8	
BPC A to UEPO A Connector	U1.35-P2-X4/Q8#	
BPC A to UEPO A Cable	U1.35-P2-X4/Q9	
Uart	U1.35-P2-X4/Q9#	
EPO	U1.35-P2-X4/Q10	
UPS	U1.35-P2-X4/Q10#	
BPC to BPF Connector	U1.35-P2-X4/Q11	
BPC to BPF Cable	U1.35-P2-X4/Q11#	
UEPO Switch	U1 - V1	
UEPO to BPC - A Connector	U1 - V1/Q1	

FRU Name	Location Code	AIX Location Code
UEPO to BPC - A Cable	U1 - V1/Q1#	
UEPO to BPC - B Connector	U1 - V1/Q2	
UEPO to BPC - B Cable	U1 - V1/Q2#	

Processor Subsystem 1 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.9	
System Assembly Planar	U1.9-P1	00-00
HMC Serial Port 1	U1.9-P1/S1	
HMC Serial Port 1 Cable	U1.9-P1/S1#	
HMC Serial Port 2	U1.9-P1/S2	
HMC Serial Port 2 Cable	U1.9-P1/S2#	
Drawer VPD (System ID)	U1.9-P1-X1-N1	
Error Logging Smart Chip VPD (L3)	U1.9-P1	
RIO 1 - Port 1 Connector 1	U1.9-P1/Q1	
RIO 1 - Port 1 Connector 1 Cable 1	U1.9-P1/Q1#	
RIO 0 - Port 2 Connector 2	U1.9-P1/Q2	
RIO 0 - Port 2 Connector 2 Cable 2	U1.9-P1/Q2#	
FRU LEDs Block 1	U1.9-P1/L1	
FRU LEDs Block 2	U1.9-P1/L2	
DCA Processor Subsystem	U1.9-V1	
DCA (Processor Subsystem 1) - BPA B to BPC - P09 Connector	U1.9-V1/Q1	
DCA (Processor Subsystem 1) - BPA B to BPC - P09 Cable	U1.9-V1/Q1#	
DCA (Processor Subsystem 1) - BPA A to BPC - P09 Connector	U1.9-V1/Q2	
DCA (Processor Subsystem 1) - BPA A to BPC - P09 Cable	U1.9-V1/Q2#	
Blower 1	U1.9-F1	
MCM Module 0 (4-or 8-way 1.1 GHz)	U1.9-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.9-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.9-P1-C2	00-01

FRU Name	Location Code	AIX Location Code
Processor 2 (w/L1 and L2 Cache)	U1.9-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.9-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.9-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.9-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.9-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.9-P1-C2	00-07
L3 Module (Processor D)	U1.9-P1-C1	00-00
L3 Module (Processor B)	U1.9-P1-C3	00-00
L3 Module (Processor C)	U1.9-P1-C4	00-00
L3 Module (Processor A)	U1.9-P1-C5	00-00
CSP Card	U1.9-P1-X1	
MCM VPD Card	U1.9-P1-X1.1	
Platform Firmware	U1.9-P1-X1/Y1	
NVRAM	U1.9-P1-X1/N1	
NVRAM Battery	U1.9-P1-X1-V1	
Memory Card - Slot 1	U1.9-P1-M1	00-00
Memory Card - Slot 2	U1.9-P1-M2	00-00
Memory Card - Slot 3	U1.9-P1-M3	00-00
Memory Card - Slot 4	U1.9-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.9-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.9-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.9-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.9-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.9-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.9-P2	
DASD 1 Pack Cage and card (1) VPD	U1.9-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.9-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.9-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.9-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.9-P1/Z2-Af	1H

FRU Name	Location Code	AIX Location Code
PHB0 and EADS XPH0 PCI Controller	U1.9-P1	1Y
PCI Slot 1	U1.9-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.9-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.9-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.9-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.9-P1/E2	1c–08
Ethernet Port 2 Cable	U1.9-P1/E2#	
PHB2 and EADS XPH2 PCI Controller	U1.9-P1	1G
PCI Slot 3	U1.9-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 2 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) Ux.y	
System Assembly Planar	U1.10-P1	00-00
HMC Serial Port 1	U1.10-P1/S1	
HMC Serial Port 1 Cable	U1.10-P1/S1#	
HMC Serial Port 2 Connector	U1.10-P1/S2	
HMC Serial Port 2 Cable	U1.10-P1/S2#	
Drawer VPD (System ID)	U1.10-P1-X1-N1	
Error Logging Smart VPD Card (L3)	U1.10-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.10-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.10-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.10-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.10-P1/Q2#	
FRU LEDs Block 1	U1.10-P1/L1	
FRU LEDs Block 2	U1.10-P1/L2	
Processor Subsystem DCA	U1.10-V1	

FRU Name	Location Code	AIX Location Code
DCA (Processor Subsystem 2) - BPA B to BPC - P08 Connector	U1.10-V1/Q1	
DCA (Processor Subsystem 2) - BPA B to BPC - P08 Cable	U1.10-V1/Q1#	
DCA (Processor Subsystem 2) - BPA A to BPC - P08 Connector	U1.10-V1/Q2	
DCA (Processor Subsystem 2) - BPA A to BPC - P08 Cable	U1.10-V1/Q2#	
Blower 1	U1.10-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.10-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.10-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.10-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.10-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.10-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.10-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.10-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.10-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.10-P1-C2	00-07
L3 Module (Processor D)	U1.10-P1-C1	00-00
L3 Module (Processor B)	U1.10-P1-C3	00-00
L3 Module (Processor C)	U1.10-P1-C4	00-00
L3 Module (Processor A)	U1.10-P1-C5	00-00
CSP Card	U1.10-P1-X1	
MCM VPD Card	U1.10-P1-X1.1	
Platform Firmware	U1.10-P1-X1/Y1	
NVRAM	U1.10-P1-X1/N1	
NVRAM Battery	U1.10-P1-X1-V1	
Memory Card - Slot 1	U1.10-P1-M1	00-00
Memory Card - Slot 2	U1.10-P1-M2	00-00
Memory Card - Slot 3	U1.10-P1-M3	00-00
Memory Card - Slot 4	U1.10-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.10-P1-H1	

FRU Name	Location Code	AIX Location Code
SMA I/O Book 1 - 3 Connector 1	U1.10-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.10-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.10-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.10-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.10-P2	
DASD 1 Pack Cage and card (1) VPD	U1.10-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.10-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.10-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.10-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.10-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.10-P1	1Y
PCI Slot 1	U1.10-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.10-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.10-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.10-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.10-P1/E2	1c–08
Ethernet Port 2 Cable	U1.10-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.10-P1	1G
PCI Slot 3	U1.10-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 3 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) Ux.y	
System Assembly Planar	U1.5-P1	00-00
HMC Serial Port 1	U1.5-P1/S1	
HMC Serial Port 1 Cable	U1.5-P1/S1#	
HMC Serial Port 2 Connector	U1.5-P1/S2	
HMC Serial Port 2 Cable	U1.5-P1/S2#	

FRU Name	Location Code	AIX Location Code
Drawer VPD (System ID)	U1.5-P1-X1-N1	
Error Logging Smart VPD Card (L3)	U1.5-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.5-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.5-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.5-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.5-P1/Q2#	
FRU LEDs Block 1	U1.5-P1/L1	
FRU LEDs Block 2	U1.5-P1/L2	
Processor Subsystem DCA	U1.5-V1	
DCA (Processor Subsystem 3) - BPA B to BPC - P07 Connector	U1.5-V1/Q1	
DCA (Processor Subsystem 3) - BPA B to BPC - P07 Cable	U1.5-V1/Q1#	
DCA (Processor Subsystem 3) - BPA A to BPC - P07 Connector	U1.5-V1/Q2	
DCA (Processor Subsystem 3) - BPA A to BPC - P07 Cable	U1.5-V1/Q2#	
Blower 1	U1.5-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.5-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.5-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.5-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.5-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.5-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.5-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.5-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.5-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.5-P1-C2	00-07
L3 Module (Processor D)	U1.5-P1-C1	00-00
L3 Module (Processor B)	U1.5-P1-C3	00-00

FRU Name	Location Code	AIX Location Code
L3 Module (Processor C)	U1.5-P1-C4	00-00
L3 Module (Processor A)	U1.5-P1-C5	00-00
CSP Card	U1.5-P1-X1	
MCM VPD Card	U1.5-P1-X1.1	
Platform Firmware	U1.5-P1-X1/Y1	
NVRAM	U1.5-P1-X1	
NVRAM Battery	U1.5-P1-X1-V1	
Memory Card - Slot 1	U1.5-P1-M1	00-00
Memory Card - Slot 2	U1.5-P1-M2	00-00
Memory Card - Slot 3	U1.5-P1-M3	00-00
Memory Card - Slot 4	U1.5-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.5-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.5-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.5-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.5-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.5-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.5-P2	
DASD 1 Pack Cage and card (1) VPD	U1.5-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.5-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.5-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.5-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.5-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.5-P1	1Y
PCI Slot 1	U1.5-P1-I3	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.5-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.5-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.5-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.5-P1/E2	1c–08
Ethernet Port 2 Cable	U1.5-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.5-P1	1G

FRU Name	Location Code	AIX Location Code
PCI Slot 3	U1.5-P1-I3	1V-08 to 1V-0F or 1W-xx or IX-xx

Processor Subsystem 4 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.6	
System Assembly Planar	U1.6-P1	
HMC Serial Port 1	U1.6-P1/S1	
HMC Serial Port 1 Cable	U1.6-P1/S1#	
HMC Serial Port 2 Connector	U1.6-P1/S2	
HMC Serial Port 2 Cable	U1.6-P1/S2#	
Drawer VPD (System ID)	U1.6-P1-X1-N1	
Error Logging Smart VPD Card (L3)	U1.6-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.6-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.6-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.6-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.6-P1/Q2#	
FRU LEDs Block 1	U1.6-P1/L1	
FRU LEDs Block 2	U1.6-P1/L2	
Processor Subsystem DCA	U1.6-V1	
DCA (Processor Subsystem 4) - BPA B to BPC - P06 Connector	U1.6-V1/Q1	
DCA (Processor Subsystem 4) - BPA B to BPC - P06 Cable	U1.6-V1/Q1#	
DCA (Processor Subsystem 4) - BPA A to BPC - P06 Connector	U1.6-V1/Q2	
DCA (Processor Subsystem 4) - BPA A to BPC - P06 Cable	U1.6-V1/Q2#	
Blower 1	U1.6-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.6-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.6-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.6-P1-C2	00-01

FRU Name	Location Code	AIX Location Code
Processor 2 (w/L1 and L2 Cache)	U1.6-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.6-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.6-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.6-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.6-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.6-P1-C2	00-07
L3 Module (Processor D)	U1.6-P1-C1	00-00
L3 Module (Processor B)	U1.6-P1-C3	00-00
L3 Module (Processor C)	U1.6-P1-C4	00-00
L3 Module (Processor A)	U1.6-P1-C5	00-00
CSP Card	U1.6-P1-X1	
MCM VPD Card	U1.6-P1-X1.1	
Platform Firmware	U1.6-P1-X1/Y1	
NVRAM	U1.6-P1-X1/N1	
NVRAM Battery	U1.6-P1-X1-V1	
Memory Card - Slot 1	U1.6-P1-M1	00-00
Memory Card - Slot 2	U1.6-P1-M2	00-00
Memory Card - Slot 3	U1.6-P1-M3	00-00
Memory Card - Slot 4	U1.6-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.6-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.6-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.6-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.6-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.6-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.6-P2	
DASD 1 Pack Cage and card (1) VPD	U1.6-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.6-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.6-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.6-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.6-P1/Z2-Af	1H

FRU Name	Location Code	AIX Location Code
PHB0 and EADS XPH0 PCI Controller	U1.6-P1	1Y
PCI Slot 1	U1.6-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.6-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.6-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.6-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.6-P1/E2	1c–08
Ethernet Port 2 Cable	U1.6-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.6-P1	1G
PCI Slot 3	U1.6-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 5 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.1	
System Assembly Planar	U1.1-P1	
HMC Serial Port 1	U1.1-P1/S1	
HMC Serial Port 1 Cable	U1.1-P1/S1#	
HMC Serial Port 2 Connector	U1.1-P1/S2	
HMC Serial Port 2 Cable	U1.1-P1/S2#	
Drawer VPD (System ID)	U1.1-P1-X1-N1	
Error Logging Smart VPD Card (L3)	U1.1-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.1-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.1-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.1-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.1-P1/Q2#	
FRU LEDs Block 1	U1.1-P1/L1	
FRU LEDs Block 2	U1.1-P1/L2	
Processor Subsystem DCA	U1.1-V1	

FRU Name	Location Code	AIX Location Code
DCA (Processor Subsystem 5) - BPA B to BPC - P05 Connector	U1.1-V1/Q1	
DCA (Processor Subsystem 5) - BPA B to BPC - P05 Cable	U1.1-V1/Q1#	
DCA (Processor Subsystem 5) - BPA A to BPC - P05 Connector	U1.1-V1/Q2	
DCA (Processor Subsystem 5) - BPA A to BPC - P05 Cable	U1.1-V1/Q2#	
Blower 1	U1.1-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.1-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.1-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.1-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.1-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.1-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.1-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.1-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.1-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.1-P1-C2	00-07
L3 Module (Processor D)	U1.1-P1-C1	00-00
L3 Module (Processor B)	U1.1-P1-C3	00-00
L3 Module (Processor C)	U1.1-P1-C4	00-00
L3 Module (Processor A)	U1.1-P1-C5	00-00
CSP Card	U1.1-P1-X1	
MCM VPD Card	U1.1-P1-X1.1	
Platform Firmware	U1.1-P1-X1/Y1	
NVRAM	U1.1-P1-X1/N1	
NVRAM Battery	U1.1-P1-X1-V1	
Memory Card - Slot 1	U1.1-P1-M1	00-00
Memory Card - Slot 2	U1.1-P1-M2	00-00
Memory Card - Slot 3	U1.1-P1-M3	00-00
Memory Card - Slot 4	U1.1-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.1-P1-H1	

FRU Name	Location Code	AIX Location Code
SMA I/O Book 1 - 3 Connector 1	U1.1-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.1-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.1-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.1-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.1-P2	
DASD 1 Pack Cage and card (1) VPD	U1.1-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.1-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.1-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.1-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.1-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.1-P1	1Y
PCI Slot 1	U1.1-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.1-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.1-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.1-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.1-P1/E2	1c–08
Ethernet Port 2 Cable	U1.1-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.1-P1	1G
PCI Slot 3	U1.1-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 6 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.2	
System Assembly Planar	U1.2-P1	
HMC Serial Port 1	U1.2-P1/S1	
HMC Serial Port 1 Cable	U1.2-P1/S1#	
HMC Serial Port 2 Connector	U1.2-P1/S2	
HMC Serial Port 2 Cable	U1.2-P1/S2#	

FRU Name	Location Code	AIX Location Code
Drawer VPD (System ID)	U1.2-P1-X1-N1	
Error Logging Smart VPD Card (L3)	U1.2-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.2-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.2-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.2-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.2-P1/Q2#	
FRU LEDs Block 1	U1.2-P1/L1	
FRU LEDs Block 2	U1.2-P1/L2	
Processor Subsystem DCA	U1.2-V1	
DCA (Processor Subsystem 6) - BPA B to BPC - P04 Connector	U1.2-V1/Q1	
DCA (Processor Subsystem 6) - BPA B to BPC - P04 Cable	U1.2-V1/Q1#	
DCA (Processor Subsystem 6) - BPA A to BPC - P04 Connector	U1.2-V1/Q2	
DCA (Processor Subsystem 6) - BPA A to BPC - P04 Cable	U1.2-V1/Q2#	
Blower 1	U1.2-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.2-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.2-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.2-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.2-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.2-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.2-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.2-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.2-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.2-P1-C2	00-07
L3 Module (Processor D)	U1.2-P1-C1	00-00
L3 Module (Processor B)	U1.2-P1-C3	00-00

FRU Name	Location Code	AIX Location Code
L3 Module (Processor C)	U1.2-P1-C4	00-00
L3 Module (Processor A)	U1.2-P1-C5	00-00
CSP Card	U1.2-P1-X1	
MCM VPD Card	U1.2-P1-X1.1	
Platform Firmware	U1.2-P1-X1/Y1	
NVRAM	U1.2-P1-X1/N1	
NVRAM Battery	U1.2-P1-X1-V1	
Memory Card - Slot 1	U1.2-P1-M1	00-00
Memory Card - Slot 2	U1.2-P1-M2	00-00
Memory Card - Slot 3	U1.2-P1-M3	00-00
Memory Card - Slot 4	U1.2-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.2-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.2-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.2-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.2-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.2-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.2-P2	
DASD 1 Pack Cage and card (1) VPD	U1.2-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.2-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.2-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.2-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.2-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.2-P1	1Y
PCI Slot 1	U1.2-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.2-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.2-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.2-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.2-P1/E2	1c–08
Ethernet Port 2 Cable	U1.2-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.2-P1	1G

FRU Name	Location Code	AIX Location Code
PCI Slot 3	U1.2-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 7 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.19	
System Assembly Planar	U1.19-P1	
HMC Serial Port 1	U1.19-P1/S1	
HMC Serial Port 1 Cable	U1.19-P1/S1#	
HMC Serial Port 2 Connector	U1.19-P1/S2	
HMC Serial Port 2 Cable	U1.19-P1/S2#	
Drawer VPD (System ID)	U1.19-P1-X1-N1	
Error Logging Smart VPD Card (L3)	U1.19-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.19-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.19-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.19-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.19-P1/Q2#	
FRU LEDs Block 1	U1.19-P1/L1	
FRU LEDs Block 2	U1.19-P1/L2	
Processor Subsystem DCA	U1.19-V1	
DCA (Processor Subsystem 7) - BPA B to BPD - P09 Connector	U1.19-V1/Q1	
DCA (Processor Subsystem 7) - BPA B to BPD - P09 Cable	U1.19-V1/Q1#	
DCA (Processor Subsystem 7) - BPA A to BPD - P09 Connector	U1.19-V1/Q2	
DCA (Processor Subsystem 7) - BPA A to BPD - P09 Cable	U1.19-V1/Q2#	
Blower 1	U1.19-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.19-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.19-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.19-P1-C2	00-01

FRU Name	Location Code	AIX Location Code
Processor 2 (w/L1 and L2 Cache)	U1.19-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.19-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.19-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.19-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.19-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.19-P1-C2	00-07
L3 Module (Processor D)	U1.19-P1-C1	00-00
L3 Module (Processor B)	U1.19-P1-C3	00-00
L3 Module (Processor C)	U1.19-P1-C4	00-00
L3 Module (Processor A)	U1.19-P1-C5	00-00
CSP Card	U1.19-P1-X1	
MCM VPD Card	U1.19-P1-X1.1	
Platform Firmware	U1.19-P1-X1/Y1	
NVRAM	U1.19-P1-X1/N1	
NVRAM Battery	U1.19-P1-X1-V1	
Memory Card - Slot 1	U1.19-P1-M1	00-00
Memory Card - Slot 2	U1.19-P1-M2	00-00
Memory Card - Slot 3	U1.19-P1-M3	00-00
Memory Card - Slot 4	U1.19-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.19-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.19-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.19-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.19-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.19-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.19-P2	
DASD 1 Pack Cage and card (1) VPD	U1.19-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.19-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.19-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.19-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.19-P1/Z2-Af	1H

FRU Name	Location Code	AIX Location Code
PHB0 and EADS XPH0 PCI Controller	U1.19-P1	1Y
PCI Slot 1	U1.19-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.19-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.19-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.19-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.19-P1/E2	1c–08
Ethernet Port 2 Cable	U1.19-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.19-P1	1G
PCI Slot 3	U1.19-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 8 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.20	
System Assembly Planar	U1.20-P1	
HMC Serial Port 1	U1.20-P1/S1	
HMC Serial Port 1 Cable	U1.20-P1/S1#	
HMC Serial Port 2 Connector	U1.20-P1/S2	
HMC Serial Port 2 Cable	U1.20-P1/S2#	
Drawer VPD (System ID)	U1.20	
Error Logging Smart VPD Card (L3)	U1.20-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.20-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.20-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.20-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.20-P1/Q2#	
FRU LEDs Block 1	U1.20-P1/L1	
FRU LEDs Block 2	U1.20-P1/L2	
Processor Subsystem DCA	U1.20-V1	

FRU Name	Location Code	AIX Location Code
DCA (Processor Subsystem 8) - BPA B to BPD - P08 Connector	U1.20-V1/Q1	
DCA (Processor Subsystem 8) - BPA B to BPD - P08 Cable	U1.20-V1/Q1#	
DCA (Processor Subsystem 8) - BPA A to BPD - P08 Connector	U1.20-V1/Q2	
DCA (Processor Subsystem 8) - BPA A to BPD - P08 Cable	U1.20-V1/Q2#	
Blower 1	U1.20-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.19-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.20-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.20-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.20-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.20-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.20-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.20-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.20-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.20-P1-C2	00-07
L3 Module (Processor D)	U1.20-P1-C1	00-00
L3 Module (Processor B)	U1.20-P1-C3	00-00
L3 Module (Processor C)	U1.20-P1-C4	00-00
L3 Module (Processor A)	U1.20-P1-C5	00-00
CSP Card	U1.20-P1-X1	
MCM VPD Card	U1.20-P1-X1.1	
Platform Firmware	U1.20-P1-X1/Y1	
NVRAM	U1.20-P1-X1/N1	
NVRAM Battery	U1.20-P1-X1-V1	
Memory Card - Slot 1	U1.20-P1-M1	00-00
Memory Card - Slot 2	U1.20-P1-M2	00-00
Memory Card - Slot 3	U1.20-P1-M3	00-00
Memory Card - Slot 4	U1.20-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.20-P1-H1	

FRU Name	Location Code	AIX Location Code
SMA I/O Book 1 - 3 Connector 1	U1.20-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.20-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.20-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.20-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.20-P2	
DASD 1 Pack Cage and card (1) VPD	U1.20-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.20-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.20-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.20-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.20-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.20-P1	1Y
PCI Slot 1	U1.20-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.20-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.20-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.20-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.20-P1/E2	1c–08
Ethernet Port 2 Cable	U1.20-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.20-P1	1G
PCI Slot 3	U1.20-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 9 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.23	
System Assembly Planar	U1.23-P1	
HMC Serial Port 1	U1.23-P1/S1	
HMC Serial Port 1 Cable	U1.23-P1/S1#	
HMC Serial Port 2 Connector	U1.23-P1/S2	
HMC Serial Port 2 Cable	U1.23-P1/S2#	

FRU Name	Location Code	AIX Location Code
Drawer VPD (System ID)	U1.23	
Error Logging Smart VPD Card (L3)	U1.23-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.23-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.23-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.23-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.23-P1/Q2#	
FRU LEDs Block 1	U1.23-P1/L1	
FRU LEDs Block 2	U1.23-P1/L2	
Processor Subsystem DCA	U1.23-V1	
DCA (Processor Subsystem 9) - BPA B to BPD - P07 Connector	U1.23-V1/Q1	
DCA (Processor Subsystem 9) - BPA B to BPD - P07 Cable	U1.23-V1/Q1#	
DCA (Processor Subsystem 9) - BPA A to BPD - P07 Connector	U1.23-V1/Q2	
DCA (Processor Subsystem 9) - BPA A to BPD - P07 Cable	U1.23-V1/Q2#	
Blower 1	U1.23-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.23-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.23-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.23-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.23-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.23-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.23-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.23-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.23-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.23-P1-C2	00-07
L3 Module (Processor D)	U1.23-P1-C1	00-00
L3 Module (Processor B)	U1.23-P1-C3	00-00

FRU Name	Location Code	AIX Location Code
L3 Module (Processor C)	U1.23-P1-C4	00-00
L3 Module (Processor A)	U1.23-P1-C5	00-00
CSP Card	U1.23-P1-X1	
MCM VPD Card	U1.23-P1-X1.1	
Platform Firmware	U1.23-P1-X1/Y1	
NVRAM	U1.23-P1-X1/N1	
NVRAM Battery	U1.23-P1-X1-V1	
Memory Card - Slot 1	U1.23-P1-M1	00-00
Memory Card - Slot 2	U1.23-P1-M2	00-00
Memory Card - Slot 3	U1.23-P1-M3	00-00
Memory Card - Slot 4	U1.23-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.23-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.23-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.23-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.23-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.23-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.23-P2	
DASD 1 Pack Cage and card (1) VPD	U1.23-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.23-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.23-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.23-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.23-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.23-P1	1Y
PCI Slot 1	U1.23-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.23-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.23-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.23-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.23-P1/E2	1c–08
Ethernet Port 2 Cable	U1.23-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.23-P1	1G

FRU Name	Location Code	AIX Location Code
PCI Slot 3	U1.23-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 10 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.24	
System Assembly Planar	U1.24-P1	
HMC Serial Port 1	U1.24-P1/S1	
HMC Serial Port 1 Cable	U1.24-P1/S1#	
HMC Serial Port 2 Connector	U1.24-P1/S2	
HMC Serial Port 2 Cable	U1.24-P1/S2#	
Drawer VPD (System ID)	U1.24	
Error Logging Smart VPD Card (L3)	U1.24-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.24-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.24-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.24-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.24-P1/Q2#	
FRU LEDs Block 1	U1.24-P1/L1	
FRU LEDs Block 2	U1.24-P1/L2	
Processor Subsystem DCA	U1.24-V1	
DCA (Processor Subsystem 10) - BPA B to BPD - P06 Connector	U1.24-V1/Q1	
DCA (Processor Subsystem 10) - BPA B to BPD - P06 Cable	U1.24-V1/Q1#	
DCA (Processor Subsystem 10) - BPA A to BPD - P06 Connector	U1.24-V1/Q2	
DCA (Processor Subsystem 10) - BPA A to BPD - P06 Cable	U1.24-V1/Q2#	
Blower 1	U1.24-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.24-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.24-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.24-P1-C2	00-01

FRU Name	Location Code	AIX Location Code
Processor 2 (w/L1 and L2 Cache)	U1.24-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.24-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.24-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.24-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.24-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.24-P1-C2	00-07
L3 Module (Processor D)	U1.24-P1-C1	00-00
L3 Module (Processor B)	U1.24-P1-C3	00-00
L3 Module (Processor C)	U1.24-P1-C4	00-00
L3 Module (Processor A)	U1.24-P1-C5	00-00
CSP Card	U1.24-P1-X1	
MCM VPD Card	U1.24-P1-X1.1	
Platform Firmware	U1.24-P1-X1/Y1	
NVRAM	U1.24-P1-X1/N1	
NVRAM Battery	U1.24-P1-X1-V1	
Memory Card - Slot 1	U1.24-P1-M1	00-00
Memory Card - Slot 2	U1.24-P1-M2	00-00
Memory Card - Slot 3	U1.24-P1-M3	00-00
Memory Card - Slot 4	U1.24-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.24-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.24-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.24-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.24-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.24-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.24-P2	
DASD 1 Pack Cage and card (1) VPD	U1.24-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.24-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.24-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.24-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.24-P1/Z2-Af	1H

FRU Name	Location Code	AIX Location Code
PHB0 and EADS XPH0 PCI Controller	U1.24-P1	1Y
PCI Slot 1	U1.24-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.24-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.24-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.24-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.24-P1/E2	1c–08
Ethernet Port 2 Cable	U1.24-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.24-P1	1G
PCI Slot 3	U1.24-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 11 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.27	
System Assembly Planar	U1.27-P1	
HMC Serial Port 1	U1.27-P1/S1	
HMC Serial Port 1 Cable	U1.27-P1/S1#	
HMC Serial Port 2 Connector	U1.27-P1/S2	
HMC Serial Port 2 Cable	U1.27-P1/S2#	
Drawer VPD (System ID)	U1.27	
Error Logging Smart VPD Card (L3)	U1.27-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.27-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.27-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.27-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.27-P1/Q2#	
FRU LEDs Block 1	U1.27-P1/L1	
FRU LEDs Block 2	U1.27-P1/L2	
Processor Subsystem DCA	U1.27-V1	

FRU Name	Location Code	AIX Location Code
DCA (Processor Subsystem 11) - BPA B to BPD - P05 Connector	U1.27-V1/Q1	
DCA (Processor Subsystem 11) - BPA B to BPD - P05 Cable	U1.27-V1/Q1#	
DCA (Processor Subsystem 11) - BPA A to BPD - P05 Connector	U1.27-V1/Q2	
DCA (Processor Subsystem 11) - BPA A to BPD - P05 Cable	U1.27-V1/Q2#	
Blower 1	U1.27-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.27-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.27-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.27-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.27-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.27-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.27-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.27-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.27-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.27-P1-C2	00-07
L3 Module (Processor D)	U1.27-P1-C1	00-00
L3 Module (Processor B)	U1.27-P1-C3	00-00
L3 Module (Processor C)	U1.27-P1-C4	00-00
L3 Module (Processor A)	U1.27-P1-C5	00-00
CSP Card	U1.27-P1-X1	
MCM VPD Card	U1.27-P1-X1.1	
Platform Firmware	U1.27-P1-X1/Y1	
NVRAM	U1.27-P1-X1/N1	
NVRAM Battery	U1.27-P1-X1-V1	
Memory Card - Slot 1	U1.27-P1-M1	00-00
Memory Card - Slot 2	U1.27-P1-M2	00-00
Memory Card - Slot 3	U1.27-P1-M3	00-00
Memory Card - Slot 4	U1.27-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.27-P1-H1	

FRU Name	Location Code	AIX Location Code
SMA I/O Book 1 - 3 Connector 1	U1.27-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.27-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.27-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.27-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.27-P2	
DASD 1 Pack Cage and card (1) VPD	U1.27-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.27-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.27-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.27-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.27-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.27-P1	1Y
PCI Slot 1	U1.27-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.27-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.27-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.27-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.27-P1/E2	1c–08
Ethernet Port 2 Cable	U1.27-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.27-P1	1G
PCI Slot 3	U1.27-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 12 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.28	
System Assembly Planar	U1.28-P1	
HMC Serial Port 1	U1.28-P1/S1	
HMC Serial Port 1 Cable	U1.28-P1/S1#	
HMC Serial Port 2 Connector	U1.28-P1/S2	
HMC Serial Port 2 Cable	U1.28-P1/S2#	

FRU Name	Location Code	AIX Location Code
Drawer VPD (System ID)	U1.28	
Error Logging Smart VPD Card (L3)	U1.28-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.28-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.28-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.28-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.28-P1/Q2#	
FRU LEDs Block 1	U1.28-P1/L1	
FRU LEDs Block 2	U1.28-P1/L2	
Processor Subsystem DCA	U1.28-V1	
DCA (Processor Subsystem 12) - BPA B to BPD - P04 Connector	U1.28-V1/Q1	
DCA (Processor Subsystem 12) - BPA B to BPD - P04 Cable	U1.28-V1/Q1#	
DCA (Processor Subsystem 12) - BPA A to BPD - P04 Connector	U1.28-V1/Q2	
DCA (Processor Subsystem 12) - BPA A to BPD - P04 Cable	U1.28-V1/Q2#	
Blower 1	U1.28-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.28-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.28-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.28-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.28-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.28-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.28-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.28-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.28-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.28-P1-C2	00-07
L3 Module (Processor D)	U1.28-P1-C1	00-00
L3 Module (Processor B)	U1.28-P1-C3	00-00

FRU Name	Location Code	AIX Location Code
L3 Module (Processor C)	U1.28-P1-C4	00-00
L3 Module (Processor A)	U1.28-P1-C5	00-00
CSP Card	U1.28-P1-X1	
MCM VPD Card	U1.28-P1-X1.1	
Platform Firmware	U1.28-P1-X1/Y1	
NVRAM	U1.28-P1-X1/N1	
NVRAM Battery	U1.28-P1-X1-V1	
Memory Card - Slot 1	U1.28-P1-M1	00-00
Memory Card - Slot 2	U1.28-P1-M2	00-00
Memory Card - Slot 3	U1.28-P1-M3	00-00
Memory Card - Slot 4	U1.28-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.28-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.28-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.28-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.28-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.28-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.28-P2	
DASD 1 Pack Cage and card (1) VPD	U1.28-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.28-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.28-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.28-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.28-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.28-P1	1Y
PCI Slot 1	U1.28-P1-I1	ln-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.28-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.28-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.28-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.28-P1/E2	1c–08
Ethernet Port 2 Cable	U1.28-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.28-P1	1G

FRU Name	Location Code	AIX Location Code
PCI Slot 3	U1.28-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 13 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MTM Serial #) U1.31	
System Assembly Planar	U1.31-P1	
HMC Serial Port 1	U1.31-P1/S1	
HMC Serial Port 1 Cable	U1.31-P1/S1#	
HMC Serial Port 2 Connector	U1.31-P1/S2	
HMC Serial Port 2 Cable	U1.31-P1/S2#	
Drawer VPD (System ID)	U1.31	
Error Logging Smart VPD Card (L3)	U1.31-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.31-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.31-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.31-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.31-P1/Q2#	
FRU LEDs Block 1	U1.31-P1/L1	
FRU LEDs Block 2	U1.31-P1/L2	
Processor Subsystem DCA	U1.31-V1	
DCA (Processor Subsystem 13) - BPA B to BPD - P03 Connector	U1.31-V1/Q1	
DCA (Processor Subsystem 13) - BPA B to BPD - P03 Cable	U1.31-V1/Q1#	
DCA (Processor Subsystem 13) - BPA A to BPD - P03 Connector	U1.31-V1/Q2	
DCA (Processor Subsystem 13) - BPA A to BPD - P03 Cable	U1.31-V1/Q2#	
Blower 1	U1.31-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.31-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.31-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.31-P1-C2	00-01

FRU Name	Location Code	AIX Location Code
Processor 2 (w/L1 and L2 Cache)	U1.31-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.31-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.31-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.31-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.31-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.31-P1-C2	00-07
L3 Module (Processor D)	U1.31-P1-C1	00-00
L3 Module (Processor B)	U1.31-P1-C3	00-00
L3 Module (Processor C)	U1.31-P1-C4	00-00
L3 Module (Processor A)	U1.31-P1-C5	00-00
CSP Card	U1.31-P1-X1	
MCM VPD Card	U1.31-P1-X1.1	
Platform Firmware	U1.31-P1-X1/Y1	
NVRAM	U1.31-P1-X1/N1	
NVRAM Battery	U1.31-P1-X1-V1	
Memory Card - Slot 1	U1.31-P1-M1	00-00
Memory Card - Slot 2	U1.31-P1-M2	00-00
Memory Card - Slot 3	U1.31-P1-M3	00-00
Memory Card - Slot 4	U1.31-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.31-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.31-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.31-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.31-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.31-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.31-P2	
DASD 1 Pack Cage and card (1) VPD	U1.31-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.31-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.31-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.31-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.31-P1/Z2-Af	1H

FRU Name	Location Code	AIX Location Code
PHB0 and EADS XPH0 PCI Controller	U1.31-P1	1Y
PCI Slot 1	U1.31-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.31-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.31-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.31-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.31-P1/E2	1c–08
Ethernet Port 2 Cable	U1.31-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.31-P1	1G
PCI Slot 3	U1.31-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 14 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.32	
System Assembly Planar	U1.32-P1	
HMC Serial Port 1	U1.32-P1/S1	
HMC Serial Port 1 Cable	U1.32-P1/S1#	
HMC Serial Port 2 Connector	U1.32-P1/S2	
HMC Serial Port 2 Cable	U1.32-P1/S2#	
Drawer VPD (System ID)	U1.32	
Error Logging Smart VPD Card (L3)	U1.32-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.32-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.32-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.32-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.32-P1/Q2#	
FRU LEDs Block 1	U1.32-P1/L1	
FRU LEDs Block 2	U1.32-P1/L2	
Processor Subsystem DCA	U1.32-V1	

FRU Name	Location Code	AIX Location Code
DCA (Processor Subsystem 14) - BPA B to BPD - P02 Connector	U1.32-V1/Q1	
DCA (Processor Subsystem 14) - BPA B to BPD - P02 Cable	U1.32-V1/Q1#	
DCA (Processor Subsystem 14) - BPA A to BPD - P02 Connector	U1.32-V1/Q2	
DCA (Processor Subsystem 14) - BPA A to BPD - P02 Cable	U1.32-V1/Q2#	
Blower 1	U1.32-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.32-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.32-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.32-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.32-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.32-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.32-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.32-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.32-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.32-P1-C2	00-07
L3 Module (Processor D)	U1.32-P1-C1	00-00
L3 Module (Processor B)	U1.32-P1-C3	00-00
L3 Module (Processor C)	U1.32-P1-C4	00-00
L3 Module (Processor A)	U1.32-P1-C5	00-00
CSP Card	U1.32-P1-X1	
MCM VPD Card	U1.32-P1-X1.1	
Platform Firmware	U1.32-P1-X1/Y1	
NVRAM	U1.32-P1-X1/N1	
NVRAM Battery	U1.32-P1-X1-V1	
Memory Card - Slot 1	U1.32-P1-M1	00-00
Memory Card - Slot 2	U1.32-P1-M2	00-00
Memory Card - Slot 3	U1.32-P1-M3	00-00
Memory Card - Slot 4	U1.32-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.32-P1-H1	

FRU Name	Location Code	AIX Location Code
SMA I/O Book 1 - 3 Connector 1	U1.32-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.32-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.32-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.32-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.32-P2	
DASD 1 Pack Cage and card (1) VPD	U1.32-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.32-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.32-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.32-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.32-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.32-P1	1Y
PCI Slot 1	U1.32-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.32-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.32-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.32-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.32-P1/E2	1c–08
Ethernet Port 2 Cable	U1.32-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.32-P1	1G
PCI Slot 3	U1.32-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Processor Subsystem 15 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.13	
System Assembly Planar	U1.13-P1	
HMC Serial Port 1	U1.13-P1/S1	
HMC Serial Port 1 Cable	U1.13-P1/S1#	
HMC Serial Port 2 Connector	U1.13-P1/S2	
HMC Serial Port 2 Cable	U1.13-P1/S2#	

FRU Name	Location Code	AIX Location Code
Drawer VPD (System ID)	U1.13	
Error Logging Smart VPD Card (L3)	U1.13-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.13-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.13-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.13-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.13-P1/Q2#	
FRU LEDs Block 1	U1.13-P1/L1	
FRU LEDs Block 2	U1.13-P1/L2	
Processor Subsystem DCA	U1.13-V1	
DCA (Processor Subsystem 15) - BPA B to BPD - P01 Connector	U1.13-V1/Q1	
DCA (Processor Subsystem 15) - BPA B to BPD - P01 Cable	U1.13-V1/Q1#	
DCA (Processor Subsystem 15) - BPA A to BPD - P01 Connector	U1.13-V1/Q2	
DCA (Processor Subsystem 15) - BPA A to BPD - P01 Cable	U1.13-V1/Q2#	
Blower 1	U1.13-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.13-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.13-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.13-P1-C2	00-01
Processor 2 (w/L1 and L2 Cache)	U1.13-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.13-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.13-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.13-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.13-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.13-P1-C2	00-07
L3 Module (Processor D)	U1.13-P1-C1	00-00
L3 Module (Processor B)	U1.13-P1-C3	00-00

FRU Name	Location Code	AIX Location Code
L3 Module (Processor C)	U1.13-P1-C4	00-00
L3 Module (Processor A)	U1.13-P1-C5	00-00
CSP Card	U1.13-P1-X1	
MCM VPD Card	U1.13-P1-X1.1	
Platform Firmware	U1.13-P1-X1/Y1	
NVRAM	U1.13-P1-X1/N1	
NVRAM Battery	U1.13-P1-X1-V1	
Memory Card - Slot 1	U1.13-P1-M1	00-00
Memory Card - Slot 2	U1.13-P1-M2	00-00
Memory Card - Slot 3	U1.13-P1-M3	00-00
Memory Card - Slot 4	U1.13-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.13-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.13-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.13-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.13-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.13-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.13-P2	
DASD 1 Pack Cage and card (1) VPD	U1.13-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.13-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.13-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.13-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.13-P1/Z2-Af	1H
PHB0 and EADS XPH0 PCI Controller	U1.13-P1	1Y
PCI Slot 1	U1.13-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.13-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.13-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.13-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.13-P1/E2	1c–08
Ethernet Port 2 Cable	U1.13-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.13-P1	1G

FRU Name	Location Code	AIX Location Code
PCI Slot 3	U1.13-P1-I3	1V-08 to 1V-0F or 1W-xx or IX-xx

Processor Subsystem 16 Location Codes

FRU Name	Location Code	AIX Location Code
Processor Subsystem Drawer	(MT/M Serial #) U1.14	
System Assembly Planar	U1.14-P1	
HMC Serial Port 1	U1.14-P1/S1	
HMC Serial Port 1 Cable	U1.14-P1/S1#	
HMC Serial Port 2 Connector	U1.14-P1/S2	
HMC Serial Port 2 Cable	U1.14-P1/S2#	
Drawer VPD (System ID)	U1.14	
Error Logging Smart VPD Card (L3)	U1.14-P1	
RIO Book 1 - Port 1 Connector 1 (C1)	U1.14-P1/Q1	
RIO Book 1 - Port 1 Connector 1 Cable 1	U1.14-P1/Q1#	
RIO Book 1 - Port 2 Connector 2 (1 - 0) label (C0)	U1.14-P1/Q2	
RIO Book 0 - Port 2 Connector 2 Cable 2	U1.14-P1/Q2#	
FRU LEDs Block 1	U1.14-P1/L1	
FRU LEDs Block 2	U1.14-P1/L2	
Processor Subsystem DCA	U1.14-V1	
DCA (Processor Subsystem 16) - BPA B to BPD - P00 Connector	U1.14-V1/Q1	
DCA (Processor Subsystem 16) - BPA B to BPD - P00 Cable	U1.14-V1/Q1#	
DCA (Processor Subsystem 16) - BPA A to BPD - P00 Connector	U1.14-V1/Q2	
DCA (Processor Subsystem 16) - BPA A to BPD - P00 Cable	U1.14-V1/Q2#	
Blower 1	U1.14-F1	
MCM Module 0 (4- or 8-way 1.1 GHz)	U1.14-P1-C2	
Processor 0 (w/L1 and L2 Cache)	U1.14-P1-C2	00-00
Processor 1 (w/L1 and L2 Cache)	U1.14-P1-C2	00-01

FRU Name	Location Code	AIX Location Code
Processor 2 (w/L1 and L2 Cache)	U1.14-P1-C2	00-02
Processor 3 (w/L1 and L2 Cache)	U1.14-P1-C2	00-03
Processor 4 (w/L1 and L2 Cache)	U1.14-P1-C2	00-04
Processor 5 (w/L1 and L2 Cache)	U1.14-P1-C2	00-05
Processor 6 (w/L1 and L2 Cache)	U1.14-P1-C2	00-06
Processor 7 (w/L1 and L2 Cache)	U1.14-P1-C2	00-07
L3 Module (Processor D)	U1.14-P1-C1	00-00
L3 Module (Processor B)	U1.14-P1-C3	00-00
L3 Module (Processor C)	U1.14-P1-C4	00-00
L3 Module (Processor A)	U1.14-P1-C5	00-00
CSP Card	U1.14-P1-X1	
MCM VPD Card	U1.14-P1-X1.1	
Platform Firmware	U1.14-P1-X1/Y1	
NVRAM	U1.14-P1-X1/N1	
NVRAM Battery	U1.14-P1-X1-V1	
Memory Card - Slot 1	U1.14-P1-M1	00-00
Memory Card - Slot 2	U1.14-P1-M2	00-00
Memory Card - Slot 3	U1.14-P1-M3	00-00
Memory Card - Slot 4	U1.14-P1-M4	00-00
SMA I/O Book 1 Slot 1	U1.14-P1-H1	
SMA I/O Book 1 - 3 Connector 1	U1.14-P1-H1/W1	
SMA I/O Book 1 - 3 Cable 1	U1.14-P1-H1/W1#	
SMA I/O Book 1 - 2 Connector 2	U1.14-P1-H1/W2	
SMA I/O Book 1 - 2 Cable 2	U1.14-P1-H1/W2#	
DASD 1 Pack Cage and card (1)	U1.14-P2	
DASD 1 Pack Cage and card (1) VPD	U1.14-P2-N1	
SCSI DASD (hard disk at ID 8 connected to controller 1 on P1)	U1.14-P1/Z1-A8	
SCSI DASD (hard disk at ID 9 connected to controller 2 on P1)	U1.14-P1/Z2-A9	
SCSI Enclosure Services (SES connected to controller 1 on P1)	U1.14-P1/Z1-Af	1H
SCSI Enclosure Services (SES connected to controller 2 on P1)	U1.14-P1/Z2-Af	1H

FRU Name	Location Code	AIX Location Code
PHB0 and EADS XPH0 PCI Controller	U1.14-P1	1Y
PCI Slot 1	U1.14-P1-I1	In-08 to 1n-0F or 1p-xx or 1q-xx
PCI Slot 2	U1.14-P1-I2	1j-08 to 1j-0F or 1k-xx or 1l-xx
Ethernet Port 1 Connector ENet0	U1.14-P1/E1	1Z–08
Ethernet Port 1 Cable	U1.14-P1/E1#	
Ethernet Port 2 Connector ENet1	U1.14-P1/E2	1c–08
Ethernet Port 2 Cable	U1.14-P1/E2#	
PBH2 and EADS XPH2 PCI Controller	U1.14-P1	1G
PCI Slot 3	U1.14-P1-I3	1V-08 to 1V-0F or 1W-xx or lX-xx

Integrated Battery Feature (IBF) Location Codes (if installed)

FRU Name	Location Code	AIX Location Code
IBF 1A to BPA A - BPR1 (Battery)	U1.13-P1-V1	If Installed
IBF 1A Connector	U1.13-P1-V1/Q1	If Installed
IBF 1A Cable to BPA A - BPR 1	U1.13-P1-V1/Q1#	If Installed
IBF 2A to BPA A - BPR 2 (Battery)	U1.15-P1-V2	If Installed
IBF 2A Connector	U1.15-P1-V2/Q1	If Installed
IBF 2A Cable to BPA A - BPR 2	U1.15-P1-V2/Q1#	If Installed
IBF 1A to BPA B - BPR1 (Battery)	U1.13-P2-V3	If Installed
IBF 1A Connector	U1.13-P2-V3/Q1	If Installed
IBF 1A Cable to BPA B - BPR 1	U1.13-P2-V3/Q1#	If Installed
IBF 2A to BPA B - BPR 2 (Battery)	U1.15-P2-V4	If Installed
IBF 2A Connector	U1.15-P2-V4/Q1	If Installed
IBF 2A Cable to BPA B -BPR 2	U1.15-P2-V4/Q1#	If Installed
IBF 3A to BPA A - BPR 3 (Battery)	U1.17-P1-V5	If Installed
IBF 3A Connector	U1.17-P1-V5/Q1	If Installed
IBF 3A Cable to BPA A - BPR 3	U1.17-P1-V5/Q1#	If Installed
IBF 3A to BPA B -BPR3 (Battery)	U1.17-P2-V6	If Installed
IBF 3A Connector	U1.17-P2-V6/Q1	If Installed

FRU Name	Location Code	AIX Location Code
IBF 3A Cable to BPA B - BPR 3	U1.17-P2-V6/Q1#	If Installed

I/O Subsystem 1 Location Codes

FRU Name	Location Code	AIX Location Code
I/O Subsystem 1 Chassis and Midplane Card	(MT/M Serial #) Ux.y	
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P1-I1	2V-08
PCI Slot 2	Ux.y-P1-I2	2Y-08
PCI Slot 3	Ux.y-P1-I3	2b-08
PCI Slot 4	Ux.y-P1-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P1-I5	2k-08
PCI Slot 6	Ux.y-P1-I6	2p-08
PCI Slot 7	Ux.y-P1-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P1-I8	31–08
PCI Slot 9	Ux.y-P1-I9	34–08
PCI Slot 10	Ux.y-P1-I10	3A-08
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P2-I1	2V-08
PCI Slot 2	Ux.y-P2-I2	2Y-08

FRU Name	Location Code	AIX Location Code
PCI Slot 3	Ux.y-P2-I3	2b-08
PCI Slot 4	Ux.y-P2-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P2	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P2-I5	2k-08
PCI Slot 6	Ux.y-P2-I6	2p-08
PCI Slot 7	Ux.y-P2-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P2	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P2-I8	31–08
PCI Slot 9	Ux.y-P2-I9	34–08
PCI Slot 10	Ux.y-P2-I10	3A-08
RIO Riser Card	Ux.y-P2	
RIO Port Connector	Ux.y-P2/Q1	
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P2/Q1#	
RIO Port Connector	Ux.y-P2/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P2/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	
DCA 1 to (BPA A) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPC - Cable	Ux.y-V1/Q1#	
DCA 1 to (BPA B) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPC - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	
DCA 2 to (BPA A) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V2/Q1	
DCA 2 to (BPA A) BPC - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPC - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	3b-08

FRU Name	Location Code	AIX Location Code
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	3s-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	37-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	37-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	37-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	37-08-00-11,0

FRU Name	Location Code	AIX Location Code
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	37-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	2s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	2s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	2s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	2s-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	2s-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

I/O Subsystem 2 Location Codes

FRU Name	Location Code	AIX Location Code
I/O Subsystem 2 Chassis and Midplane Card	(MT/M Serial #) Ux.y	
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P1-I1	2V-08
PCI Slot 2	Ux.y-P1-I2	2Y-08
PCI Slot 3	Ux.y-P1-I3	2b-08
PCI Slot 4	Ux.y-P1-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P1-I5	2k-08
PCI Slot 6	Ux.y-P1-I6	2p-08
PCI Slot 7	Ux.y-P1-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P1-I8	31–08

FRU Name	Location Code	AIX Location Code
PCI Slot 9	Ux.y-P1-I9	34–08
PCI Slot 10	Ux.y-P1-I10	3A-08
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	
RIO Port Cable from Q1 to CED RIO Connector Q1 - Port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P2-I1	2V-08
PCI Slot 2	Ux.y-P2-I2	2Y-08
PCI Slot 3	Ux.y-P2-I3	2b-08
PCI Slot 4	Ux.y-P2-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P2	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P2-I5	2k-08
PCI Slot 6	Ux.y-P2-I6	2p-08
PCI Slot 7	Ux.y-P2-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P2	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P2-I8	31–08
PCI Slot 9	Ux.y-P2-I9	34–08
PCI Slot 10	Ux.y-P2-I10	3A-08
RIO Riser Card	Ux.y-P2.1	
RIO Port Connector	Ux.y-P2.1/Q1	
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P2.1/Q1#	
RIO Port Connector	Ux.y-P2.1/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P2.1/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	
DCA 1 to (BPA A) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPD1 - Cable	Ux.y-V1/Q1#	

FRU Name	Location Code	AIX Location Code
DCA 1 to (BPA B) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPD1 - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	
DCA 2 to (BPA A) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V2/Q1	
DCA 2 to (BPA A) BPD1 - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPD1 - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	3b-08
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	3s-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0

FRU Name	Location Code	AIX Location Code
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	3b-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

I/O Subsystem 3 Location Codes

FRU Name	Location Code	AIX Location Code
I/O Subsystem 3 Chassis and Midplane Card	(MT/M Serial #) Ux.y	

FRU Name	Location Code	AIX Location Code
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P1-I1	2V-08
PCI Slot 2	Ux.y-P1-I2	2Y-08
PCI Slot 3	Ux.y-P1-I3	2b-08
PCI Slot 4	Ux.y-P1-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P1-I5	2k-08
PCI Slot 6	Ux.y-P1-I6	2p-08
PCI Slot 7	Ux.y-P1-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P1-I8	31–08
PCI Slot 9	Ux.y-P1-I9	34–08
PCI Slot 10	Ux.y-P1-I10	3A-08
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	
RIO Port Cable from Q1 to CED RIO Connector Q1 - Port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P2-I1	2V-08
PCI Slot 2	Ux.y-P2-I2	2Y-08
PCI Slot 3	Ux.y-P2-I3	2b-08
PCI Slot 4	Ux.y-P2-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P2	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P2-I5	2k-08
PCI Slot 6	Ux.y-P2-I6	2p-08
PCI Slot 7	Ux.y-P2-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P2	30–58, 30–5A, 30–5E

FRU Name	Location Code	AIX Location Code
PCI Slot 8	Ux.y-P2-I8	31–08
PCI Slot 9	Ux.y-P2-I9	34–08
PCI Slot 10	Ux.y-P2-I10	3A-08
RIO Riser Card	Ux.y-P2	
RIO Port Connector	Ux.y-P2/Q1	
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P2/Q1#	
RIO Port Connector	Ux.y-P2/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P2/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	
DCA 1 to (BPA A) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPD1 - Cable	Ux.y-V1/Q1#	
DCA 1 to (BPA B) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPD1 - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	
DCA 2 to (BPA A) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V2/Q1	
DCA 2 to (BPA A) BPD1 - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPC - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPD1 - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	3b-08
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	3s-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	

FRU Name	Location Code	AIX Location Code
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	3b-08-00-8,0

FRU Name	Location Code	AIX Location Code
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	3b-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

I/O Subsystem 4 Location Codes

FRU Name	Location Code	AIX Location Code
I/O Subsystem 4 Chassis and Midplane Card	(MT/M Serial #) Ux.y	
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P1-I1	2V-08
PCI Slot 2	Ux.y-P1-I2	2Y-08
PCI Slot 3	Ux.y-P1-I3	2b-08
PCI Slot 4	Ux.y-P1-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P1-I5	2k-08
PCI Slot 6	Ux.y-P1-I6	2p-08
PCI Slot 7	Ux.y-P1-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P1-I8	31–08
PCI Slot 9	Ux.y-P1-I9	34–08
PCI Slot 10	Ux.y-P1-I10	3A-08
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	
RIO Port Cable from Q1 to CED RIO Connector Q1 - Port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	

FRU Name	Location Code	AIX Location Code
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P2-I1	2V-08
PCI Slot 2	Ux.y-P2-I2	2Y-08
PCI Slot 3	Ux.y-P2-I3	2b-08
PCI Slot 4	Ux.y-P2-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P2	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P2-I5	2k-08
PCI Slot 6	Ux.y-P2-I6	2p-08
PCI Slot 7	Ux.y-P2-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P2	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P2-I8	31–08
PCI Slot 9	Ux.y-P2-I9	34–08
PCI Slot 10	Ux.y-P2-I10	3A-08
RIO Riser Card	Ux.y-P2	
RIO Port Connector	Ux.y-P2/Q1	
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P2/Q1#	
RIO Port Connector	Ux.y-P2/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P2/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	
DCA 1 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPD1 - Cable	Ux.y-V1/Q1#	
DCA 1 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPD1 - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	

FRU Name	Location Code	AIX Location Code
DCA 2 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q1	
DCA 2 to (BPA A) BPD1 - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPD1 - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	3b-08
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	3s-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0

FRU Name	Location Code	AIX Location Code
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	3b-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

I/O Subsystem 5 Location Codes

FRU Name	Location Code	AIX Location Code
I/O Subsystem 5 Chassis and Midplane Card	(MT/M Serial #) Ux.y	
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P1-I1	2V-08

FRU Name	Location Code	AIX Location Code
PCI Slot 2	Ux.y-P1-I2	2Y-08
PCI Slot 3	Ux.y-P1-I3	2b-08
PCI Slot 4	Ux.y-P1-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P1-I5	2k-08
PCI Slot 6	Ux.y-P1-I6	2p-08
PCI Slot 7	Ux.y-P1-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P1-I8	31–08
PCI Slot 9	Ux.y-P1-I9	34–08
PCI Slot 10	Ux.y-P1-I10	3A-08
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	
RIO Port Cable from Q1 to CED RIO Connector Q1 - Port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P2-I1	2V-08
PCI Slot 2	Ux.y-P2-I2	2Y-08
PCI Slot 3	Ux.y-P2-I3	2b-08
PCI Slot 4	Ux.y-P2-I4	2C-08
EADS 2 - PCI Controller	Ux.y-P2	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P2-I5	2k-08
PCI Slot 6	Ux.y-P2-I6	2p-08
PCI Slot 7	Ux.y-P2-I7	2v-08
EADS 3 - PCI Controller	Ux.y-P2	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P2-I8	31–08
PCI Slot 9	Ux.y-P2-I9	34–08
PCI Slot 10	Ux.y-P2-I10	3A-08
RIO Riser Card	Ux.y-P2	
RIO Port Connector	Ux.y-P2/Q1	

FRU Name	Location Code	AIX Location Code
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P2/Q1#	
RIO Port Connector	Ux.y-P2/Q2	
RIO Port Cable from Q2 to Processor Subsystem RIO Connector Q2 - Port A1	Ux.y-P2/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	
DCA 1 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPD1 - Cable	Ux.y-V1/Q1#	
DCA 1 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPD1 - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	
DCA 2 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q1	
DCA 2 to (BPA A) BPD1 - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPD1 - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	3b-08
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	3s-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0

FRU Name	Location Code	AIX Location Code
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	3b-08-00-11,0

FRU Name	Location Code	AIX Location Code
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	3b-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

I/O Subsystem 1 Location Codes (Split I/O Drawer)

FRU Name	Location Code	AIX Location Code
I/O Subsystem 1 Chassis and Midplane Card	(MT/M Serial #) Ux.y	
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1	Ux.y-P1-I1	2V-08 to 2V-0F or 2W-xx or 2X-xx
PCI Slot 2	Ux.y-P1-I2	2Y-08 to 2Y-0F or 2c-xx or 2d-xx
PCI Slot 3	Ux.y-P1-I3	2b-08 to 2b-0F or 2c-xx or 2d-xx
PCI Slot 4	Ux.y-P1-I4	2e-08 to 2e-0F or 2f-xx or 2g-xx
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5	Ux.y-P1-I5	2k-08 to 2k-0F or 2m-xx or 2n-xx
PCI Slot 6	Ux.y-P1-I6	2p-08 to 2p-0F or 2q-xx or 2r-xx
PCI Slot 7	Ux.y-P1-I7	2v-08 to 2v-0F or 2w-xx or 2x-xx
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8	Ux.y-P1-I8	31–08to 31–0F or 32–xx or 33–xx
PCI Slot 9	Ux.y-P1-I9	34–08 to 34–0F or 35–xx or 36–xx
PCI Slot 10	Ux.y-P1-I10	3A-08 to 3A-0F or 3B-xx or 3C-xx
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	

FRU Name	Location Code	AIX Location Code
RIO Port Cable from GXOA I/O Slot 0 - port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	
RIO Port Cable to port 0 on next riser card U1.9–P2.1/Q1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	3E–58, 3E–5A, 3E–5C, 3E-5E
PCI Slot 1	Ux.y-P2-I1	3F-08 to 3F-0F or 3G-xx or 3H-xx
PCI Slot 2	Ux.y-P2-I2	3J-08 to 3J-0F or 3K-xx or 3L-xx
PCI Slot 3	Ux.y-P2-I3	3M-08 to 3M-0F or 3N-xx to 3P-xx
PCI Slot 4	Ux.y-P2-I4	3Q-08 to 3Q-0F or 3R-xx or 3S-xx
EADS 2 - PCI Controller	Ux.y-P2	3U-58, 3U-5A, 3U-5E
PCI Slot 5	Ux.y-P2-I5	3V-08 to 3V-0F or 3W-xx or 3X-xx
PCI Slot 6	Ux.y-P2-I6	3Y-08 or 3Y-0F or 3Z-xx or 3a-xx
PCI Slot 7	Ux.y-P2-I7	3e-08 ot 3e-0F or 3f-xx or 3a-xx
EADS 3 - PCI Controller	Ux.y-P2	3j–58, 3j–5A, 3j–5E
PCI Slot 8	Ux.y-P2-I8	3k-08 to 3k-0F or 3m-xx or 3n-xx
PCI Slot 9	Ux.y-P2-I9	3p-08 to 3p-0F or 3q-xx or 3r-xx
PCI Slot 10	Ux.y-P2-I10	3v-08 to 3v-0F or 3w-xx or 3x-xx
RIO Riser Card	Ux.y-P2	
RIO Port Connector	Ux.y-P2/Q1	
RIO Port Cable from Q1 to Processor Subsystem RIO Connector Q1 - Port A0	Ux.y-P2/Q1#	
RIO Port Connector	Ux.y-P2/Q2	
RIO Port Cable GXOA Treasure I/O Slot 0 - Port A1	Ux.y-P2/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	

FRU Name	Location Code	AIX Location Code
DCA 1 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPD1 - Cable	Ux.y-V1/Q1#	
DCA 1 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPD1 - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	
DCA 2 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q1	
DCA 2 to (BPA A) BPD1 - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPD1 - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	2s-08
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	37-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	

FRU Name	Location Code	AIX Location Code
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	37-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	37-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	37-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	37-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	37-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	2s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	2s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	2s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	2s-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	2s-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

I/O Subsystems 2, 3, 4, and 5 Location Codes (Split I/O Drawers)

FRU Name	Location Code	AIX Location Code
I/O Subsystem Chassis and Midplane Card	(MT/M Serial #) Ux.y	
I/O Subsystem Left I/O backplane assembly	**Ux.y-P1**	
I/O Subsystem Left I/O backplane assembly VPD	Ux.y-P1-N1	
EADS 1 - PCI Controller	Ux.y-P1	2U-58, 2U-5A, 2U-5C, 2U-5E
PCI Slot 1 Content	Ux.y-P1-I1	2V-08 to 2V-0F or 2W-xx or 2X-xx
PCI Slot 2 Content	Ux.y-P1-I2	2Y-08 to 2Y-0F or 2Z-xx or 2a-xx
PCI Slot 3 Content	Ux.y-P1-I3	2b-08 to 2b-0F or 2c-xx or 2d-xx
PCI Slot 4 Content	Ux.y-P1-I4	2e-08 to 2e-0F or 2f-xx or 2g-xx
EADS 2 - PCI Controller	Ux.y-P1	2j-58, 2j-5A, 2j-5E
PCI Slot 5 Content	Ux.y-P1-I5	2k-08 to 2k-0F or 2m-xx or 2n-xx
PCI Slot 6 Content	Ux.y-P1-I6	2p-08 to 2p-0F or 2q-xx or 2r-xx
PCI Slot 7 Content	Ux.y-P1-I7	2v-08 to 2v-0F or 2w-xx or 2x-xx
EADS 3 - PCI Controller	Ux.y-P1	30–58, 30–5A, 30–5E
PCI Slot 8 Content	Ux.y-P1-I8	31–08 to 31–0F or 32–xx or 33–xx
PCI Slot 9 Content	Ux.y-P1-I9	34–08 to 34–0F or 35–xx or 36–xx
PCI Slot 10 Content	Ux.y-P1-I10	3A-08 to 3A-0F or 3B-xx or 3C-xx
RIO Riser Card	Ux.y-P1	
RIO Port Connector	Ux.y-P1/Q1	
RIO Port Cable from GXOA I/O Slot 0 - port A0	Ux.y-P1/Q1#	
RIO Port Connector	Ux.y-P1/Q2	
RIO Port Cable to port 0 on next riser card U1.9–P2.1/Q1	Ux.y-P1/Q2#	
I/O Subsystem Right I/O backplane assembly	**Ux.y-P2**	
I/O Subsystem Right I/O backplane assembly VPD	Ux.y-P2-N1	
EADS 1 - PCI Controller	Ux.y-P2	3E–58, 3E–5A, 3E–5C, 3E-5E

FRU Name	Location Code	AIX Location Code
PCI Slot 1 Content	Ux.y-P2-I1	3F-08 to 3F-0F or 3G-xx or 3H-xx
PCI Slot 2 Content	Ux.y-P2-I2	3J-08 to 3J-0F or 3K-xx or 3L-xx
PCI Slot 3 Content	Ux.y-P2-I3	3M-08 to 3M-0F or 3N-xx to 3P-xx
PCI Slot 4 Content	Ux.y-P2-I4	3Q-08 to 3Q-0F or 3R-xx or 3S-xx
EADS 2 - PCI Controller	Ux.y-P2	3U-58, 3U-5A, 3U-5E
PCI Slot 5 Content	Ux.y-P2-I5	3V-08 to 3V-0F or 3W-xx or 3X-xx
PCI Slot 6 Content	Ux.y-P2-I6	3Y-08 or 3Y-0F or 3Z-xx or 3a-xx
PCI Slot 7 Content	Ux.y-P2-I7	3e-08 ot 3e-0F or 3f-xx or 3a-xx
EADS 3 - PCI Controller	Ux.y-P2	3j–58, 3j–5A, 3j–5E
PCI Slot 8 Content	Ux.y-P2-I8	3k-08 to 3k-0F or 3m-xx or 3n-xx
PCI Slot 9 Content	Ux.y-P2-I9	3p-08 to 3p-0F or 3q-xx or 3r-xx
PCI Slot 10 Content	Ux.y-P2-I10	3v-08 to 3v-0F or 3w-xx or 3x-xx
RIO Riser Card	Ux.y-P2	
RIO Port Connector	Ux.y-P2/Q1	
RIO Port Cable to GXOA Treasure I/O Slot 0 - Port A0	Ux.y-P2/Q1#	
RIO Port Connector	Ux.y-P2/Q2	
RIO Port Cable GXOA Treasure I/O Slot 0 - Port A1	Ux.y-P2/Q2#	
I/O Subsystem DCA 1	**Ux.y-V1**	
DCA 1 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q1	
DCA 1 to (BPA A) BPD1 - Cable	Ux.y-V1/Q1#	
DCA 1 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V1/Q2	
DCA 1 to (BPA B) BPD1 - Cable	Ux.y-V1/Q2#	
Thermal Sensor	Ux.y-V1	
I/O Subsystem DCA 2	**Ux.y-V2**	
DCA 2 to (BPA A) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q1	

FRU Name	Location Code	AIX Location Code
DCA 2 to (BPA A) BPD1 - Cable	Ux.y-V2/Q1#	
DCA 2 to (BPA B) Connector (BPD1 - Depends on drawer location in the frame)	Ux.y-V2/Q2	
DCA 2 to (BPA B) BPD1 - Cable	Ux.y-V2/Q2#	
Thermal Sensor	Ux.y-V2	
I/O Subsystem SCSI controller 1 on P1	Ux.y-P1/Z1	2s-08
I/O Subsystem SCSI controller 2 on P1	Ux.y-P1/Z2	37-08
I/O Subsystem SCSI controller 1 on P2	Ux.y-P2/Z1	3b-08
I/O Subsystem SCSI controller 2 on P2	Ux.y-P2/Z2	3s-08
DASD 4-Pack Cage and card (1)	**Ux.y-P3**	
DASD 4-Pack Cage and card (1) VPD	Ux.y-P3-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P2	Ux.y-P2/Z2-A8	3s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P2	Ux.y-P2/Z2-A9	3s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P2	Ux.y-P2/Z2-Aa	3s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P2	Ux.y-P2/Z2-Ab	3s-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P2	Ux.y-P2/Z2-Af	3s-08-00-15,0
DASD 4-Pack Cage and card (2)	**Ux.y-P4**	
DASD 4-Pack Cage and card (2) VPD	Ux.y-P4-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P2	Ux.y-P2/Z1-A8	3b-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P2	Ux.y-P2/Z1-A9	3b-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P2	Ux.y-P2/Z1-Aa	3b-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P2	Ux.y-P2/Z1-Ab	3b-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P2	Ux.y-P2/Z1-Af	3b-08-00-15,0
DASD 4-Pack Cage and card (3)	**Ux.y-P5**	
DASD 4-Pack Cage and card (3) VPD	Ux.y-P5-N1	

FRU Name	Location Code	AIX Location Code
SCSI DASD 1 hdisk at ID 8 connected to controller 2 on P1	Ux.y-P1/Z2-A8	37-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 2 on P1	Ux.y-P1/Z2-A9	37-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 2 on P1	Ux.y-P1/Z2-Aa	37-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 2 on P1	Ux.y-P1/Z2-Ab	37-08-00-11,0
SCSI Enclosure Services SES connected to controller 2 on P1	Ux.y-P1/Z2-Af	37-08-00-15,0
DASD 4-Pack Cage and card (4)	**Ux.y-P6**	
DASD 4-Pack Cage and card (4) VPD	Ux.y-P6-N1	
SCSI DASD 1 hdisk at ID 8 connected to controller 1 on P1	Ux.y-P1/Z1-A8	2s-08-00-8,0
SCSI DASD 2 hdisk at ID 9 connected to controller 1 on P1	Ux.y-P1/Z1-A9	2s-08-00-9,0
SCSI DASD 3 hdisk at ID A connected to controller 1 on P1	Ux.y-P1/Z1-Aa	2s-08-00-10,0
SCSI DASD 4 hdisk at ID B connected to controller 1 on P1	Ux.y-P1/Z1-Ab	2s-08-00-11,0
SCSI Enclosure Services SES connected to controller 1 on P1	Ux.y-P1/Z1-Af	2s-08-00-15,0
I/O Subsystem Fan (MSA)	Ux.y-F1	
I/O Subsystem Fan (MSA)	Ux.y-F2	
I/O Subsystem Fan (MSA)	Ux.y-F3	
I/O Subsystem Fan (MSA)	Ux.y-F4	

Specifications

This section contains specifications for the pSeries 655 system.

pSeries 655 Physical Specifications and Loads

The following tables illustrate the physical, electrical and thermal, as well as acoustical and environmental characteristics of various pSeries 655 system configurations.

Dimensions and Weight

Physical Characteristic	Slimline Doors	Acoustical Doors
Height	2028 mm (79.84 in.)	2028 mm (79.84 in.)
Width	785 mm (30.91 in.)	785 mm (30.91 in.)
Depth	1443 mm (56.81 in.)	1799 mm (70.83 in.)
Weight without IBF (maximum configuration)	1501 kg (3303 lbs.)	1521 kg (3345 lbs.)
Weight with IBF (maximum configuration)	1642 kg (3613 lbs.)	1661 kg (3655 lbs.)

Notes:

1. Doors are not installed during product shipment to the customer.
2. Refer to the following table for the approximate weight of your system configuration.

Approximate System Weights by Configuration

Number of Nodes, I/O Drawers	Weight in kg (lbs)					
	Slim Doors with IBF	Slim Doors	Acoustic Doors with IBF	Acoustic Doors	No Doors with IBF	No Doors
1, 0	614 (1350)	525 (1155)	633 (1392)	544 (1197)	587 (1292)	499 (1097)
2, 0	668 (1470)	580 (1276)	687 (1512)	599 (1318)	642 (1412)	553 (1218)
3, 0	738 (1625)	650 (1430)	758 (1667)	669 (1472)	712 (1567)	623 (1372)
4, 0	906 (1992)	728 (1602)	925 (2034)	747 (1644)	879 (1934)	702 (1544)
5, 0	976 (2146)	798 (1756)	995 (2188)	817 (1798)	949 (2088)	772 (1698)
6, 0	1143 (2514)	877 (1929)	1162 (2556)	896 (1971)	1116 (2456)	851 (1871)
7, 0	1213 (2668)	947 (2083)	1232 (2710)	966 (2125)	1186 (2610)	921 (2025)
8, 0	1268 (2789)	1002 (2204)	1287 (2831)	1021 (2246)	1241 (2731)	975 (2146)
9, 0	1338 (2943)	1072 (2358)	1357 (2985)	1091 (2400)	1311 (2885)	1045 (2300)
10, 0	1392 (3063)	1127 (2479)	1412 (3105)	1146 (2521)	1366 (3005)	1100 (2421)
11, 0	1463 (3218)	1197 (2633)	1482 (3260)	1216 (2675)	1436 (3160)	1170 (2575)
12, 0	1517 (3338)	1252 (2754)	1536 (3380)	1271 (2796)	1491 (3280)	1225 (2696)
13, 0	1587 (3492)	1322 (2908)	1607 (3534)	1341 (2950)	1561 (3434)	1295 (2850)
14, 0	1642 (3613)	1377 (3028)	1661 (3655)	1396 (3070)	1616 (3555)	1350 (2970)

Number of Nodes, I/O Drawers	Weight in kg (lbs)					
	Slim Doors with IBF	Slim Doors	Acoustic Doors with IBF	Acoustic Doors	No Doors with IBF	No Doors
15, 0	N/A	1447 (3182)	N/A	1466 (3224)	N/A	1420 (3124)
16, 0	N/A	1501 (3303)	N/A	1521 (3345)	N/A	1475 (3245)
1, 1	715 (1573)	626 (1378)	734 (1615)	646 (1420)	689 (1515)	600 (1320)
2, 1	770 (1697)	681 (1499)	789 (1736)	700 (1541)	744 (1636)	655 (1441)
3, 1	840 (1848)	751 (1653)	859 (1890)	770 (1695)	814 (1790)	725 (1595)
4, 1	1007 (2215)	830 (1826)	1026 (2257)	849 (1868)	981 (2157)	803 (1768)
5, 1	1077 (2370)	900 (1980)	1096 (2412)	919 (2022)	1051 (2312)	874 (1922)
6, 1	1244 (2737)	978 (2152)	1263 (2779)	997 (2194)	1218 (2679)	952 (2094)
7, 1	1314 (2891)	1048 (2307)	1333 (2933)	1068 (2349)	1288 (2833)	1022 (2249)
8, 1	1369 (3012)	1103 (2427)	1388 (3054)	1122 (2469)	1343 (2954)	1077 (2369)
9, 1	1439 (3166)	1173 (2581)	1458 (3208)	1192 (2623)	1413 (3108)	1147 (2523)
10, 1	1494 (3287)	1228 (2702)	1513 (3329)	1247 (2744)	1468 (3229)	1202 (2644)
11, 1	1564 (3441)	1298 (2856)	1583 (3483)	1317 (2898)	1538 (3383)	1272 (2798)
12, 1	1619 (3562)	1353 (2977)	1638 (3604)	1372 (3019)	1593 (3504)	1327 (2919)
13, 1	N/A	1423 (3131)	N/A	1442 (3173)	N/A	1397 (3073)
14, 1	N/A	1431 (318)	N/A	1450 (3190)	N/A	1404 (3090)
2, 2	871 (1917)	783 (1722)	890 (1959)	802 (1764)	845 (1859)	756 (1664)
3, 2	1054 (2318)	876 (1928)	1073 (2360)	896 (1970)	1027 (2260)	850 (1870)
4, 2	1109 (2439)	931 (2049)	1128 (2481)	950 (2091)	1082 (2381)	905 (1991)
5, 2	1291 (2840)	1025 (2255)	1310 (2882)	1044 (2297)	1264 (2782)	999 (2197)
6, 2	1346 (2960)	1080 (2376)	1365 (3002)	1099 (2418)	1319 (2902)	1054 (2318)
7, 2	1416 (3115)	1150 (2530)	1435 (3157)	1169 (2572)	1389 (3057)	1124 (2472)
8, 2	1471 (3235)	1205 (2651)	1490 (3277)	1224 (2693)	1444 (3177)	1178 (2593)
9, 2	1541 (3389)	1275 (2805)	1560 (3431)	1294 (2847)	1514 (3331)	1248 (2747)
10, 2	1595 (3510)	1330 (2925)	1615 (3552)	1349 (2967)	1569 (3452)	1303 (2867)
11, 2	N/A	1400 (3079)	N/A	1419 (3121)	N/A	1373 (3021)
12, 2	N/A	1455 (3200)	N/A	1474 (3242)	N/A	1428 (3142)
3, 3	1155 (2541)	978 (2152)	1174 (2583)	997 (2194)	1129 (2483)	952 (2094)
4, 3	1322 (2909)	1056 (2324)	1341 (2951)	1076 (2366)	1296 (2851)	1030 (2266)
5, 3	1392 (3063)	1127 (2478)	1411 (3105)	1146 (2520)	1366 (3005)	1100 (2420)
6, 3	1447 (3184)	1181 (2599)	1466 (3226)	1200 (2641)	1421 (3126)	1155 (2541)
7, 3	1517 (3338)	1251 (2753)	1536 (3380)	1271 (2795)	1491 (3280)	1225 (2695)
8, 3	1572 (3459)	1306 (2874)	1591 (3501)	1325 (2916)	1546 (3401)	1280 (2816)
9, 3	N/A	1376 (3028)	N/A	1395 (3070)	N/A	1350 (2970)
10, 3	N/A	1431 (3149)	N/A	1450 (3191)	N/A	1405 (3091)

Number of Nodes, I/O Drawers	Weight in kg (lbs)					
	Slim Doors with IBF	**Slim Doors**	**Acoustic Doors with IBF**	**Acoustic Doors**	**No Doors with IBF**	**No Doors**
4, 4	1424 (3132)	1158 (2548)	1443 (3174)	1177 (2590)	1397 (3074)	1132 (2490)
5, 4	1494 (3286)	1228 (2702)	1513 (3328)	1247 (2744)	1467 (3228)	1202 (2644)
6, 4	1549 (3407)	1283 (2822)	1568 (3449)	1302 (2864)	1522 (3349)	1257 (2764)
7, 4	N/A	1353 (2976)	N/A	1372 (3018)	N/A	1327 2918)
8, 4	N/A	1408 (3097)	N/A	1427 (3139)	N/A	1381 (3039)
5, 5	N/A	1330 (2925)	N/A	1349 (2967)	N/A	1303 (2867)
6, 5	N/A	1384 (3046)	N/A	1403 (3088)	N/A	1358 (2988)

Declared Acoustical Noise Emissions

pSeries 655 Product Configuration	Declared A-Weighted Sound Power Level, L_{WAd} (B)		Declared A-Weighted Sound Pressure Level, LpAm (dB)	
	Operating	Idle	Operating	Idle
One processor node (16 max.), nominal conditions, non-acoustical doors	7.4	7.4	57	57
One processor node (16 max.) nominal conditions, acoustical doors	6.7[(4)]	6.7[(4)]	50[(4)]	50[(4)]
Typical configuration (3 processor nodes, bulk power, 1 I/O drawer), nominal conditions, non-acoustical doors	8.2	8.2	64	64
Typical configuration (3 processor nodes, bulk power, 1 I/O drawer), nominal conditions, acoustical doors	7.5[(4)]	7.5[(4)]	57[(4)]	57[(4)]
Maximum configuration (16 processor nodes, bulk power), nominal conditions, non-acoustical doors	8.7[(3)], [(4)]	8.7[(3)], [(4)]	69[(3)], [(4)]	69[(3)], [(4)]
Maximum configuration (16 processor nodes, bulk power), nominal conditions, acoustical doors	8.0[(3)], [(4)]	8.0[(3)], [(4)]	62[(3)], [(4)]	62[(3)], [(4)]

Notes:

1. **L_{WAd}** is the upper-limit A-weighted sound level; **LpAm** is the mean A-weighted sound pressure level measured at the 1-meter bystander positions; 1 B = 10 dB.
2. All measurements made in conformance with ISO 7779 and declared in conformance with ISO 9296
3. **Attention:** Your server installation may be subject to government regulations (such as those prescribed by OSHA or European Community Directives) that cover noise-level exposure in the workplace. The pSeries 655 is available with an optional acoustical door feature that can reduce the likelihood of exceeding noise-level exposure limits. The actual sound-pressure levels in your installation will depend on a variety of factors, including the number of servers in the installation; the size, materials, and configuration of the room where the server(s) is(are) installed; the noise levels from other equipment; the room ambient temperature, and employees' location in relation to the equipment. It is recommended that a qualified person, such as an industrial hygienist, be consulted to determine whether the sound-pressure levels to which employees may be exposed exceed regulatory limits.
4. These numbers are based on preliminary data and are subject to change.

Environmental Specifications

Environmental Specification	Operating	Non-Operating	Storage	Shipping
Temperature	10 to 32°C (50 to 90°F)	10 to 43°C (50 to 109°F)	1 to 60°C (34 to 140°F)	–40 to 60°C (–40 to 140°F)
Relative Humidity (Noncondensing)	8 to 80 %	8 to 80 %	5 to 80 %	5 to 100 %
Maximum Wet Bulb	23°C (73°F)	27°C (73°F)	29°C (84°F)	29°C (84°F)

Notes:

1. Storage specifications are valid for 6 months. Shipping specifications are valid for 1 month.
2. The upper limit of the dry bulb temperature must be derated 1 degree C per 219 m (719 ft.) above 1295 m (4250 ft.). Maximum altitude for is 3048 m (10,000 ft.)

Weight Distribution

The following table shows dimensions and weights used to calculate floor loading for the pSeries 655. All floor-loading calculations are intended for a raised-floor environment.

	1 Frame with Slimline Covers	1 Frame with Acoustical Covers
Weight	1196 kg (2636 lbs.)	1209 kg (2666 lbs.)
Width	750 mm (29.5 in.)	750 mm (29.5 in.)
Depth	1173 mm (46.2 in.)	1173 mm (46.2 in.)

Notes:

1. For 2 frame systems, widths of Frame A and Frame B were added (the depth remains 1069 mm (42.1 in.), not including frame extenders).
2. For 2 frame systems, weights are based on maximum configuration (less than addition of maximum weights for each frame).
3. The values in the table may be used with the Floor Loading Calculation Program available on the IP Website.
4. All floor-loading calculations are intended for a raised-floor environment.

The following table shows floor-loading specifications for systems with slimline covers. The values contained in the Condition column are described following the table.

Condition	a (sides) (mm, in.)	b (front) (mm, in.)	c (back (mm, in.)	1 Frame kg/m^2 (lb./ft.^{2})
1	25 (1.0)	160 (6.3)	109 (4.3)	1102.1 (225.7)
2	25 (1.0)	516 (20.3)	427 (16.8)	790.3 (161.9)
3	25 (1.0)	762 (30.0)	762 (30.0)	646.2 (132.4)
4	254 (10.0)	516 (20.3)	427 (16.8)	547.3 (112.1)
5	254 (10.0)	762 (30.0)	762 (30.0)	455.6 (93.3)

6	508 (20.0)	516 (20.3)	427 (16.8)	425.0 (87.0)
7	508 (20.0)	762 (30.0)	762 (30.0)	359.6 (73.7)
8	602 (23.7)	516 (20.3)	427 (16.8)	395.8 (81.1)
9	579 (22.8)	762 (30.0)	762 (30.0)	341.9 (70.0)
10	762 (30.0)	516 (20.3)	427 (16.8)	357.3 (73.2)
11	762 (30.0)	668 (26.3)	668 (26.3)	320.4 (65.6)
12	762 (30.0)	762 (30.0)	762 (30.0)	306.6 (62.8)

Definition of Conditions:

- Condition 1 indicates maximum floor loading when systems are stored cover-to-cover on all four sides with covers installed.
- Conditions 2 and 3 indicate floor loading when the system has no side clearance (beyond side covers) on both sides while front/back distances varied.
- Conditions 4 through 8 indicate floor loading at various points below the maximum weight-distribution distance of 762 mm (30.0 in.) from each edge of the frame.
- Conditions 9 through 11 indicate floor-loading options when the installation is limited to 342.0 kg/m^2 (70.0 lb/ft$^{2)}$.
- Condition 12 is the minimum floor loading required, based on the maximum weight-distribution area (30.0 in. from each side of the base frame).

Notes:

1. Service clearance is independent from weight distribution distance and must be at least 45 in. for the front of the frame and 36 in. for the rear of the frame (measured from the base frame, without frame extenders).
2. Weight-distribution areas should not be overlapped.
3. Floor-loading weight distribution distances should not exceed 762 mm (30 in.) in any direction when measured from the base frame (without frame extenders).

The following table shows floor-loading specifications for systems with acoustical covers. The values contained in the Condition column are described following the table.

Condition	a (sides) (mm, in.)	b (front) (mm, in.)	c (back (mm, in.)	1 Frame kg/m² (lb./ft.²)	2 Frames kg/m² (lb./ft.²)
1	25 (1.0)	160 (6.3)	211 (8.3)	1048.7 (214.8)	821.7 (168.3)
2	25 (1.0)	732 (28.8)	630 (24.8)	686.6 (140.6)	548.3 (112.3)
3	25 (1.0)	762 (30.0)	762 (30.0)	652.5 (133.6)	522.6 (107.0)
4	254 (10.0)	732 (28.8)	630 (24.8)	481.3 (98.6)	453.1 (92.8)
5	254 (10.0)	762 (30.0)	762 (30.0)	459.6 (94.1)	433.2 (88.7)
6	508 (20.0)	732 (28.8)	630 (24.8)	377.9 (77.4)	387.3 (79.3)
7	508 (20.0)	762 (30.0)	762 (30.0)	362.5 (74.2)	371.3 (76.0)
8	592 (23.3)	762 (30.0)	762 (30.0)	341.6 (70.0)	356.0 (72.9)
9	762 (30.0)	732 (28.8)	630 (24.8)	320.7 (65.7)	343.3 (70.3)
10	762 (30.0)	559 (22.0)	559 (22.0)	341.9 (70.0)	366.9 (75.1)
11	762 (30.0)	688 (27.1)	688 (27.1)	319.6 (65.4)	342.0 (70.0)
12	762 (30.0)	762 (30.0)	762 (30.0)	308.8 (63.2)	330.0 (67.6)

Definition of Conditions:

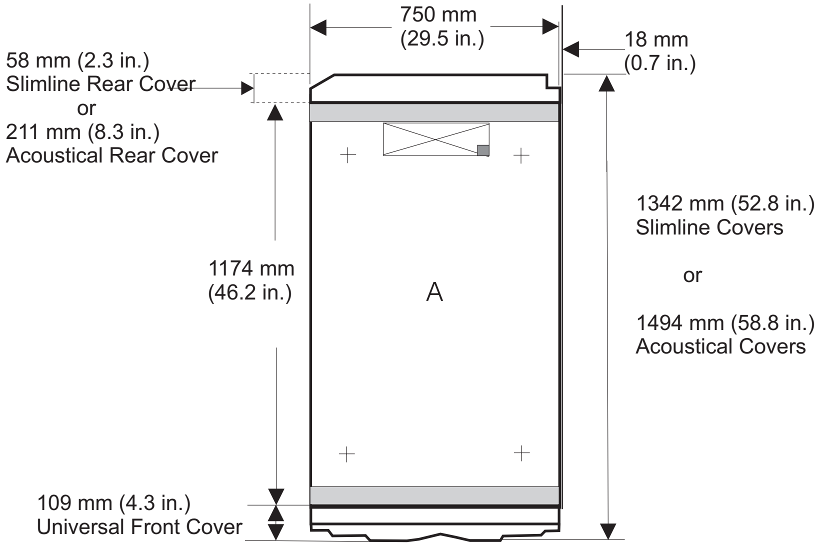
- Condition 1 indicates maximum floor loading when systems are stored cover-to-cover on all four sides with covers installed.
- Conditions 2 and 3 indicate floor loading when the system has no side clearance (beyond side covers) on both sides while front/back distances varied.
- Conditions 4 through 8 indicate floor loading at various points below the maximum weight-distribution distance of 762 mm (30.0 in.) from each edge of the frame.
- Conditions 9 through 11 indicate floor-loading options when the installation is limited to 342.0 kg/m² (70.0 lb/ft²).
- Condition 12 is the minimum floor loading required, based on the maximum weight-distribution area (30.0 in. from each side of the base frame).

Notes:

1. Service clearance is independent from weight-distribution distance and must be at least 45 in. at the front of the frame and 36 in. at the rear of the frame (measured from the base frame, without frame extenders).
2. Weight-distribution areas should not be overlapped.
3. Floor-loading weight distribution distances should not exceed 762 mm (30 in.) in any direction when measured from the base frame (without frame extenders).

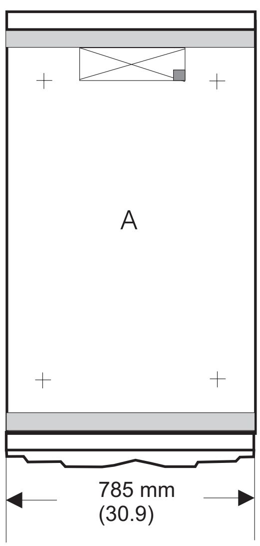
Plan Views

The following illustration shows dimensional-planning information for single-frame systems and double-frame systems.

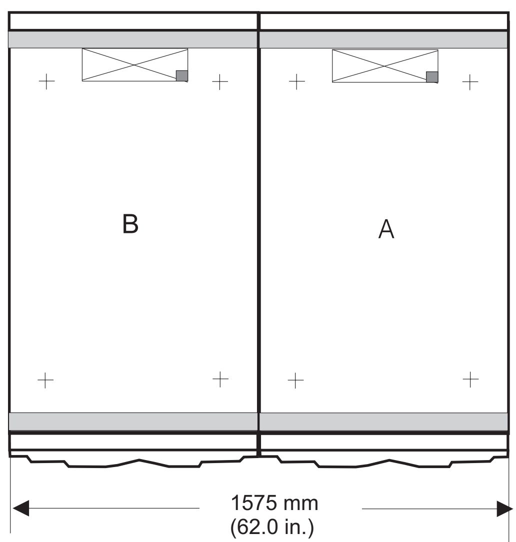


FRONT

FRAME ENTRY/EXIT	DIMENSION (mm)	(in.)
FRONT	117 by 403	4.6 by 15.9
REAR	117 by 403	4.6 by 15.9



Single -Frame Systems



Double-Frame Systems

Checking the Facility Outlets and Power Source

CAUTION:
Do not touch the receptacle or the receptacle faceplate with anything other than your test probes before you have met the requirements in step 8.
`C02`

Performing the following will ensure that appropriate power will be used by the pSeries 655. The following checklist is for reference purposes, and will likely be performed by a service engineer prior to installation.

__ 1. The pSeries 655 is equipped to use 200-240V / 380-415V / 480V AC, three-phase. Check that the correct power source is available.

__ 2. Before system installation, locate and turn off the branch circuit CB (circuit breaker). Attach tag S229-0237, which reads “Do Not Operate.”

   Note: All measurements are made with the receptacle faceplate in the normally installed position.

__ 3. Some receptacles are enclosed in metal housings. On receptacles of this type, perform the following steps:

   a. Check for less than 1 volt from the receptacle case to any grounded metal structure in the building, such as a raised-floor metal structure, water pipe, building steel, or similar structure.

   b. Check for less than 1 volt from receptacle ground pin to a grounded point in the building.

   Note: If the receptacle case or faceplate is painted, be sure the probe tip penetrates the paint and makes good electrical contact with the metal.

__ 4. Check the resistance from the ground pin of the receptacle to the receptacle case. Check resistance from the ground pin to building ground. The reading should be less than 1.0 ohm, which indicates the presence of a continuous grounding conductor.

__ 5. If any of the checks made in substeps 2 and 3 are not correct, remove the power from the branch circuit and make the wiring corrections; then check the receptacle again.

   Note: Do not use the digital multimeter to measure grounding resistance.

__ 6. Check for infinite resistance between the phase pins. This is a check for a wiring short.

   CAUTION:
   If the reading is other than infinity, do not proceed! Have the customer make necessary wiring connections before continuing. Do not turn on the branch circuit CB until all the above steps are satisfactorily completed.
   `C03`

__ 7. Remove tag S229-0237, which reads “Do Not Operate.”

__ 8. Turn on the branch circuit CB. Measure for appropriate voltages between phases. If no voltage is present on the receptacle case or grounded pin, the receptacle is safe to touch.

__ 9. With an appropriate meter, verify that the voltage at the outlet is correct.

__ 10. Verify that the grounding impedance is correct by using the ECOS 1020, 1023, B7106, or an appropriately approved ground impedance tester.

__ 11. Turn off the branch circuit CB.

__ 12. Attach tag S229-0237, which reads “Do Not Operate.”

__ 13. You are now ready to install and connect the power cables to the pSeries 655. Please refer to Chapter 1 of the pSeries 655 Installation Guide for this procedure.

Total System Power Consumption

The following tables contain minimum and maximum power consumption for the 1.1 and 1.3 GHz pSeries 655. Minimum power consumption is based on a configuration consisting of a single 8 GB memory card, no PCI cards, and no DASD device.

Maximum power consumption is based on a configuration consisting of two 32 GB memory cards per MCM module, maximum PCI cards (20 per I/O drawer), and maximum DASD (16 per I/O drawer).

Power consumption calculations are estimates. Actual values may vary.

Calculate heat load (Btu per hour) by multiplying the power (in watts) for the configuration by a factor of 3.4.

Number of I/O Drawers (7040-61D)	1.1 GHz, 8-way Modules (minimum power consumption, in watts)	1.1 GHz, 8-way Modules (maximum power consumption, in watts)
	8-way	**8-way**
1	1911	3042
2	2279	4090
3	2647	5138
4	3015	6186
5	3383	7234
6	3751	8282

Number of I/O Drawers (7040-61D)	1.3 GHz, 4-way Modules (maximum power consumption, in watts)	1.3 GHz, 4-way Modules (maximum power consumption, in watts)
1	3213	4932
2	3581	5634
3	3949	6682
4	4317	7730
5	4685	8778
6	5053	9826

Number of I/O Drawers (7040-61D)	1.3 GHz, 4-way Modules (minimum power consumption, in watts)	1.3 GHz, 4-way Modules (maximum power consumption, in watts)
1	2084	3215
2	2452	4263
3	2820	5311
4	3188	6359
5	3556	7407

Number of I/O Drawers (7040-61D)	1.3 GHz, 4-way Modules (minimum power consumption, in watts)	1.3 GHz, 4-way Modules (maximum power consumption, in watts)
6	3924	8455

Wattage Addition/Subtraction for Minimum and Maximum Configurations

Minimum configurations are based on a single 4 GB memory card and a single DASD/PCI card in each I/O subsystem. Maximum configurations are based on 32 GB of memory, 16 DASD per I/O subsystem, and 20 PCI cards per I/O subsystem. To determine the typical power consumption for a specific configuration, use the following typical power values:

- 4 GB memory card - 137 Watts
- 8 GB memory card - 151 Watts
- Each PCI card - 20 Watts
- DASD - 20 Watts

Service Inspection Guide

Perform a service inspection on the system when:

- The system is inspected for a maintenance agreement.
- Service is requested and service has not recently been performed.
- An alterations and attachments review is performed.
- Changes have been made to the equipment that may affect its safe operation.
- External devices with their own power cables have those cables attached.

If the inspection indicates an unacceptable safety condition, the condition must be corrected before anyone can service the machine.

Note: The owner of the system is responsible to correct any unsafe conditions.

Perform the following checks:

1. Check the covers for sharp edges and for damage or alterations that expose the internal parts of the system.
2. Check the covers for proper fit to the rack. They should be in place and secure.
3. Gently rock the rack from side to side to verify the rack is stable.
4. Turn off the UEPO switch, turn off the circuit breakers on all optional IBF subsystems (if provided), then disconnect both power cords from the customer's receptacle.
5. Open the covers.
6. Check for alterations or attachments. If there are any, check for obvious safety hazards, such as broken wires, sharp edges, or broken insulation.
7. Check the internal cables for damage.
8. Check for dirt, water, and any other contamination within the system.
9. Check the air filters in the processor subsystem to ensure they are clean. Replace if necessary.
10. Check the voltage label on the back of the system to ensure that it matches the voltage at the outlet.
11. Check the external power cable for damage.
12. With the external power cable connected to the system, check for 0.1 ohm or less resistance between the ground lug on the external power cable plug and the metal frame.
13. Perform the following checks on each device that has its own power cables:
    a. Check for damage to the power cord.
    b. Check for the correct grounded power cable.
    c. With the external power cable connected to the device, check for 0.1 ohm or less resistance between the ground lug on the external power cable plug and the metal frame of the device.
14. Close the covers.

Powering the System On and Off

This section provides procedures for powering on and powering off the processor subsystems using the Hardware Management Console. Powering off a processor subsystem using the HMC does not remove power from other processor subsystems in the rack, the bulk power subsystem, or the integrated battery feature.

DANGER

> **To prevent electrical shock hazard, disconnect all power cables from the electrical outlet before relocating the system.**
> D01

Powering the System On

The Hardware Management Console is used to turn the power on to the processor subsystems through the HMC user interface. Refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for a detailed procedure.

Processor subsystems can be powered on after all of the following steps have been completed:

- All I/O drawer cables are connected
- Base system cables are connected (cables for rack power, bulk power subsystem, integrated battery feature)
- All PCI cables to supported subsystems are connected
- The Hardware Management Console (HMC) is connected
- Source power is connected and turned on to the system

Note: The UEPO switch must be switched to on to restore power to the entire rack after performing certain service operations. Removing power from an individual processor subsystem with the HMC does not remove power from other processor subsystems or from the bulk power assembly.

After the required cables are installed, and the power cables are connected, examine the Power-In LED of the processor subsystem DCA, and the Power-In LEDs of both DCAs of any attached I/O subsystem(s). If any of the Power-In LEDs of the DCAs are off, for the system that you are trying to power on, push the white Service Complete button on the UEPO panel. The action should restore power to the input of all DCAs, and all Power-In LEDs should turn on. If they do not, record all of the symptoms and go to the "Entry MAP" on page 147. The HMC interface provides a power-on function to turn on the power to the system. Progress indicators, also referred to as *checkpoints*, are visible on the operator panel display on the HMC as the system power is turned on.

The base system and I/O subsystems are powered on through the system power control network (SPCN). When power is applied, the Power-Out LED of the processor subsystem DCA and the Power-Out LEDs of both DCAs of any attached I/O subsystem(s) turn on and stay on. This action indicates that power levels are satisfactory in the subsystems.

If any of the Power-Out LEDs on the subsystem DCAs do not turn on, perform Initializing a Frame's Managed Systems and Resources as described in *Hardware Management Console for pSeries Installation and Operations Guide*. This action allows all of the attached resources to be recognized by the power subsystem.

Powering the System Off

The HMC user interface provides a power-off function to turn off the power to individual processor subsystem. Refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for information about shutting down and powering off a processor subsystem.

Note: Service operations can be performed to individual processor subsystems by powering off individual processor subsystems using the HMC. The UEPO switch must be switched off to remove all power to the entire rack.

If you are servicing an individual I/O subsystem, refer to the information about deactivating a frame's I/O drawers in the *IBM Hardware Management Console for pSeries Installation and Operations Guide* to remove 350 V power from both of the I/O subsystem DCA UPIC cable connections. Before deactivating, ensure that you shut down AIX on all partitions that are using the resources of the I/O subsystem being serviced.

After deactivating the I/O subsystem, both the Power-In LED and the Power-Out LED on the front of the I/O subsystem DCAs should be off. If not, call service support.

If you are servicing an individual processor subsystem, refer to the information about deactivating a managed system's service processor in the *IBM Hardware Management Console for pSeries Installation and Operations Guide* to remove 350 V power from the processor subsystem DCA UPIC cable connections. Before deactivating, ensure that you shut down AIX on all partitions that are running on the processor subsystem being serviced.

After deactivating the processor subsystem, both the Power-In LED and the Power-Out LED on the front of the processor subsystem DCA should be off. If not, do not continue. Call service support.

Attention: If the system is operating in a full system partition under AIX, typing the **shutdown** command causes the system to shut down and power off. The **-F** option shuts down the system without warning system users. Check with the system administrator before using this command. If you cannot use this method, you can power off the system by using the HMC.

Using the HMC to power off the system without shutting down AIX can cause unpredictable results in the data files, and the next IPL will take longer to complete.

Powering On the System Using the Service Processor

The system can be powered on using the System Power Control menu, which is a service processor menu that is available to the privileged user.

Power-On Self-Test

After power is turned on and before the operating system is loaded, the partition does a power-on self-test (POST). This test performs checks to ensure that the hardware is functioning correctly before the operating system is loaded. During the POST, a POST screen displays, and POST indicators display on the virtual terminal. The next section describes the POST indicators and functions that can be accessed during the POST.

POST Indicators

POST indicators indicate tests that are being performed as the partition is preparing to load the operating system. The POST indicators are words that display on the virtual terminal. Each time that the firmware starts another step in the POST, a POST indicator word displays on the console. The POST screen displays the following words:

Memory
Memory test

Keyboard
Initialize the keyboard and mouse. The time period for pressing a key to access the System Management Services, or to initiate a service mode boot is now open. See "POST Keys" for more information.

Network
Self-test on network adapters

SCSI
Adapters are being initialized

Speaker
A speaker is not implemented on this system.

POST Keys

The POST keys, if pressed *after* the **keyboard** POST indicator displays and *before* the last POST indicator (**speaker**) displays, cause the system to start services or boot modes used for configuring the system and diagnosing problems. The system will beep to remind you to press the POST key (if desired) at the appropriate time. The keys are described as follows:

1 Key

The numeric 1 key, when pressed during POST, starts the System Management Services (SMS) interface.

5 Key

The numeric 5 key, when pressed during POST, initiates a partition boot in service mode using the default service mode (boot list).

This mode attempts to boot from the first device of each type found in the list. It does not search for other bootable devices of that type if the first device is not bootable. Instead, it continues to the next device type in the list. The firmware supports up to five entries in the boot list.

The default boot sequence is:

1. Hard disk drive
2. Network
   a. Token ring
   b. Ethernet

6 Key

The numeric 6 key works like the numeric 5 key, except that firmware uses the customized service mode boot list, which can be set in the AIX service aids.

8 Key

To enter the open firmware command line, press the numeric 8 key *after* the word **keyboard** displays and before the last word (**speaker**) displays during startup. After you press the 8 key, the remaining POST indicators display until initialization completes.

This option is used only by service personnel to collect additional debug information.

To exit from the open firmware command prompt, type **reset-all** or power off the system and reboot.

Chapter 2. Diagnostics Overview

pSeries 655 systems use an integrated set of software diagnostic procedures to facilitate system maintenance. This book and the @server *pSeries Diagnostic Information for Multiple Bus Systems* are the basis of the diagnostic procedures forpSeries 655 systems. In particular, chapters 3, 4, 6, and 10 in this book are important for the trained service representative to understand and use when isolating a failure on the system.

The manufacturer recommends that systems configured with 4 GB of memory or greater have access to a 4-mm or 8-mm tape drive for submission of system dump information if it is required. This function can be accomplished through locally attached or network-attached devices, as appropriate.

Maintenance Analysis Procedures (MAPs)

Maintenance Analysis Procedures (MAPs) guide trained service representatives through the complex multirack pSeries 655 system. These MAPs are the entry point for all isolation and error-recovery procedures. pSeries 655 systems use a set of integrated procedures, to which the MAPS are the primary entry point.

The MAPS are as follows:
- Entry MAP
- Quick Entry MAP
- Service Focal Point Procedures
- Power MAP
- Problem Isolation MAP

The Entry Map is the starting point for problem determination. The purpose of this MAP is to quickly point to the appropriate MAP or service reference information either in this book, or in the common book set, which includes the @server *pSeries Diagnostic Information for Multiple Bus Systems* and the *PCI Adapter Placement Reference*.

The Quick Entry MAP is a subset of the Entry MAP and helps to save time for some types of problems.

The Power MAP deals with isolation of components and cables to diagnose a power problem. The nature of power problems can be related to powering the system on and off, or power failures that can occur after power is turned on.

The Problem Isolation MAP is used to locate defective components not found by normal diagnostics or error-isolation methods. This MAP provides a systematic method of isolation to the failing item or items.

Checkpoints

pSeries 655 systems use various types of checkpoints, error codes, and SRNs that are referred to throughout this book (primarily in Chapters 3, 4 and 5).

On an HMC-managed system, the checkpoints and error codes display on the HMC virtual terminal associated with the managed system object.

On a partitioned system, checkpoints and error codes for a partition display on the HMC virtual operator panel associated with that logical partition.

During boot up of a partitioned system, a global initialization phase occurs, during which one of the system processors is in control and initializes all of the system resources. During this phase, Exxx codes will be displayed on the HMC managed-system object. After the global initialization phase completes, `LPAR...` is displayed on the operator panel value on the HMC.

Each logical partition also has a partition initialization phase where one of the system processors assigned to that partition is initializing all the resource of that partition. Exxx codes will be displayed on the virtual terminal of the HMC logical partition object during this partition initialization phase.

The codes that may appear in the service processor boot progress log, the AIX error log, the virtual terminal, and the operator panel value on the HMC are as follows:

Checkpoints
Checkpoints display in the virtual operator panel on the HMC from the time the system/partition is commanded to initialize until the AIX login prompt is displayed after a successful operating system boot. These checkpoints have the following forms:

8xxx
These checkpoints are not available on this system.

9xxx
9xxx checkpoints are displayed by the service processor after the power-on sequence is initiated. A system processor takes control when `91FF` displays on the operator panel value on the HMC.

Note: Certain checkpoints may remain in the display for long periods of time.

Exxx
Exxx checkpoints indicate that a system processor is in control and is initializing the system resources. Control is being passed to AIX when `E105` displays on the operator panel value on the HMC. Location code information may also display on the operator panel during this time.

0xxx and 2xxx
0xxx and 2xxx codes are AIX progress codes and configuration codes. Location codes may also display on the operator panel value on the HMC during this time.

Error Codes
If a fault is detected, an 8-digit error code is displayed on the virtual operator panel. A location code may be displayed at the same time on the second line.

SRNs Service request numbers, in the form xxx-xxx or xxx-xxxx, may also be displayed on the virtual operator panel and be noted in the AIX error log.

Checkpoints can become error codes if the system fails to advance past the point at which the code is presented. For a complete list of the checkpoints, see Chapter 4, “Checkpoints”, on page 307. Each entry provides a description of the event and the recommended action if the system fails to advance.

SRNs are listed in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

FRU Isolation

For a list of error codes and recommended actions for each code, see Chapter 5, “Error Code to FRU Index”, on page 345. These actions can refer to Chapter 10, “Parts Information”, on page 603, Chapter 3, “Maintenance Analysis Procedures (MAPs)”, on page 147, or provide informational message and directions. If a replacement part is indicated, direct reference is made to the part name. The respective AIX and physical location codes are listed for each occurrence as required. For a list of location codes, see “Logical and Physical Locations” on page 49.

This system is configured with an arrangement of LEDs that help identify various components of the system. These include, but are not limited to:

- Rack identify LED
- Processor subsystem drawer identify LED
- I/O drawer identify LED
- RIO port identify LED
- FRU identify LED
  - Power subsystem FRUs
  - Processor subsystem FRUs
  - I/O subsystem FRUs
- I/O adapter identify LED
- DASD identify LED

The identify LEDs are arranged hierarchically with the FRU identify LED at the bottom of the hiearchy, followed by the corresponding processor subsystem or I/O drawer identify LED, and the corresponding rack identify LED to locate the failing FRU more easily.

Any identify LED in the system may be flashed by using the service processor LED Control Menu contained in the System Information Menu of the Privileged User Menus. For information about using the LED Control Menu, see page 453.

Any identify LED in the system may be flashed (when the system is in the failed state with power on) by using the service processor LED Control Menu contained in the System Information Menu of the Privileged User Menus. To use the LED Control Menu, see page 453.

Any identify LED in the system can also be flashed by using the Identify and Attention Indicators task in diagnostics. The procedure to operate the Identify and Attention Indicators task in diagnostics is outlined in @server *pSeries Diagnostic Information for Multiple Bus Systems*.

If the service processor menus and AIX diagnostics are not available, the FRU identify LEDs can be flashed by one of the following procedures:

- If the system is configured as a full partition, the system may be booted to the open firmware prompt and the command **FRU-LED-MENU** entered. A menu displays that allows you to enable the desired FRU identify LED. See "System Power Control Menu" on page 445 for instructions on setting up the boot mode to enable the boot to the open firmware prompt.
- If the system is logically partitioned, the HMC must be attached. You can use the HMC to flash any FRU identify LED. See the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for instructions on activating and deactivating a FRU identify LED.

To look up part numbers and view component diagrams, see Chapter 10, "Parts Information", on page 603. The beginning of the chapter provides a parts index with the predominant field replaceable units (FRUs) listed by name. The remainder of the chapter provides illustrations of the various assemblies and components that compose pSeries 655 servers. The illustrations are ordered with processor subsystem components listed first, then I/O subsystem, and then accessories.

Service Agent for the pSeries 655

Service support for thepSeries 655 can be enhanced through the use of the application program known as service agent for the pSeries 655. This application provides a number of advantages for the system user, including automatic error reporting and analysis without customer intervention. The service agent on thepSeries 655 is shipped with the system or with the Hardware Management Console for pSeries.

Using the Service Processor and Service Agent Features

The service processor and service agent features protect users against unnecessary system downtime by advising support personnel (both internal and external) of any unexpected changes in the system environment. For more information regarding the service processor, see Chapter 7, "Using the Service Processor", on page 435. For more information regarding the service agent application, see the *Hardware Management Console for pSeries Installation and Operations Guide*.

Chapter 3. Maintenance Analysis Procedures (MAPs)

This chapter contains Maintenance Analysis Procedures (MAPs) for the pSeries 655.

Entry MAP

When possible, run online diagnostics in service mode. Online diagnostics perform additional functions, compared to standalone diagnostics. This ensures that the error state of the system that was captured in NVRAM is available for your use in fixing the problem. The AIX error log and SMIT are only available when diagnostics are run from the hard drive. Always check Service Focal Point for any open service events in Service Action Event log.

Use the Hardware Management Console (HMC) with Service Focal Point (SFP) and go to “MAP 1321: Quick Entry MAP for Systems with Service Focal Point” on page 161. Use the following table to help determine other steps necessary.

Symptom	**Starting Point**
You have a problem that does not prevent the system from booting and the HMC controlling the processor subsystem(s) is functional.	Go to the Fast Path MAP in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.
You do not have a symptom.	Go to MAP 0020 in the @server *pSeries Diagnostic Information for Multiple Bus Systems*
You have an SRN.	Go to the Fast Path MAP in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.
The system stops and a 3-digit number is displayed on the HMC.	Record SRN 101-xxx, where xxx is the 3-digit number displayed on the HMC, then go to the Fast Path MAP in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.
The system stops and a 4-digit number beginning with 0 or 2 is displayed on the HMC.	Go to the Fast Path MAP in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.
All other symptoms.	Go to “Quick Entry MAP” on page 149.

Notes:

1. Licensed programs frequently rely on system information stored in the VPD module in the processor subsystem. If the MAPs indicate that the VPD module should be replaced, swap the old VPD module from the processor subsystem with a new VDP module. If the VPD module has to be replaced, call technical support for recovery instructions. If recovery is not possible, notify the system owner that new keys for licensed programs may be required.
2. If a network adapter is replaced, the network administrator must be notified so that the client IP addresses used by the system can be changed. In addition, the

operating system configuration of the network controller may need to be changed in order to enable system startup. Also check to ensure that any client or system that addresses this system is updated.

Note: The various codes that might display on the HMC are all listed as error codes by SFP. To assist you in identifying the types of error data in this guide, use the following table.

SFP Name	Number of Digits in Error Code	Error Code	Name Used in This Service Guide
Error Code	Any	Contains #	Menu Goal
	Any	Contains - (hyphen)	SRN
	5	Does not contain # or -	SRN
	6	Does not contain # or -	Error Code
	8	Does not contain # or -	Error Code, SRC, or Reference Code

Quick Entry MAP

Quick Entry MAP Table of Contents

Attention: If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to "MAP 1542: I/O Problem Isolation" on page 274 unless you were already directed to any MAP 154x by the error code. Otherwise, call for service support if the action(s) for an error code do not resolve the problem.

If you replace FRUs or perform an action, and the problem is corrected, go to ″MAP 410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Note: If the only service actions you perform are on the HMC, do not use MAP 410 to do the repair checkout. `

Symptom	Action
Service Actions	
You have an open service event in the service action event log.	Go to ″Service Focal Point″ in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
You have parts to exchange or a corrective action to perform.	1. Go to Chapter 9, “Removal and Replacement Procedures”, on page 489. 2. Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.
You need to verify that a part exchange or corrective action corrected the problem.	Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.
You need to verify correct system operation.	Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.
The System Attention LED on the processor subsystem DCA is on.	Go to “Disturbance or System Attention LED” on page 13 and perform any actions indicated.
OK does not appear in the operator panel value on the HMC before powering on the system. Other symptoms appear in the operator panel value on the HMC before power-on is initiated.	
On the HMC, the system status is ″disconnected.″	1. Check all of the HMC connections to the system. 2. If the system drawer DCA power in LED is on, replace the CSP card at U1.x-P1-X1. 3. Go to “MAP 1520: Power” on page 173.
8-Digit Error Codes	
You have an 8-digit error code displayed	1. Look up the error code in the table in “Checkpoints and Error Codes Index” on page 349. 2. Look up the service action event (SAE) log. If the FRU has been changed other than the one in step 1, look at the most recent one.
System stops with an 8-digit number displayed	
The system stops with an 8-digit error code displayed when booting.	1. Look up the error code in the table in “Checkpoints and Error Codes Index” on page 349. 2. Look up the SAE log. If the FRU has been changed other than the one in step 1, look at the most recent one.

Symptom	Action
System stops with a 4-digit number displayed that does not begin with 0 or 2.	
The system stops with a 4-digit checkpoint.	Go to "Checkpoints and Error Codes Index" on page 349. If you do not find the checkpoint there, go to the Fast Path MAP in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.
System stops with a 3-digit number displayed (see below for 888 sequence)	
The system stops with a 3-digit error code.	Add 101- to the left of the three digits to create an SRN. Go to @server *pSeries Diagnostic Information for Multiple Bus Systems*. If there is a location code displayed under the 3-digit error code, then look at location to see if it matches the failing component that the SRN pointed to. If they do not match, perform the action from Diagnostic Information for Multiple Bus System first. If the problem still exists, then replace the failing component from that location code.

Symptom	Action
Hardware Management Console (HMC) Problem	
Hardware Management Console (HMC) cannot be used to manage a managed system, or the connection to the managed system is failing.	If the managed system is operating normally (no error codes or other symptoms), the HMC might have a problem, or the connection to the managed system might be damaged or incorrectly cabled. Do the following: 1. Check the connections (serial cable) between the HMC and the managed system. Correct any cabling errors if found. If another serial cable is available, connect it in place of the existing cable and refresh the HMC graphical user interface. You may have to wait up to 30 seconds for the managed system to reconnect. 2. Verify that any connected HMC is connected to the managed system by checking the Management Environment of the HMC. **Note:** The managed system must have power connected and the system running, or waiting for a power-on instruction (the "OK" prompt is in the operator panel value on the HMC.) If the managed system does not appear in the Navigation area of the HMC Management Environment, then the HMC or the connection to the managed system might be failing. 3. Go to the Entry MAP in the *Hardware Management Console for pSeries Maintenance Guide*. 4. If you cannot fix the problem using the HMC tests in the *Hardware Management Console for pSeries Maintenance Guide*, there might be a problem with the service processor card; replace the service processor card, location: U1.x-P1-X1.
Hardware management console (HMC) cannot call out using the attached modem and the customer's telephone line.	If the managed system is operating normally (no error codes or other symptoms), the HMC might have a problem, or the connection to the modem and telephone line may have a problem. Do the following: 1. Check the connections between the HMC and the modem and telephone line. Correct any cabling errors if found. 2. Go to the Entry MAP in the *Hardware Management Console for pSeries Maintenance Guide*.

Symptom	Action
There is a Display Problem (Distortion, Blurring, Etc.)	
All display problems.	1. If using the Hardware Management Console, go to the *Hardware Management Console for pSeries Maintenance Guide*. 2. If using a graphics display: a. Go to the problem determination procedures for the display. b. If you do not find a problem, replace the display adapter.
Power and Cooling Problems	
The system will not power on and no error codes are available.	Go to “Map 1521: The System Will Not Power On And No Error Codes Are Available” on page 177.
The power light does not come on or stay on. (both the processor subsystem Power-On LED and the I/O subsystem power LEDs do not come on or stay on).	1. Check service processor error log. 2. Go to “MAP 1520: Power” on page 173.
A rack or a rack-mounted unit will not power on.	1. Check service processor error log. 2. Go to “MAP 1520: Power” on page 173.
You have a power problem.	1. Check service processor error log. 2. Go to “MAP 1520: Power” on page 173.
888 Sequence in Operator Panel Value on the HMC	
An 888 sequence is displayed in the operator panel value on the HMC.	Go to the Fast Path MAP in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Symptom	Action
Other Symptoms or Problems	
One or more partitions do not boot.	Go to "MAP 1020: Problem Determination" on page 156.
The operator panel value displayed on the HMC is `OK`.	The service processor is ready. The system is waiting for power-on.
All of the system POST indicators are displayed on the system console, the system pauses and then restarts. The term *POST indicators* refers to the device mnemonics (the words `memory`, `keyboard`, `network`, `scsi`, and `speaker`) that appear on the system console during the power-on self-test (POST).	Go to "Boot Problems" on page 341.
The system stops and all of the POST indicators are displayed on the system console. The term *POST indicators* refers to the device mnemonics (the words `memory`, `keyboard`, `network`, `scsi`, and `speaker`) that appear on the system console during the power-on self-test (POST).	Go to "Boot Problems" on page 341.
The system stops and the message `STARTING SOFTWARE PLEASE WAIT...` is displayed on the firmware console.	Go to Chapter 4, "Checkpoints", on page 307.
The system does not respond to the password being entered or the system login prompt is displayed when booting in service mode.	1. If the password is being entered from the Hardware Management Console (HMC), go to the *Hardware Management Console for pSeries Maintenance Guide*. 2. If the password is being entered from a keyboard attached to a USB card, then the keyboard or its controller may be faulty. In this case, replace these parts in the following order: a. Keyboard cable b. Keyboard c. USB card the keyboard is attached to.

<table>
<tr><th>Symptom</th><th>Action</th></tr>
<tr><td>The SMS configuration list or boot sequence selection menu shows more SCSI devices attached to a controller/adapter than are actually attached.</td><td>A device may be set to use the same SCSI bus ID as the control adapter. Note the ID being used by the controller/adapter (this can be checked and/or changed through an SMS utility), and verify that no device attached to the controller is set to use that ID.

If settings do not appear to be in conflict:
1. Go to “MAP 1542: I/O Problem Isolation” on page 274
2. Replace the SCSI cable.
3. Replace the device.
4. Replace the SCSI adapter

Note: In a ″twin-tailed″ configuration where there is more than one initiator device (normally another system) attached to the SCSI bus, it may be necessary to use SMS utilities to change the ID of the SCSI controller or adapter.</td></tr>
<tr><td>The System Management Services Menu is displayed.</td><td>The device or media you are attempting to boot from may be faulty.
1. Check the SMS error log for any errors. To check the error log:
• Choose error log
• If an error is logged, check the time stamp.
• If the error was logged during the current boot attempt, record it.
• Look up the error in Chapter 5, “Error Code to FRU Index” and do the listed action.
• If no recent error is logged in the error log, continue to the next step below.
2. Try to boot from an alternate boot device connected to the same controller as the original boot device. If the boot succeeds, replace the original boot device (for removable media devices, try the media first).
3. Go to “Boot Problems” on page 341.</td></tr>
<tr><td>You suspect a cable problem.</td><td>Go to Adapters, Devices, and Cable Information for Multiple Bus Systems.</td></tr>
<tr><td>All other problems.</td><td>Go to “MAP 1020: Problem Determination” on page 156.</td></tr>
</table>

MAP 1020: Problem Determination

Purpose of This MAP

Use this MAP to get an error code if you were not provided one by the customer or you are unable to load diagnostics. If you are able to load the diagnostics, go to MAP 0020 in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

The service processor may have recorded one or more symptoms in its error log. Examine this error log before proceeding (see “System Information Menu” on page 448). The server may have been set up by using the HMC. Check the Service Action Event (SAE) log in the Service Focal Point. The SAE log may have recorded one or more symptoms in the Service Focal Point. To avoid unnecessary replacement of the same FRU for the same problem, it is necessary to check the SAE log for evidence of prior service activity on the same subsystem.

The service processor may have been set by the user to monitor system operations and to attempt recoveries. You can disable these actions while you diagnose and service the system. If the system was set up according to the recommendations of the @server *pSeries 655 User’s Guide*, all the settings of the service processor (except Language) were saved by using the SAVE/RESTORE HARDWARE MAINTENANCE POLICIES service aid. You can use the same service aid to restore the settings at the conclusion of your service action.

In case the service processor settings were not saved by the user, if you disable them, make notes of their current settings for restoration before you leave.

In addition to the parameters in the following table, you can disconnect the modem to prevent incoming signals that could cause the system to power on.

Following are the service processor settings. The service processor menus are described in Chapter 7, “Using the Service Processor”, on page 435.

Surveillance	From the service processor Setup Menu, go to the Surveillance Setup Menu and disable surveillance. (Surveillance is automatically disabled in partitioned mode.)
Unattended Start	From the service processor System Power Control Menu, disable unattended start mode.
Reboot Policy	From the System Power Control Menu, go to the Reboot/Restart Policy Setup Menu and set: 1. Number of reboot attempts to **0** (zero) 2. Use OS-Defined restart policy to **No** 3. Enable supplemental restart policy to **No**.

Call Out	From the Call-In/Call-Out Setup Menu, go to the Serial Port Selection Menu and disable call-out on both serial ports. (Call-out is automatically disabled when the system is booted to operate with multiple partitions (also known as a partitioned system).

Be prepared to record code numbers and use those numbers in the course of analyzing a problem. Go to "Step 1020-1".

Step 1020-1

The following steps analyze a failure to load the diagnostic programs.

Note: Be prepared to answer questions regarding the operator panel value on the HMC and to perform certain actions based on displayed POST indicators. Please be observant of these conditions.

1. Run diagnostics on any partition. Find your symptom in the following table; then follow the instructions given in the Action column.

   If no fault is identified, continue to the next step.
2. Run diagnostics on the failing partition. Find your symptom in the following table; then follow the instructions given in the Action column.

   If no fault is identified, continue to the next step.
3. Power off the system. Refer to "Powering the System Off" on page 140.
4. Load the Standalone Diagnostics in Service Mode to test the full system partition, refer to Chapter 6, "Using the Online and Standalone Diagnostics", on page 425.
5. Wait until the diagnostics are loaded or the system appears to stop. If you receive an error code or if the system stops before diagnostics are loaded, find your symptom in the following table; then follow the instructions given in the Action column.

   If no fault is identified, continue to the next step.
6. Run the standalone diagnostics on the entire system. Find your symptom in the following table; then follow the instructions given in the Action column.

   If no fault is identified, call service support for assistance.

Symptom	**Action**
One or more partitions do not boot.	1. Check service processor error log. If an error is indicated, go to the "Entry MAP" on page 147. 2. Check the Serviceable Action Event (SAE) log. Refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for information on viewing a serviceable event. If there is a Service Action Event, perform the recommended actions or go the "Entry MAP" on page 147.

Symptom	Action
The system stopped and a code is displayed on the HMC.	Go to the “Entry MAP” on page 147.
The system stops with a prompt to enter a password.	Enter the password. You cannot continue until a correct password has been entered. When you have entered a valid password, go to the beginning of this table and wait for one of the other conditions to occur.
The diagnostic operating instructions are displayed.	Go to MAP 0020 in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.
The power good LED does not come on or does not stay on, or you have a power problem.	Go to “MAP 1520: Power” on page 173.
The system login prompt is displayed.	You may not have pressed the correct key or you may not have pressed the key soon enough when you were to trying to indicate a service mode IPL of the diagnostic programs. If this is the case, start again at the beginning of this step. **Note:** Perform the system shutdown procedure before turning off the system. If you are sure you pressed the correct key in a timely manner, go to “Step 1020-2” on page 159.
The system does not respond when the password is entered.	Go to “Step 1020-2” on page 159.
The system stopped. A POST indicator is displayed on the system console and an eight-digit error code is not displayed.	If the POST indicator represents: 1. Memory, do a slow boot. If an error code points to memory, replace that memory card and run slow boot again. 2. Keyboard a. Replace the keyboard cable. b. Replace the keyboard. c. Replace the USB card that the keyboard is attached to. d. Go to “MAP 1542: I/O Problem Isolation” on page 274. 3. Network, go to “MAP 1542: I/O Problem Isolation” on page 274. 4. SCSI, go to “MAP 1542: I/O Problem Isolation” on page 274. 5. Speaker a. Replace the service processor card, location: U1.x-P1-X1. b. Go to “MAP 1542: I/O Problem Isolation” on page 274

Symptom	Action
The System Management Services Menu is displayed.	Go to “Step 1020-4” on page 160.
All other symptoms.	If you were directed here from the Entry MAP, go to “MAP 1542: I/O Problem Isolation” on page 274. Otherwise, find the symptom in the “Entry MAP” on page 147.

Step 1020-2

There is a problem with the keyboard.

Find the type of keyboard you are using in the following table; then follow the instructions given in the Action column.

Keyboard Type	Action
Type 101 keyboard (U.S.). Identified by the size of the Enter key. The Enter key is in only one horizontal row of keys.	Record error code M0KB D001; then go to “Step 1020-3”.
Type 102 keyboard (W.T.). Identified by the size of the Enter key. The Enter key extends into two horizontal rows.	Record error code M0KB D002; then go to “Step 1020-3”.
Type 106 keyboard. (Identified by the Japanese characters.)	Record error code M0KB D003; then go to “Step 1020-3”.
ASCII terminal keyboard	Go to the documentation for this type of ASCII terminal and continue with problem determination.

Step 1020-3

Take the following actions:

1. Find the eight-digit error code in Chapter 5, “Error Code to FRU Index”, on page 345.

   Notes:

   a. If the eight-digit error code is not listed in Chapter 5, “Error Code to FRU Index”, look for it in the following:
      - Any supplemental service manuals for attached devices
      - The diagnostic problem report screen for additional information
      - The Service Hints service aid
      - The CEREADME file (by using the Service Hints service aid)

   b. Service aids can be found in @server *pSeries Diagnostic Information for Multiple Bus Systems*.
2. Perform the action listed.

Step 1020-4

1. Turn off, then turn on the system unit.
2. When the keyboard indicator (the word **keyboard**) displays, press the 1 key on a directly attached keyboard or the 1 key on an ASCII terminal or 1 key on the HMC.
3. When the System Management Services menus appear, check the error log for any errors.
   a. Select **View Error Log**.
   b. If an error is logged, check the time stamp.
   c. If the error was logged during the current boot attempt, record it.
   d. Look up the error in the Chapter 5, “Error Code to FRU Index”, on page 345 and do the listed action.
   e. If no recent error is logged in the error log, go to “MAP 1542: I/O Problem Isolation” on page 274.

MAP 1320: Service Focal Point Procedures

These procedures define the steps to be taken when servicing a machine equipped with SFP.

Note: The various codes that might display on the HMC are all listed as error codes by Service Focal Point (SFP). To assist you in identifying the types of error data in this guide, use the following table.

SFP Name	Number of Digits in Error Code	Error Code	Name Used in This Service Guide
Error Code	Any	Contains #	Menu Goal
	Any	Contains - (hyphen)	SRN
	5	Does not contain # or -	SRN
	6	Does not contain # or -	Error Code
	8	Does not contain # or -	Error Code, SRC, or Ref Code

For steps to be taken when beginning service on a machine with SFP, see the "MAP 1321: Quick Entry MAP for Systems with Service Focal Point".

For steps to be taken after service is complete on a machine with SFP, see the "MAP 1322: End of Call MAP for Systems with Service Focal Point" on page 164.

MAP 1321: Quick Entry MAP for Systems with Service Focal Point

Step 1321-1

For future reference, record the error code and the location code (that brought you to this MAP) of the FRU to be replaced. If an error code is not available, record any other symptoms.

Step 1321-2

At the HMC console, start SFP and examine the service action event log for any open service action events. For SFP operating instructions, see the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

Does the HMC appear to operate correctly?

No Go to "Quick Entry MAP" on page 149, look up the HMC symptom, and follow the directions there.

Yes Go to "Step 1321-3".

Step 1321-3

Are there any service action events that are open?

No Go to "Step 1321-14" on page 163.

Yes Go to “Step 1321-4”.

Step 1321-4

Record the list of open service action events.

Step 1321-5

From the list of serviceable events recorded in “Step 1321-4”, open the details of each service action event and examine the FRU list from the FRU information and error code(s) from the error details for each.

Step 1321-6

Are there any serviceable actions events with error codes of the form #xxxxxx in the list of error codes found in “Step 1321-5”?

No Go to “Step 1321-7”.

Yes Go to “Step 1321-18” on page 164.

Step 1321-7

Are there any serviceable events with FRU location codes reported in “Step 1321-5”?

No Go to “Step 1321-14” on page 163.

Yes Go to “Step 1321-8”.

Step 1321-8

From the list of open service action events with FRUs reported, examine the details of each service action event and record the error code.

Step 1321-9

Examine the list of error codes you obtained from “Step 1321-8” and look for any that are of the form 4xxB xxxx, A0D-34x, or A1D-34x.

Step 1321-10

Are there any error codes from “Step 1321-8” that are of the form 4xxB xxxx, A0D-34x, or A1D-34x?

No Go to “Step 1321-13” on page 163.

Yes Go to “Step 1321-11”.

Step 1321-11

Do any of the error codes from “Step 1321-8” in the form of 4xxB xxxx, A0D-34x, or A1D-34x, and have the same first two characters on the left as the first two characters on the left of the error code recorded in “Step 1321-1” on page 161 that sent you to this MAP?

No Go to “Step 1321-13” on page 163.

Yes Record the error codes from “Step 1321-8” of the form 4xxB xxxx, A0D-34x, or A1D-34x that have the same first two characters on the left as the first two characters on the left of the error code recorded in “Step 1321-1” on page 161 that sent you to this MAP. Also, record the service action event associated with each error code. Go to “Step 1321-12”.

Step 1321-12

From the list of open service action events with error codes that are of the form 4xxB xxxx, A0D-34x, or A1D-34x recorded in “Step 1321-11” on page 162, choose the service action event with the earliest time stamp (the one that occurred first), record its error code and FRU location(s), and proceed to “Step 1321-14” with this new code.

When future steps refer to the error code recorded in “Step 1321-1” on page 161, use this new error code and its location code(s) instead of the original error code that sent you to this MAP.

Step 1321-13

From the list of open service action events with FRUs reported, choose the service action event with the earliest time stamp (the one that occurred first), record its error code and FRU location(s), and proceed to “Step 1321-14” with this new error code. When future steps refer to the error code recorded in “Step 1321-1” on page 161, use this new error code and its location code(s) instead of the original error code that sent you to this MAP.

Step 1321-14

At the HMC console, open Service Focal Point (SFP) and examine the service action event log for any closed service action events. For SFP operating instructions, refer to the *Hardware Management Console for pSeries Maintenance Guide*.

Step 1321-15

Are there any service action events that are closed?

No Go to the table in “Entry MAP” on page 147.

Yes Go to “Step 1321-16”.

Step 1321-16

Examine the details of the ten most-recently closed service action events.

Are there any error codes or symptoms in the ten most-recently closed service action events that are the same as the error code or symptom recorded in “Step 1321-1” on page 161?

No Go to the table in “Entry MAP” on page 147.

Yes Go to “Step 1321-17”.

Step 1321-17

Examine the FRUs of the same error codes or symptoms. **Are there any FRUs in the same error codes or symptoms of the closed service action events left to be replaced?**

No Go to the table in “Entry MAP” on page 147.

Yes Replace the next FRU of same error codes or symptoms of the closed service action events. Go to ″MAP 0410: Repair Checkout″ in @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1321-18

From the list of serviceable events with error code(s) of the form #xxxxxx, examine the details of each serviceable event to display the description field of the error code(s) of the form #xxxxxx.

Step 1321-19

Double-click on the description field to view the complete text.

Step 1321-20

Perform any actions that may be listed in the descriptions of all error codes of the form #xxxxxx before proceeding.

Step 1321-21

Did you find a problem?

No Go to “Step 1321-7” on page 162.

Yes Go to ″MAP 0410: Repair Checkout″ in @server *pSeries Diagnostic Information for Multiple Bus Systems*.

MAP 1322: End of Call MAP for Systems with Service Focal Point

Step 1322-1

For future reference, record the SRC or symptom and the location code of the FRU you replaced.

Step 1322-2

Refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide*for SFP operating instructions. At the HMC console, open Service Focal Point (SFP) and examine the service action event log for any open service action events.

Step 1322-3

Are there any service action events that are open?

No This completes the repair, return the system to the customer.

Yes Go to“Step 1322-4”.

Step 1322-4

Record the list of open service action events.

Step 1322-5

From the list of serviceable events recorded in “Step 1322-4”, perform steps “Step 1322-6” on page 165 through “Step 1322-33” on page 168 for each open service action event.

Step 1322-6

Determine the error class of the serviceable event. Record for future use.

Step 1322-7

Examine the details of the open service action event.

Is the error code associated with this service action event the same as recorded in ″Step 1322-1″?

No Go to “Step 1322-8”.

Yes Go to “Step 1322-11”.

Step 1322-8

Examine the FRU list of the service action event.

Are there any FRUs listed for the service action event?

No Go to “Step 1321-11” on page 162.

Yes Go to “Step 1321-9” on page 162.

Step 1322-9

Is the FRU list identical (same FRUs, same number of FRUs, and same order of FRUs) to the FRU list of the error code recorded in “Step 1322-1” on page 164?

No Go to “Step 1322-10”.

Yes Go to “Step 1322-11”.

Step 1322-10

The FRU list is different.

Is the FRU you replaced and recorded in “Step 1322-1” on page 164 in the list of FRUs for this service action event?

No Go to “Step 1322-33” on page 168.

Note: There are service action events that will remain open when you leave this MAP. Further service actions may be required to complete the repair.

Yes Go to “Step 1322-11”.

Step 1322-11

Examine the details of this service action event, and record the partition(s) involved in this service action event for use in a later step.

Step 1322-12

Is the error code associated with this service action event of the form A11-xxx or A01-xxx?

No Go to “Step 1322-17” on page 166.

Yes Go to “Step 1322-13”.

Step 1322-13

Have you begun a list of “Axx” partitions from prior service action events that you processed in this MAP?

No Go to “Step 1322-14”.

Yes Go to “Step 1322-15”.

Step 1322-14

Begin a new list of “Axx” partitions by copying the list of partitions obtained in “Step 1322-11” on page 165″. Go to “Step 1322-16”.

Step 1322-15

Add the partition list obtained in “Step 1322-11” on page 165 to the existing list of “Axx” partitions obtained from processing previous service action events in this MAP.

Step 1322-16

Remove all entries in the list of all partition(s) you recorded in “Step 1322-11” on page 165. If you are referred to the list of partition(s) obtained in “Step 1322-11” on page 165 in future steps, it is empty. Go to “Step 1322-17”.

Step 1322-17

Select and highlight the service action event from the “Error Associated With This Serviceable Event” window.

Step 1322-18

Select the close event button.

Step 1322-19

Add comments for the serviceable event. Include any unique additional information. Click **OK**.

Step 1322-20

Is the error class recorded in “Step 1322-6” on page 165 AIX?

No Go to “Step 1322-24” on page 167.

Yes Go to “Step 1322-21”.

Step 1322-21

Did you replace, add, or modify a FRU of the open service action event?

No Go to “Step 1322-23” on page 167.

Yes Go to “Step 1322-22”.

Step 1322-22

Select from the FRU list a FRU that you need to update. Double-click on the FRU, and update the FRU information. Go to“Step 1322-24” on page 167.

Step 1322-23

Select the **No FRU Replaced for this Serviceable Event** option.

Step 1322-24

Click **OK** to close the service action event.

Step 1322-25

Is the list of all partition(s) you recorded in "Step 1322-11" on page 165 empty?

No Go to "Step 1322-26".

Yes Go to "Step 1322-33" on page 168.

Step 1322-26

Does the list of all partition(s) you recorded in "Step 1322-11" on page 165 contain more than one entry?

No Go to "Step 1322-33" on page 168.

Yes Go to "Step 1322-27".

Step 1322-27

Is the error class recorded in "Step 1322-6" on page 165?

No Go to "Step 1322-33" on page 168.

Yes Go to "Step 1322-28".

Step 1322-28

Perform the following steps for each entry in the list of all partition(s) you recorded in "Step 1322-11" on page 165,, except the partition you were using to debug the original problem.

Step 1322-29

From the HMC virtual terminal window of a partition in the list of all partitions, type `diag` at the AIX command prompt.

Step 1322-30

1. When the diagnostic operating instructions are displayed, press Enter.
2. Select the **Task Selection** option.

   Note: If the terminal type is not defined, you are prompted to define it. You cannot continue until this is completed.
3. Select the Log Repair option.
4. Select the resource associated with the repair action. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your repair action is not displayed on the Resource List, select **sysplanar0**.
5. Click **commit** after you have made your selection.

Step 1322-31

Exit from diagnostics in this partition and return to the AIX prompt.

Step 1322-32

Have all the partitions in the list of all partitions(s) you recorded in "Step 1322-11" on page 165 been processed?

No Go to "Step 1322-28" on page 167 to process the next partition in the list you recorded in "Step 1322-11" on page 165.

Yes Go to "Step 1322-33".

Step 1322-33

Have all the serviceable events recorded in "Step 1322-4" on page 164 been processed?

No Go to "Step 1322-5" on page 164 and process the next service action event in the list of serviceable events recorded in list of serviceable events recorded in "Step 1322-4" on page 164.

Yes Go to "Step 1322-34".

Step 1322-34

While processing all service action events, were you directed to "Step 1322-14" on page 166?

No This completes the repair, return the system to the customer.

Note: If during the processing of the list of open service action events, some service actions events were left open, further service actions may be required to complete the repair.

Yes Go to "Step 1322-35".

Step 1322-35

Perform the following steps for each entry in the list of "Axx" partitions you began recording in "Step 1322-14" on page 166, except the partition you were using to debug the original problem.

Step 1322-36

From the HMC virtual terminal window of a partition in the list of "Axx" partitions, type `diag` at the AIX command prompt.

Step 1322-37

1. When the diagnostic operating instructions are displayed, press enter.
2. Select the **Task Selection** option.

   Note: If the terminal type is not defined, you are prompted to define it. You cannot continue until this is completed.
3. Select the Log Repair option.

4. Select the resource associated with the repair action. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your repair action is not displayed on the Resource List, select **sysplanar0**.
5. Click **commit** after you have made your selection.

Step 1322-38

Exit from diagnostics in this partition and return to the AIX prompt.

Step 1322-39

Have all the partitions in the list of "Axx" partitions(s) you began recording in "Step 1322-14" on page 166 been processed?

No Go to "Step 1322-35" on page 168 to process the next partition in the list you recorded in "Step 1322-14" on page 166.

Yes This completes the repair, return the system to the customer.

Note: If during the processing of the list of open service action events, some service action events were left open, further service actions may be required to complete the repair.

MAP 1420: Recovery Procedures for Hot-Pluggable PCI Adapters

This procedure is used to locate problems that might occur when performing a PCI adapter hot-plug operation.

Find the symptom in the following table; then follow the instructions given in the Action column.

Recovery Procedures for Hot-Pluggable PCI Adapters	
Symptom/Reference Code	**Action**
Partition will not boot, rendering PCI hot-plug manager unusable.	Go to "MAP 1421: Partition Will Not Boot Due to Faulty Adapter".
Partition boots, but PCI adapter is not recognized and slot status is empty.	Go to "MAP 1422: Slot is Empty Even When Populated" on page 171.

MAP 1421: Partition Will Not Boot Due to Faulty Adapter

Step 1421-1

The entire system must be shut down and powered off to repair.

Does the user want to restore the partition by isolating the faulty adapter without powering off the entire system?

No Go to "Step 1421-12" on page 171.

Yes Go to "Step 1421-2" on page 170.

Step 1421-2

At the HMC, view the resources assigned to the partition that will not boot.

Step 1421-3

Remove the faulty resource from the partition that will not boot. Record the slot location and the adapter type.

Step 1421-4

Attempt to boot the partition.

Does the partition boot?

No Go to “Step 1421-12” on page 171.

Yes Go to “Step 1421-5”.

Step 1421-5

Shut down the partition.

Step 1421-6

Is the PCI slot power LED of the location recorded in “Step 1421-3” on?

No Go to “Step 1421-7”.

Yes Go to “Step 1421-12” on page 171.

Step 1421-7

Are there any empty PCI slots attached to the system that are not assigned to any partitions?

No Go to “Step 1421-12” on page 171.

Yes Go to “Step 1421-8”.

Step 1421-8

Assign the available empty and unassigned slot to the partition that will not boot.

Step 1421-9

Insert a new adapter of the same type recorded in “Step 1421-3” into the slot assigned in “Step 1421-8”.

Step 1421-10

Move any external cabling from the adapter in the slot recorded in “Step 1421-3” to the adapter in the slot assigned in “Step 1421-8”.

Step 1421-11

Attempt to boot the partition.

Does the partition boot?

No Go to “Step 1421-12” on page 171.

Yes The partition and all resources are operational. Schedule repair for the slot recorded in “Step 1421-3” on page 170 with the customer. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure**.

Step 1421-12

Cannot isolate the adapter without powering off the entire system. Schedule repair for the slot recorded in “Step 1421-3” on page 170 with the customer. **This ends the procedure**.

MAP 1422: Slot is Empty Even When Populated

Step 1422-1

Record the I/O drawer and slot location of the slot that is populated with an adapter but shows empty in the PCI hot-plug manager. Also record the adapter type.

Step 1422-2

Is the PCI slot power LED of the location recorded in “Step 1422-1” on?

No Go to “Step 1422-3”.

Yes Go to “Step 1422-7”.

Step 1422-3

Disconnect any external cables from the adapter identified in “Step 1422-1”.

Step 1422-4

Remove the adapter identified in “Step 1422-1”.

Step 1422-5

Follow the procedure described in “Installing a Hot-Pluggable PCI Adapter” on page 575 to add a new adapter at the location recorded in “Step 1422-1”. The new adapter should be the same type as that removed in “Step 1422-1”. After the new adapter is added, return to “Step 1422-6”.

Step 1422-6

Did the PCI hot-plug procedure successfully add a new adapter at the location recorded in “Step 1422-1”?

No Go to “Step 1422-7”.

Yes Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure**.

Step 1422-7

Shut down the partition that the faulty slot is assigned to.

Step 1422-8

Is the PCI slot power LED of the location recorded in “Step 1422-1” on?

No Go to “Step 1422-9” on page 172.

Yes Go to “Step 1422-14” on page 172

Step 1422-9

Are there any empty PCI slots attached to the system that are not assigned to any partitions?

No Go to “Step 1422-14”.

Yes Go to “Step 1422-10”.

Step 1422-10

Assign the available empty and unassigned slot to the partition that the faulty slot is assigned to.

Step 1422-11

Insert a new adapter of the same type recorded in “Step 1422-1” on page 171 into the slot assigned in “Step 1422-10”.

Step 1422-12

Move any external cabling from the adapter in the slot recorded in “Step 1422-1” on page 171 to the adapter in the slot assigned in “Step 1422-10”.

Step 1422-13

Attempt to boot the partition.

Does the partition boot?.

No Go to “Step 1422-14”.

Yes The partition and all resources are operational. Schedule repair for the slot recorded in “Step 1422-1” on page 171 with the customer. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure**.

Step 1422-14

Cannot repair the adapter without powering off the entire system. Schedule repair for the slot recorded in “Step 1422-1” on page 171 with the customer. **This ends the procedure**.

MAP 1520: Power

This procedure is used to locate power problems in the processor subsystem, I/O subsystem(s) or rack. If a problem is detected, this procedure helps you isolate the problem to a failing unit.

Observe the following safety notices during service procedures.

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.
D05

CAUTION:
This product is equipped with a three-wire power cable and plug for the user's safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.
C01

CAUTION:
Energy hazard, remove power before servicing.
C22

This system is configured with an arrangement of LEDs that help identify various components of the system. These include, but are not limited to:

- Rack identify LED
- Processor subsystem drawer identify LED
- I/O drawer identify LED
- RIO port identify LED
- FRU identify LED

- Power subsystem FRUs
  - Processor subsystem FRUs
  - I/O subsystem FRUs
- I/O adapter identify LED
- DASD identify LED

The identify LEDs are arranged hierarchically with the FRU identify LED at the bottom of the hierarchy, followed by the corresponding processor subsystem, or I/O drawer identify LED, and the corresponding rack identify LED to locate the failing FRU more easily.

Any identify LED in the system may be flashed (when the system is in the failed state and the power is on) by using the service processor LED Control Menu contained in the System Information Menu of the Privileged User Menus. To use the LED Control Menu, see page 453.

Any identify LED in the system can also be flashed by using the Identify and Attention Indicators task in diagnostics. The procedure to use the Identify and Attention Indicators task in diagnostics is outlined in *@server pSeries Diagnostic Information for Multiple Bus Systems*.

If the service processor menus and the AIX diagnostics are not available, The FRU Identify LEDs may be flashed by one of following additional procedures.

1. If the system is configured as a full partition, the system may be booted to the open firmware prompt and the command `FRU-LED-MENU`. A menu displays that allows you to turn on the desired FRU identify LED. See "System Power Control Menu" on page 445 for instructions on setting up the boot mode to enable the boot to the open firmware prompt.
2. If the system is logically partitioned, the HMC must be attached. You can use the HMC to flash any FRU identify LED. See the Hardware Service Functions section of the Service Focal Point chapter in the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for instructions on activating and/or deactivating a FRU identify LED.

Find the symptom in the following table; then follow the instructions given in the Action column.

Power Problems	
Symptom/Reference Code	**Action**
The system will not power on and no error codes are available	Go to “Map 1521: The System Will Not Power On And No Error Codes Are Available” on page 177.
1011 8700, 1011 8701	Go to “Map 152a: Loss of ac Power or Phase Missing” on page 192.
1014 6014, 1014 6814, 1014 B014, 1014 B814, 1015 6014, 1015 6814, 1015 B014, 1015 B814, 1016 6014, 1016 6814, 1016 B014, 1016 B814, 1017 6014, 1017 6814, 1017 B014, 1017 B814, 1021 6014, 1021 6814, 1021 B014, 1021 B814, 1022 6014, 1022 6814, 1022 B014, 1022 B814, 1023 6014, 1023 6814, 1023 B014, 1023 B814, 1024 6014, 1024 6814, 1024 B014, 1024 B814, 1025 6014, 1025 6814, 1025 B014, 1025 B814	Go to “Map 152h: 3.3V Current/Voltage Problem in I/O Subsystem” on page 216.
1014 6024, 1014 6824, 1014 B024, 1014 B824, 1015 6024, 1015 6824, 1015 B024, 1015 B824, 1016 6024, 1016 6824, 1016 B024, 1016 B824, 1017 6024, 1017 6824, 1017 B024, 1017 B824, 1021 6024, 1021 6824, 1021 B024, 1021 B824, 1022 6024, 1022 6824, 1022 B024, 1022 B824, 1023 6024, 1023 6824, 1023 B024, 1023 B824, 1024 6024, 1024 6824, 1024 B024, 1024 B824, 1025 6024, 1025 6824, 1025 B024, 1025 B824	Go to “Map 152i: 5.0 V Current/Voltage Problem in I/O Subsystem” on page 223.
1014 6034, 1014 6834, 1014 B034, 1014 B834, 1015 6034, 1015 6834, 1015 B034, 1015 B834, 1016 6034, 1016 6834, 1016 B034, 1016 B834, 1017 6034, 1017 6834, 1017 B034, 1017 B834, 1021 6034, 1021 6834, 1021 B034, 1021 B834, 1022 6034, 1022 6834, 1022 B034, 1022 B834, 1023 6034, 1023 6834, 1023 B034, 1023 B834, 1024 6034, 1024 6834, 1024 B034, 1024 B834, 1025 6034, 1025 6834, 1025 B034, 1025 B834	Go to “Map 152j: 2.5 V Current/Voltage Problem in I/O Subsystem” on page 232.
1014 6044, 1014 6844, 1014 B044, 1014 B844, 1015 6044, 1015 6844, 1015 B044, 1015 B844, 1016 6044, 1016 6844, 1016 B044, 1016 B844, 1017 6044, 1017 6844, 1017 B044, 1017 B844, 1021 6044, 1021 6844, 1021 B044, 1021 B844, 1022 6044, 1022 6844, 1022 B044, 1022 B844, 1023 6044, 1023 6844, 1023 B044, 1023 B844, 1024 6044, 1024 6844, 1024 B044, 1024 B844, 1025 6044, 1025 6844, 1025 B044, 1025 B844	Go to “Map 152k: 12.0 V Current/Voltage Problem in I/O Subsystem” on page 239.

Power Problems	
Symptom/Reference Code	**Action**
1014 6054, 1014 6854, 1014 B054, 1014 B854, 1015 6054, 1015 6854, 1015 B054, 1015 B854, 1016 6054, 1016 6854, 1016 B054, 1016 B854, 1017 6054, 1017 6854, 1017 B054, 1017 B854, 1021 6054, 1021 6854, 1021 B054, 1021 B854, 1022 6054, 1022 6854, 1022 B054, 1022 B854, 1023 6054, 1023 6854, 1023 B054, 1023 B854, 1024 6054, 1024 6854, 1024 B054, 1024 B854, 1025 6054, 1025 6854, 1025 B054, 1025 B854	Go to “Map 152l: -12.0 V Current/Voltage Problem in I/O Subsystem” on page 248.
1014 CD96, 1014 CDA6, 1014 CDB6, 1014 CDC6, 1015 CD96, 1015 CDA6, 1015 CDB6, 1015 CDC6, 1016 CD96, 1016 CDA6, 1016 CDB6, 1016 CDC6, 1017 CD96, 1017 CDA6, 1017 CDB6, 1017 CDC6, 1021 CD96, 1021 CDA6, 1021 CDB6, 1021 CDC6, 1022 CD96, 1022 CDA6, 1022 CDB6, 1022 CDC6, 1023 CD96, 1023 CDA6, 1023 CDB6, 1023 CDC6, 1024 CD96, 1024 CDA6, 1024 CDB6, 1024 CDC6, 1025 CD96, 1025 CDA6, 1025 CDB6, 1025 CDC6	Go to “Map 152n: DASD Subsystem Power Problem” on page 260.
101A FE06 for BPC A **101B FE06** for BPC B **101A FE16** for BPC A **101B FE16** for BPC B	Go to “Map 1522: UEPO Switch On The BPC Is In The Bypass Position” on page 181
101A 0856 or **101A FE56**for BPR 1A **101A 0866** or **101A FE66** for BPR 2A **101A 0876** or **101A FE76** for BPR 3A **101B 0856** or **101B FE56** for BPR 1B **101B 0866** or **101B FE66** for BPR 2B **101B 0876** or **101B FE76** for BPR 3B	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101A FDB6 for BPC A or **101B FDB6** for BPC B	Go to “Map 1524: An Open Room EPO Switch Has Been Detected From One Side” on page 182.
101A 0D06 for BPA A or **101B 0D06** for BPA B	Go to “Map 1525: There Is A 350 Volt Bulk Failure” on page 184.
101A 7A86 or **101A 7B86** for IBF 1A **101A 7A96** or **101A 7B96** for IBF 2A **101A 7AA6** or **101A 7BA6** for IBF 3A **101B 7A86** or **101B 7B86** for IBF 1B **101B 7A96** or **101B 7B96** for IBF 2B **101B 7AA6** or **101B 7BA6** for IBF 3B	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101A 1C06, 101B 1C06, 101C 1C06, 1014 1C06, 1015 1C06, 1016 1C06, 1017 1C06, 1021 1C06, 1022 1C06, 1023 1C06	Go to “Map 1527: An Air Flow Loss Has Been Detected” on page 188.
101C E006 or **101C E106**	Go to “Map 1528: There Is A Processor (Critical/Warning) Overtemperature Fault” on page 189.
101A D216 for BPA A or **101B D216** for BPA B	Go to “Map 1529: There Is A Bulk Power Assembly (BPA) Communication Failure” on page 190.

Power Problems	
Symptom/Reference Code	**Action**
101A F806, **101A F906**, or **101A FA06** for BPC A or **101B F806**, **101B F906**, or **101A FA06** for BPC B	Go to “Map 152a: Loss of ac Power or Phase Missing” on page 192.
101A x115, 101A x125, 101A x135, 101A x215 101A x225, 101A x235, 101A x315, 101A x325, 101A x335, 101A x415, 101A x425, 101A x435, 101A x515, 101A x525, 101A x535, 101A x615, 101A x625, 101A x635, 101A x715, 101A x725, 101A x735, 101A x825, 101A x835, 101A x925, 101A x935, 101A xA25, 101A xA35 101B x115, 101B x125, 101B x135, 101B x215 101B x225, 101B x235, 101B x315, 101B x325, 101B x335, 101B x415, 101B x425, 101B x435, 101B x515, 101B x525, 101B x535, 101B x615, 101B x625, 101B x635, 101B x715, 101B x725, 101B x735, 101B x825, 101B x835, 101B x925, 101B x935, 101B xA25, 101B xA35	Go to “Map 152m: Cable Problem in Power Subsystem” on page 256.
101A 24C1, 101A 25C1, 101A 26C1, 101B 24C1, 101B 25C1, 101B 26C1	Go the “Map 152o: BPJ Problem Indicated” on page 262.
101C 6014, 101C 6814, 101C B014, 101C B814	Go to “Map 152b: 2.5 V Current/Voltage Problem in Processor Subsystem” on page 194.
101C 6114, 101C 6914, 101C B114, 101C B914	Go to “Map 152c: 1.8 V Current/Voltage Problem in Processor Subsystem” on page 197.
101C 6124, 101C 6924, 101C B124, 101C B924	Go to “Map 152e: 1.5 V CPU Current/Voltage Problem in Processor Subsystem” on page 206.
101C 6134, 101C 6934, 101C B134, 101C B934	Go to “Map 152d: 1.5 V Auxiliary Current/Voltage Problem in Processor Subsystem” on page 201.
101C 6144, 101C 6944, 101C B144, 101C B944	Go to “Map 152f: 3.3 V Current/Voltage Problem in Processor Subsystem” on page 209.
101C 6514, 101C 6D14, 101C B514, 101C BD14	Go to “Map 152g: 5.0 V Current/Voltage Problem in Processor Subsystem” on page 213.

Map 1521: The System Will Not Power On And No Error Codes Are Available

Step 1521-1

Ensure that the following are true:

- Both power cords are properly connected
- The UEPO panel switch is in the On position
- The UEPO BYPASS switches on both BPCs are in the Normal position
- The on/off switches located on all the BPRs are in the on (left) position

Note: A switch set to the off position cannot cause this symptom by itself, however, any switch found in the off position must be reset to the on position (and wait 10 seconds) before proceeding.

- The cable from UEPO connector J00 to BPC-A connector J05 and the cable from UEPO connector J01 to BPC-B connector J05 are properly connected without visible sign of damage.
- The room temperature is *not* in excess of the maximum allowed (40 degrees Celsius or 104 degrees Fahrenheit)

  Note: If the room temperature exceeds the specified maximum, the machine may continually cycle on and off.

Are all the above conditions true?

No Correct any problems and go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 1521-2”.

Step 1521-2

Check the LEDs on both sides of the bulk power assembly (BPA).

Are all LEDs off on *both* sides of BPA?

No Go to “Step 1521-3”.

Yes Go to “Step 1521-9” on page 180.

Step 1521-3

Check the following LED states on *both* Bulk Power Controllers (BPCs):

- UEPO PWR LED turned on
- BPC GOOD LED turned on
- All other LEDs are off

Are all the above true?

No Go to “Step 1521-4” on page 179.

Yes Go to “Step 1521-5” on page 179.

Step 1521-4

Independent faults are indicated on both sides of the BPA. Each side must be isolated separately. Call for service support. **This ends the procedure.**

Step 1521-5

Check the External (Room) EPO Connection if used.

If a room emergency power off (EPO) circuit is used, the external room EPO circuit is connected to the J02 connector on lower edge of UEPO Switch.

Is a cable connected into the connector J02 on the UEPO Switch?

No Go to “Step 1521-6”.

Yes Go to “Step 1521-7”.

Step 1521-6

Is the internal toggle switch on the EPO panel card set to the ’RM EPO BYPASS’ position?

No Set the internal toggle switch to the ’RM EPO BYPASS’ position, and go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Exchange the UEPO card assembly. Follow all the steps in the removal and replacement procedure for the “Unit Emergency Power Off (UEPO) Switch” on page 505. Go to “Step 1521-8” on page 180.

Step 1521-7

Note: Read the Danger and Caution notices under “Safety Notices” on page xi before continuing with this procedure.

Disconnect the cable from UEPO connector J02, and set the toggle switch to the ’RM EPO BYPASS’ position.

Does the UEPO CMPLT LED light on at least one BPC?

No Exchange the UEPO card assembly. Follow all the steps in the removal and replacement procedure for the “Unit Emergency Power Off (UEPO) Switch” on page 505. Go to “Step 1521-8” on page 180.

Yes Notify the customer that the room EPO circuit is defective at this connection and requires service. **This ends the procedure.**

Step 1521-8

Is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Call for service support. **This ends the procedure.**

Step 1521-9

Note: Read the Danger and Caution notices under "Safety Notices" on page xi before continuing with this procedure.

1. Prepare a multimeter to measure up to 600 V ac.
2. Use the multimeter to measure the ac voltage at the test points on the frame labeled Phase A and Phase B.

Is the ac voltage greater than 180 V ac?

No Inform the customer that the line voltage into the BPA is missing or too low. **This ends the procedure.**

Yes Go to "Step 1521-10".

Step 1521-10

Is BPJ hardware installed on the system?

No Independent faults are indicated on both sides of the BPA. Each side must be isolated separately. Call for service support. This ends the procedure.

Yes Go to "Step 152o-15" on page 264 of "Map 152o: BPJ Problem Indicated" on page 262.

Map 1522: UEPO Switch On The BPC Is In The Bypass Position

Step 1522-1

Check the UEPO Switch on the BPC on the BPA that is exhibiting the failure.

Is the switch in the NORMAL position?

No Set the UEPO switch on the BPC to the NORMAL position and go to "Step 1522-2".

Yes Go to "Step 1522-2".

Step 1522-2

Press the Service Complete button.

Is error code 101A FE16 or 101B FE16 displayed?

No The problem has already been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Replace the BPC on the side that is exhibiting the failure. Follow all the steps in the "Bulk Power Controller (BPC)" on page 497. Go to "Step 1522-3".

Step 1522-3

If not done already, press the Service Complete button.

Is error code 101A FE16 or 101B FE16 displayed?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure.**

Yes Call for service support. **This ends the procedure.**

Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault

Step 1523-1

Check the position of the on/off switch on the BPR referenced by the error code that sent you to this MAP.

Is the switch in the ON position (to the left)?

No Set the switch to the ON position (to the left), and go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1523-2".

Step 1523-2

Exchange the following FRUs one at a time:

- BPR referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Regulator (BPR)" on page 496.
- BPC on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Controller (BPC)" on page 497.
- BPE on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Enclosure (BPE)" on page 503.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure.**

Yes Replace the next FRU on the list.

Map 1524: An Open Room EPO Switch Has Been Detected From One Side

Step 1524-1

Check the unit emergency power off (UEPO) panel.

Is a customer's room EPO cable plugged into the UEPO panel?

No Go to "Step 1524-3" on page 183.

Yes Go to "Step 1524-2".

Step 1524-2

1. Set the UEPO switch on both BPCs to the BYPASS position.
2. Unplug the customer room EPO cable.
3. Set the switch (J4) on the UEPO panel to EPO BYPASS position.

4. Set the UEPO switch on both BPCs back to the NORMAL position.
5. Press the Service Complete button.

Is error code 101A FDB6 or error code 101B FDB6 generated?

No Go to “Step 1524-4”.

Yes Go to “Step 1524-3”.

Step 1524-3

Exchange the following FRUs one at a time:

1. UEPO card assembly. Follow all steps in the removal and replacement procedures for “Unit Emergency Power Off (UEPO) Switch” on page 505.
2. Cable from UEPO to BPC on the side referenced by the error code that sent you to this MAP.
3. BPC on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Controller (BPC)” on page 497.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Replace the next FRU on the list. If all FRUs on the list have been replaced, call for service support.

Step 1524-4

Perform the following actions one at a time:

1. Replace the UEPO card assembly. Follow all steps in the removal and replacement procedures for “Unit Emergency Power Off (UEPO) Switch” on page 505.
2. Check the customer’s room EPO for correct operation.

After each action is performed, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Perform the next action on the list. If all actions on the list have been performed, call for service support.

Map 1525: There Is A 350 Volt Bulk Failure

Step 1525-1

Notes:

1. This problem can be caused by any BPR plugged into the failing BPA.
2. The system can have one or two BPRs, depending on the system configuration.
3. Each BPR on the failing BPA must be checked independently.

The following steps check all the BPRs on the side of the BPA (A or B) referenced by the error code that sent you to this MAP.

Are there any remaining BPRs to be checked?

No Go to "Step 1525-2".

Yes Go to "Step 1525-3" on page 185.

Step 1525-2

Notes:

1. This problem can be caused by any BPD plugged into the failing BPA.
2. The system can have up to three BPDs, depending on the system configuration.
3. Each BPD on the failing BPA must be checked independently.

The following steps check all the BPDs on the side of the BPA (A or B) referenced by the error code that sent you to this MAP.

Are there any BPDs remaining to be checked?

No

Exchange the following FRUs one at a time:

- BPC on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Controller (BPC)" on page 497.
- Replace the BPE on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Enclosure (BPE)" on page 503.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to "MAP 0410: Repair Checkout" in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*

Yes Replace the next FRU on the list. If all FRUs on the list have been replaced, call for service support.

Yes Go to “Step 1525-4”.

Step 1525-3

Note: Be sure you are working on the side of the BPA (A or B) referenced by the error code that sent you to this MAP. FRUs on the operating side of the BPA (with BPC GOOD LED on) *must not* be disturbed during this procedure.

1. Turn the BPR on/off switch to the off position (to the right).
2. Unplug the BPR to be checked and carefully pull it approximately 25 mm (1 inch) away from the backplane without unplugging any cables.

   If there is more than one BPR remaining to be checked, start with the uppermost unchecked BPR and make a note of which BPR you unplugged.

Does the BPC GOOD LED on the BPC come on and stay on?

No Replug the BPR and set all the BPR on/off switches on this BPA to the on position (to the left), and continue with “Step 1525-1” on page 184.

Yes Replace the BPR that is currently unplugged. Follow all steps in the removal and replacement procedures for “Bulk Power Regulator (BPR)” on page 496. Go to “Step 1525-5”.

Step 1525-4

Note: Be sure you are working on the side of the BPA (A or B) referenced by the error code that sent you to this MAP. FRUs on the operating side of the BPA (with BPC GOOD LED on) *must not* be disturbed during this procedure.

1. Turn all the BPR on/off switches on this BPA to the off position (to the right).
2. Unplug the BPD to be checked and carefully pull it approximately 25 mm (1 inch) away from the backplane without unplugging any cables.

   If there is more than one BPD remaining to be checked, start with the uppermost unchecked BPD and make a note of which BPD you unplugged.
3. Set all the BPR on/off switches on this BPA to the on position (to the left).

Does the BPC GOOD LED on the BPC come on and stay on?

No Replug the BPD and continue with “Step 1525-2” on page 184.

Yes Replace the BPD that is currently unplugged. Follow all steps in the removal and replacement procedures for “Bulk Power Distributor (BPD)” on page 499. Go to “Step 1525-5”.

Step 1525-5

Is the error code that sent you to this MAP still reported?

No The problem has been corrected. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the@server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Call for service support.

Map 1526: There Is An Integrated Battery Feature (IBF) Failure

Step 1526-1

Is the IBF feature installed?

No Replace the BPR that is connected to the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures in “Bulk Power Regulator (BPR)” on page 496. Go to “Step 1526-7” on page 188.

Yes Go to “Step 1526-2”.

Step 1526-2

Did any of the following error codes send you to this MAP?

- **101A 7A86**
- **101A 7A96**
- **101A 7AA6**
- **101B 7A86**
- **101B 7A96**
- **101B 7AA6**

No Go to “Step 1526-3”.

Yes Go to “Step 1526-5” on page 187.

Step 1526-3

Check the cable between the BPR and the IBF. The IBF LED on the IBF referenced in the error code that brought you to this MAP will be off.

Is the cable plugged on both sides?

No Plug in the cable and go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 1526-4”.

Step 1526-4

Check the circuit breaker on the IBF referenced in the error code that brought you to this MAP. The IBF LED on the IBF referenced in the error code that brought you to this MAP will be off.

Is the circuit breaker set on?

No Replace the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures in “Integrated Battery Feature (IBF)” on page 506. Go to “Step 1526-7” on page 188.

Yes Exchange the following FRUs one at a time:

- The BPR that is connected to the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Regulator (BPR)” on page 496.

- The IBF that is referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Integrated Battery Feature (IBF)” on page 506.
- The cable between the BPR and the IBF referenced in the error code that brought you to this MAP.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*

Yes Replace the next FRU on the list. If all FRUs in the list have been replaced, call for service support.

Step 1526-5

Check the circuit breaker on the IBF referenced in the error code that brought you to this MAP. The IBF LED on the IBF referenced in the error code that brought you to this MAP will be off.

Is the circuit breaker set on?

No Go to “Step 1526-6”.

Yes Replace the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures in “Integrated Battery Feature (IBF)” on page 506. Go to “Step 1526-7” on page 188.

Step 1526-6

Set the breaker to the on (down) position. Wait 10 seconds after the LED on the IBF referenced in the error code that brought you to this MAP comes on.

Does the circuit breaker remain on?

No Exchange the following FRUs one at a time:

- The BPR that is connected to the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Regulator (BPR)” on page 496.
- The IBF that is referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Integrated Battery Feature (IBF)” on page 506.
- The cable between the BPR and the IBF referenced in the error code that brought you to this MAP.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Replace the next FRU on the list. If all FRUs in the list have been replaced, call for service support.

Yes Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1526-7

Is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Call for service support.

Map 1527: An Air Flow Loss Has Been Detected

Step 1527-1

Check the following air inlets and outlets for blockage or obstruction:

- Front and rear frame door openings (except for acoustical foam)
- Bulk power assembly (BPA) cage
  - Inlet opening in left side of front BPA, BPA A
  - Outlet opening in right side of rear BPA, BPA B
  - Bulk power fan (BPF) cover is present on front BPA and absent on rear BPA
- Processor subsystem cage
  - Inlet opening at top front of processor subassembly
  - Outlet opening at top rear of processor subassembly
- I/O subsystem
  - Inlet opening at front of the I/O subassembly
  - Outlet opening at rear of I/O subassembly

Are all of these openings clear and unobstructed?

No Remove any obstructions. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1527-2".

Step 1527-2

Do all card positions in the processor subsystem contain cards or fillers?

No Fill any open positions with cards or fillers. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1527-3" on page 189.

Step 1527-3

Are the air filters clean and free of any obstructions?

No Clean and replace the air filters. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 1527-4”.

Step 1527-4

Remove the blowers/fans from the affected subsystem.

Attention: Do not put your hand into the enclosure.

Push the spring-loaded door open and hold it open with one hand. Using a suitably long instrument (a 12-inch ruler or long-handled screwdriver), push gently against the recirculation flaps at the back of each blower/fan enclosure.

Are all the recirculation flaps in all enclosures free to swing up?

No The enclosure is not a replaceable FRU. Call your next level of support.

Yes Reinstall the blower/fans. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the@server *pSeries Diagnostic Information for Multiple Bus Systems*.

Map 1528: There Is A Processor (Critical/Warning) Overtemperature Fault

Step 1528-1

Is the room ambient temperature in normal range (less than 35 degrees C/ 95 degrees F)?

No Notify the customer. The customer must bring the room temperature within normal range. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 1528-2”.

Step 1528-2

Are the system front and rear doors free of obstructions?

No Notify the customer. The system must be free of obstructions for proper air flow. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes

Replace the processor MCM module 0, at location U1.x-P1-C2. Follow all steps in the removal and replacement procedures for “MCM Module (Processor)” on page 534.

After the FRU is exchanged, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Call for service support.

Map 1529: There Is A Bulk Power Assembly (BPA) Communication Failure

Step 1529-1

Check the following air inlets and outlets for blockage or obstruction:

- Front and rear frame door openings (except for acoustical foam)
- Bulk power assembly (BPA) cage
  - Inlet opening in the left side of the front BPA, BPA A
  - Outlet opening in the right side of the rear BPA, BPA B
  - Bulk power fan (BPF) cover is present on the front BPA and absent on the rear BPA

Are all of these openings clear and unobstructed?

No Remove any obstructions. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 1529-2”.

Step 1529-2

Check the position of the on/off switch on the BPRs.

Is the switch in the ON position (to the left)?

No Set the switch to the ON position (to the left), and go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 1529-3”.

Step 1529-3

Note: Read the Danger and Caution notices under “Safety Notices” on page xi before continuing with this procedure.

1. Prepare a multimeter to measure up to 600 V ac.
2. Use the multimeter to measure the ac voltage at the following test points on the faceplate of the BPA that is not referenced by the error code that sent you to this MAP:
   - Phase A and phase B
   - Phase B and phase C

- Phase C and phase A

Are all the readings greater than 180 V ac?

No Go to "Step 1529-4".

Yes Exchange the following FRUs one at a time:

1. BPR 1, that is connected to the IBF not referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Regulator (BPR)" on page 496.
2. BPR 2, that is connected to the IBF not referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Regulator (BPR)" on page 496.
3. BPR 3, that is connected to the IBF not referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Regulator (BPR)" on page 496.
4. BPC on the other side not referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Controller (BPC)" on page 497.
5. BPE on the other side not referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for "Bulk Power Enclosure (BPE)" on page 503.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*

Yes Replace the next FRU on the list. If all FRUs on the list have been replaced, call for service support.

Step 1529-4

Inform the customer that the line voltage into the BPA is missing or too low, and needs to be checked.

Can the line voltage be checked now?

No Defer this repair until the customer's utility can check the line voltage. **This ends the procedure.**

Yes Go to "Step 1529-5".

Step 1529-5

Does the customer utility voltage checkout OK?

No The customer must restore utility voltage. **This ends the procedure.**

Yes Exchange the line cord, and go to "Step 1529-6" on page 192.

Step 1529-6
Press the Service Complete button.

Is the error code that sent you to this MAP still reported?

No The problem has been corrected. Reinstall the BPJ hardware if it was previously removed. Return the system to its original configuration. Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure.**

Yes Call for service support. **This ends the procedure.**

Map 152a: Loss of ac Power or Phase Missing

Step 152a-1
Press the Service Complete button.

Is the error code that sent you to this MAP still reported?

No This was a transient condition. The condition no longer exists. No service action is required.

Yes Go to "Step 152a-2".

Step 152a-2
Check all LEDs on the BPA that is not referenced by the error code that sent you to this MAP.

Are they OK?

No Defer this repair until the failure on the other BPA can be repaired. **This ends the procedure.**

Yes Go to "Step 152a-3".

Step 152a-3

Note: Read the Danger and Caution notices under "Safety Notices" on page xi before continuing with this procedure.

1. Prepare a multimeter to measure up to 600 V ac.
2. Use the multimeter to measure the ac voltage at the following test points on the faceplate of the BPA that is referenced by the error code that sent you to this MAP:
   - Phase A and phase B
   - Phase B and phase C
   - Phase C and phase A

Are all the readings greater than 180 V ac?

No Go to "Step 152a-4" on page 193.

Yes Exchange the following FRUs one at a time:

1. BPR 1, that is connected to the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Regulator (BPR)” on page 496.
2. BPR 2, that is connected to the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Regulator (BPR)” on page 496.
3. BPR 3, that is connected to the IBF referenced in the error code that brought you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Regulator (BPR)” on page 496.
4. BPC on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Controller (BPC)” on page 497.
5. BPE on the side referenced by the error code that sent you to this MAP. Follow all steps in the removal and replacement procedures for “Bulk Power Enclosure (BPE)” on page 503.

After each FRU is exchanged, is the error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Replace the next FRU on the list. If all FRUs on the list have been replaced, call for service support.

Step 152a-4

Inform the customer that the line voltage into the BPA is missing or too low, and must be checked.

Can the line voltage be checked now?

No Defer this repair until the customer’s utility can check the line voltage. **This ends the procedure.**

Yes Go to “Step 152a-5”.

Step 152a-5

Does the customer utility voltage checkout OK?

No The customer must restore utility voltage. **This ends the procedure.**

Yes Exchange the line cord, and go to “Step 152a-6”.

Step 152a-6

Press the Service Complete button.

Is error code that sent you to this MAP still reported?

No The problem has been corrected. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. **This ends the procedure.**

Yes Call for service support. **This ends the procedure.**

Map 152b: 2.5 V Current/Voltage Problem in Processor Subsystem

Step 152b-1

Record the error code and location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 152b-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152b-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152b-4”.

No Call for service support.

Step 152b-4

Remove the following cards, if present:

- Memory card 1, at location U1.x-P1-M1
- Memory card 2, at location U1.x-P1-M2
- Memory card 3, at location U1.x-P1-M3
- Memory card 4, at location U1.x-P1-M4

Step 152b-5

Turn on the power.

Step 152b-6

Did the system stop with the same error code as recorded in “Step 152b-1”?

Yes Go to “Step 152b-12” on page 195.

No Go to “Step 152b-7”.

Step 152b-7

One of the cards just removed is defective.

1. Turn off the power.
2. Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152b-8

Reinsert one of the cards that is pulled out and listed in Step 152b-4.

Step 152b-9

Turn on the power.

Step 152b-10

Did the system stop with the same error code as recorded in "Step 152b-1" on page 194?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152b-11".

Step 152b-11

Have all the cards listed in step 152b-4 been reinserted?

Yes The symptom has changed. **This ends the procedure**.

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152b-8" on page 194.

Step 152b-12

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152b-13

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152b-14".

No Call for service support.

Step 152b-14

Replace the cards in the following list, if present, one at a time and in the order listed:

- Service processor card at location U1.x-P1-X1
- DCA at location U1.18-P1-V1

Step 152b-15

Turn on the power.

Step 152b-16

Did the system stop with the same error code as recorded in "Step 152b-1" on page 194?

Yes Go to "Step 152b-17" on page 196.

No The card just replaced is defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152b-17

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152b-18

Remove the new card that was just installed in "Step 152b-14" on page 195 and reinstall the original card.

Step 152b-19

Have all the cards listed in "Step 152b-14" on page 195 been replaced with new or original cards?

Yes Go to "Step 152b-20".

No Go to "Step 152b-14" on page 195.

Step 152b-20

Examine the green Power-In LED on the processor subsystem DCA.

Step 152b-21

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152b-22".

No Call for service support.

Step 152b-22

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at location U1.x-P1.

Step 152b-23

Turn on the power.

Step 152b-24

Did the system stop with the same error code as recorded in "Step 152b-1" on page 194?

Yes Go to "Step 152b-25" on page 197.

No The system backplane was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152b-25

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152b-26

Has the system backplane been replaced?

Yes Call for service support.

No Go to "Step 152b-22" on page 196.

Map 152c: 1.8 V Current/Voltage Problem in Processor Subsystem

Step 152c-1

For future reference, record the error code in the operator panel value on the HMC.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152c-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152c-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152c-4".

No Call for service support.

Step 152c-4

Remove the following cards, if present:

- Memory card 1, at location U1.x-P1-M1
- Memory card 2, at location U1.x-P1-M2
- Memory card 3, at location U1.x-P1-M3
- Memory card 4, at location U1.x-P1-M4

Step 152c-5

Turn on the power.

Step 152c-6

Did the system stop with the same error code as recorded in "Step 152c-1"?

Yes Go to "Step 152c-12" on page 198.

No Go to "Step 152c-7" on page 198.

Step 152c-7

One of the cards just removed is defective.

1. Turn off the power.
2. Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152c-8

Reinsert one of the cards that is pulled out and listed in “Step 152c-4” on page 197.

Step 152c-9

Turn on the power.

Step 152c-10

Did the system stop with the same error code as recorded in “Step 152c-1” on page 197?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152c-11”.

Step 152c-11

Have all the cards listed in “Step 152c-4” on page 197 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152c-8”.

Step 152c-12

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152c-13

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152c-14”.

No Call for service support.

Step 152c-14

Replace the cards in the following, if present, one at a time and in the order listed:

- Service processor card at location U1.x-P1-X1
- DCA at location U1.x-V1

Step 152c-15
Turn on the power.

Step 152c-16
Did the system stop with the same error code as recorded in "Step 152c-1" on page 197?

Yes Go to "Step 152c-17".

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152c-17
Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152c-18
Remove the new card that was just installed in "Step 152c-14" on page 198 and reinstall the original card.

Step 152c-19
Have all the cards listed in "Step 152c-14" on page 198 been replaced with new or original cards?

Yes Go to "Step 152c-20".

No Go to "Step 152c-14" on page 198.

Step 152c-20
Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152c-21
Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152c-22".

No Call for service support.

Step 152c-22
Record the location of each installed L3 module.

Attention: L3 modules have a limit of three plug cycles. Before removing any of the L3 modules in the following list, call for service support.

Remove all of the following modules, if present:
- L3 module, at location U1.x-P1-C1

- L3 module, at location U1.x-P1-C3
- L3 module, at location U1.x-P1-C4
- L3 module, at location U1.x-P1-C5

Step 152c-23

Turn on the power.

Step 152c-24

Did the system stop with the same error code as recorded in “Step 152c-1” on page 197?

Yes Go to “Step 152c-30” on page 201.

No Go to “Step 152c-25”.

Step 152c-25

One of the modules just removed is defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152c-26

Reinstall one of the modules that is removed and listed in “Step 152c-22” on page 199.

Step 152c-27

Turn on the power.

Step 152c-28

Did the system stop with the same error code as recorded in “Step 152c-1” on page 197?

Yes The module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152c-29”.

Step 152c-29

Have all the modules listed in “Step 152c-22” on page 199 been reinstalled?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152c-25”.

Step 152c-30

Examine the green Power-In LED on the processor subsystem DCA.

Step 152c-31

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152c-32”.

No Call for service support.

Step 152c-32

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane, at location U1.x-P1.

Step 152c-33

Turn on the power.

Step 152c-34

Did the system stop with the same error code as recorded in “Step 152c-1” on page 197?

Yes Go to “Step 152c-35”.

No The system backplane was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152c-35

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152c-36

Has the system backplane been replaced?

Yes Call for service support.

No Go to “Step 152c-32”.

Map 152d: 1.5 V Auxiliary Current/Voltage Problem in Processor Subsystem

Step 152d-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 152d-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152d-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152d-4”.

No Call for service support.

Step 152d-4

Remove the following cards, if present:

- Memory card 1, at location U1.x-P1-M1
- Memory card 2, at location U1.x-P1-M2
- Memory card 3, at location U1.x-P1-M3
- Memory card 4, at location U1.x-P1-M4

Step 152d-5

Turn on the power.

Step 152d-6

Did the system stop with the same error code as recorded in “Step 152d-1” on page 201?

Yes Go to “Step 152d-12” on page 203.

No Go to “Step 152d-7”.

Step 152d-7

One of the cards just removed is defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152d-8

Reinsert one of the cards that is pulled out and listed in “Step 152d-4”.

Step 152d-9

Turn on the power.

Step 152d-10

Did the system stop with the same error code as recorded in “Step 152d-1” on page 201?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152d-11”.

Step 152d-11

Have all the cards listed in “Step 152d-4” on page 202 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152d-8” on page 202.

Step 152d-12

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA..

Step 152d-13

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152d-14”.

No Call for service support.

Step 152d-14

Replace the following:

- DCA at location U1.x-V1

Step 152d-15

Turn on the power.

Step 152d-16

Did the system stop with the same error code as recorded in “Step 152d-1” on page 201?

Yes Go to “Step 152d-17”.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152d-17

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152d-18

Remove the new DCA that was just installed in “Step 152d-14” on page 203 and reinstall the original card.

Step 152d-19

Have all the cards listed in “Step 152d-14” on page 203 been replaced with new or original cards?

Yes Go to “Step 152d-20”.

No Go to “Step 152d-14” on page 203.

Step 152d-20

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152d-21

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152d-22”.

No Call for service support.

Step 152d-22

Record the location of each installed L3 module.

Attention: L3 modules have a limit of three plug cycles. Before removing any of the L3s in the following list, call for service support.

Remove all of the following modules if present:

- L3 module, at location U1.x-P1-C1
- L3 module, at location U1.x-P1-C3
- L3 module, at location U1.x-P1-C4
- L3 module, at location U1.x-P1-C5

Step 152d-23

Turn on the power.

Step 152d-24

Did the system stop with the same error code as recorded in “Step 152d-1” on page 201?

Yes Go to “Step 152d-30” on page 205.

No Go to “Step 152d-25”.

Step 152d-25

One of the modules just removed is defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152d-26
Reinstall one of the L3 modules that is removed and listed in “Step 152d-22” on page 204.

Step 152d-27
Turn on the power.

Step 152d-28
Did the system stop with the same error code as recorded in “Step 152d-1” on page 201?

Yes The module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152d-29”.

Step 152d-29
Have all the modules listed in “Step 152d-22” on page 204 been reinstalled?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152d-25” on page 204.

Step 152d-30
Examine the green Power-In LED on the processor subsystem DCA.

Step 152d-31
Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152d-32”.

No Call for service support.

Step 152d-32
Attention: Before replacing the system backplane, call for service support.

Replace the system backplane, at location U1.x-P1.

Step 152d-33
Turn on the power.

Step 152d-34

Did the system stop with the same error code as recorded in "Step 152d-1" on page 201?

Yes Go to "Step 152d-35".

No The system backplane was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152d-35

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152d-36

Has the system backplane been replaced?

Yes Call for service support.

No Go to "Step 152d-32" on page 205.

Map 152e: 1.5 V CPU Current/Voltage Problem in Processor Subsystem

Step 152e-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152e-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152e-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152e-4".

No Call for service support.

Step 152e-4

Remove the following:

- DCA, at location U1.x-V1

Step 152e-5

Turn on the power.

Step 152e-6

Did the system stop with the same error code as recorded in "Step 152e-1" on page 206?

Yes Go to "Step 152e-12".

No Go to "Step 152e-7".

Step 152e-7

One of the cards just removed is defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152e-8

Reinsert one of the cards that is pulled out and listed in "Step 152e-4" on page 206.

Step 152e-9

Turn on the power.

Step 152e-10

Did the system stop with the same error code as recorded in "Step 152e-1" on page 206?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152e-11".

Step 152e-11

Have all the cards listed in "Step 152e-4" on page 206 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152e-8".

Step 152e-12

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152e-13

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152e-14”.

No Call for service support.

Step 152e-14

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152e-15

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152e-16”.

No Call for service support.

Step 152e-16

Attention: Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: “MCM Module (Processor)” on page 534 and “L3 Cache Modules” on page 547.

Attention: MCM modules have a limit of three plug cycles. Before replacing any of the MCMs in the following list, call for service support.

Remove the following MCM module:

- MCM module 0, at location U1.x-P1-C2

Step 152e-17

Turn on the power.

Step 152e-18

Did the system stop with the same error code as recorded in “Step 152e-1” on page 206?

Yes Go to “Step 152e-20” on page 209.

No Go to “Step 152e-19”.

Step 152e-19

The module just removed was defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Install a new MCM module 0, at location U1.x-P1-C2.

This ends the procedure.

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152e-20

Turn off the power and examine the green Power-In LED on the processor subsystem DCA.

Step 152e-21

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152e-22".

No Call for service support.

Step 152e-22

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane, at location U1.x-P1.

Step 152e-23

Turn on the power.

Step 152e-24

Did the system stop with the same error code as recorded in "Step 152e-1" on page 206?

Yes Go to "Step 152e-25".

No The system backplane was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152e-25

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152e-26

Has the system backplane been replaced?

Yes Call for service support.

No Go to "Step 152e-22".

Map 152f: 3.3 V Current/Voltage Problem in Processor Subsystem

Step 152f-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 152f-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152f-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152f-4”.

No Call for service support.

Step 152f-4

Remove the following cards, if present:

- Memory card 1, at location U1.x-P1-M1
- Memory card 2, at location U1.x-P1-M2
- Memory card 3, at location U1.x-P1-M3
- Memory card 4, at location U1.x-P1-M4

Step 152f-5

Turn on the power.

Step 152f-6

Did the system stop with the same error code as recorded in “Step 152f-1” on page 209?

Yes Go to “Step 152f-12” on page 211.

No Go to “Step 152f-7”.

Step 152f-7

One of the cards just removed is defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152f-8

Reinsert one of the cards that is pulled out and listed in “Step 152f-4”.

Step 152f-9

Turn on the power.

Step 152f-10

Did the system stop with the same error code as recorded in “Step 152f-1” on page 209?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152f-11”.

Step 152f-11

Have all the cards listed in “Step 152f-4” on page 210 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152f-8” on page 210.

Step 152f-12

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152f-13

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152f-14”.

No Call for service support.

Step 152f-14

Replace the following:

- Service processor, at location U1.x-P1-X1
- DCA, at location U1.x-V1

Step 152f-15

Turn on the power.

Step 152f-16

Did the system stop with the same error code as recorded in “Step 152f-1” on page 209?

Yes Go to “Step 152f-17” on page 212.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152f-17
Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152f-18
Remove the new card that was just installed in “Step 152f-14” on page 211and reinstall the original card.

Step 152f-19
Have all the cards listed in “Step 152f-14” on page 211 been replaced with new or original cards?

Yes Go to “Step 152f-20”.

No Go to “Step 152f-14” on page 211.

Step 152f-20
Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152f-21
Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152f-22”.

No Call for service support.

Step 152f-22
Attention: Before replacing the system backplane, call for service support.

Replace the system backplane, at location U1.x-P1.

Step 152f-23
Turn on the power.

Step 152f-24
Did the system stop with the same error code as recorded in “Step 152f-1” on page 209?

Yes Go to “Step 152f-25” on page 213.

No The system backplane was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152f-25
Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152f-26
Has the system backplane been replaced?

Yes Call for service support.

No Go to “Step 152f-22” on page 212.

Map 152g: 5.0 V Current/Voltage Problem in Processor Subsystem

Step 152g-1
For future reference, record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 152g-2
Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152g-3
Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152g-4”.

No Call for service support.

Step 152g-4
Remove the following cards, if present:
- Memory card 1, at location U1.x-P1-M1
- Memory card 2, at location U1.x-P1-M2
- Memory card 3, at location U1.x-P1-M3
- Memory card 4, at location U1.x-P1-M4

Step 152g-5
Turn on the power.

Step 152g-6
Did the system stop with the same error code as recorded in “Step 152g-1”?

Yes Go to “Step 152g-12” on page 214.

No Go to “Step 152g-7” on page 214.

Step 152g-7

One of the cards just removed is defective.

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152g-8

Reinsert one of the cards that is pulled out and listed in “Step 152g-4” on page 213.

Step 152g-9

Turn on the power.

Step 152g-10

Did the system stop with the same error code as recorded in “Step 152g-1” on page 213?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152g-11”.

Step 152g-11

Have all the cards listed in “Step 152g-4” on page 213 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152g-8”.

Step 152g-12

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 152g-13

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 152g-14”.

No Call for service support.

Step 152g-14

Replace the following, one at a time in the order listed:

- Service processor card at location U1.x-P1-X1

- DCA at location U1.x-P1-V1

Step 152g-15

Turn on the power.

Step 152g-16

Did the system stop with the same error code as recorded in "Step 152g-1" on page 213?

Yes Go to "Step 152g-17".

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the eserver *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152g-17

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152g-18

Remove the new card that was just installed in "Step 152g-14" on page 214 and reinstall the original card.

Step 152g-19

Have all the cards listed in "Step 152g-14" on page 214 been replaced with new or original cards?

Yes Go to "Step 152g-20".

No Go to "Step 152g-14" on page 214.

Step 152g-20

Examine the green Power-In LED on the processor subsystem DCA.

Step 152g-21

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 152g-22".

No Call for service support.

Step 152g-22

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane, at location U1.x-P1.

Step 152g-23

Turn on the power.

Step 152g-24

Did the system stop with the same error code as recorded in “Step 152g-1” on page 213?

Yes Go to “Step 152g-25”.

No The system backplane was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152g-25

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 152g-26

Has the system backplane been replaced?

Yes Call for service support.

No Go to “Step 152g-22” on page 215.

Map 152h: 3.3V Current/Voltage Problem in I/O Subsystem

Step 152h-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 152h-2

Determine the I/O subsystem location. The remaining steps of this MAP refer to this I/O subsystem:

Step 152h-3

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152h-4

Are all green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152h-5”.

No Call for service support.

Step 152h-5

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I1

- Adapter card at P1-I2
- Adapter card at P1-I3
- Adapter card at P1-I4
- Adapter card at P1-I5

Step 152h-6

Turn on the power.

Step 152h-7

Did the system stop with the same error code as recorded in “Step 152h-1” on page 216?

Yes Go to “Step 152h-13” on page 218.

No Go to “Step 152h-8”.

Step 152h-8

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152h-9

Reinsert one of the cards that is removed and listed in “Step 152h-5” on page 216.

Step 152h-10

Turn on the power.

Step 152h-11

Did the system stop with the same error code as recorded in “Step 152h-1” on page 216?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152h-12”.

Step 152h-12

Have all the cards listed in “Step 152h-5” on page 216 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152h-9”.

Step 152h-13
Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152h-14
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152h-15".

No Call for service support.

Step 152h-15
Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:
- Adapter card at P1-I6
- Adapter card at P1-I7
- Adapter card at P1-I8
- Adapter card at P1-I9
- Adapter card at P1-I10

Step 152h-16
Turn on the power.

Step 152h-17
Did the system stop with the same error code as recorded in "Step 152h-1" on page 216?

Yes Go to "Step 152h-23" on page 219.

No Go to "Step 152h-18".

Step 152h-18
One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152h-19
Reinsert one of the cards that is removed and listed in "Step 152h-15".

Step 152h-20
Turn on the power.

Step 152h-21
Did the system stop with the same error code as recorded in "Step 152h-1" on page 216?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152h-22”.

Step 152h-22

Have all the cards listed in “Step 152h-15” on page 218 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152h-19” on page 218.

Step 152h-23

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152h-24

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152h-25”.

No Call for service support.

Step 152h-25

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I1
- Adapter card at P2-I2
- Adapter card at P2-I3
- Adapter card at P2-I4
- Adapter card at P2-I5

Step 152h-26

Turn on the power.

Step 152h-27

Did the system stop with the same error code as recorded in “Step 152h-1” on page 216?

Yes Go to “Step 152h-33” on page 220.

No Go to “Step 152h-28”.

Step 152h-28

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152h-29

Reinsert one of the cards that is removed and listed in “Step 152h-25” on page 219.

Step 152h-30

Turn on the power.

Step 152h-31

Did the system stop with the same error code as recorded in “Step 152h-1” on page 216?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152h-32”.

Step 152h-32

Have all the cards listed in “Step 152h-25” on page 219 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152h-29”.

Step 152h-33

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152h-34

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152h-35”.

No Call for service support.

Step 152h-35

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I6
- Adapter card at P2-I7
- Adapter card at P2-I8
- Adapter card at P2-I9
- Adapter card at P2-I10

Step 152h-36
Turn on the power.

Step 152h-37
Did the system stop with the same error code as recorded in "Step 152h-1" on page 216?

Yes Go to "Step 152h-43".

No Go to "Step 152h-38".

Step 152h-38
One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152h-39
Reinsert one of the cards that is removed and listed in "Step 152h-35" on page 220.

Step 152h-40
Turn on the power.

Step 152h-41
Did the system stop with the same error code as recorded in "Step 152h-1" on page 216?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152h-42".

Step 152h-42
Have all the cards listed in "Step 152h-35" on page 220 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152h-39".

Step 152h-43
Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152h-44

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152h-45”.

No Call for service support.

Step 152h-45

Replace the DCAs in the following list one at a time and in the following order:

- DCA 1 at V1
- DCA 2 at V2

Step 152h-46

Turn on the power.

Step 152h-47

Did the system stop with the same error code as recorded in “Step 152h-1” on page 216?

Yes Go to “Step 152h-48”.

No The DCA just replaced is defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152h-48

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152h-49

Remove the new DCA that was just installed in “Step 152h-45” and reinstall the original DCA.

Step 152h-50

Have all the DCAs listed in “Step 152h-45” been replaced with new or original cards?

Yes Go to “Step 152h-51”.

No Go to “Step 152h-45”.

Step 152h-51

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152h-52

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152h-53” on page 223.

No Call for service support.

Step 152h-53

Replace the parts in the following list one at a time and in the following order:

- I/O subsystem backplane at P1
- I/O subsystem backplane at P2

Step 152h-54

Turn on the power.

Step 152h-55

Did the system stop with the same error code as recorded in "Step 152h-1" on page 216?

Yes Go to "Step 152h-56".

No The part just replaced is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152h-56

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152h-57

Have all the cards listed in "Step 152h-53" been replaced with new or original cards?

Yes Call for service support.

No Go to "Step 152h-53".

Map 152i: 5.0 V Current/Voltage Problem in I/O Subsystem

Step 152i-1

Record the error code and location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152i-2

Determine the I/O subsystem location. The remaining steps of this MAP refer to this I/O subsystem:

Step 152i-3

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-4

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152i-5".

No Call for service support.

Step 152i-5

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I1
- Adapter card at P1-I2
- Adapter card at P1-I3
- Adapter card at P1-I4
- Adapter card at P1-I5

Step 152i-6

Turn on the power.

Step 152i-7

Did the system stop with the same error code as recorded in "Step 152i-1" on page 223?

Yes Go to "Step 152i-13" on page 225.

No Go to "Step 152i-8".

Step 152i-8

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-9

Reinsert one of the cards that is removed and listed in "Step 152i-5".

Step 152i-10

Turn on the power

Step 152i-11

Did the system stop with the same error code as recorded in "Step 152i-1" on page 223?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152i-12" on page 225.

Step 152i-12

Have all the cards listed in “Step 152i-5” on page 224 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152i-9” on page 224.

Step 152i-13

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-14

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152i-15”.

No Call for service support.

Step 152i-15

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I6
- Adapter card at P1-I7
- Adapter card at P1-I8
- Adapter card at P1-I9
- Adapter card at P1-I10

Step 152i-16

Turn on the power.

Step 152i-17

Did the system stop with the same error code as recorded in “Step 152i-1” on page 223?

Yes Go to “Step 152i-23” on page 226.

No Go to “Step 152i-18”.

Step 152i-18

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-19

Reinsert one of the cards that is removed and listed in “Step 152i-15”.

Step 152i-20
Turn on the power.

Step 152i-21
Did the system stop with the same error code as recorded in “Step 152i-1” on page 223?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152i-22”.

Step 152i-22
Have all the cards listed in “Step 152i-15” on page 225 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152i-19” on page 225.

Step 152i-23
Turn off the power.

Examine all the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-24
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152i-25”.

No Call for service support.

Step 152i-25
Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:
- Adapter card at P2-I1
- Adapter card at P2-I2
- Adapter card at P2-I3
- Adapter card at P2-I4
- Adapter card at P2-I5

Step 152i-26
Turn on the power.

Step 152i-27

Did the system stop with the same error code as recorded in "Step 152i-1" on page 223?

Yes Go to "Step 152i-33".

No Go to "Step 152i-28".

Step 152i-28

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-29

Reinsert one of the cards that is removed and listed in "Step 152i-25" on page 226.

Step 152i-30

Turn on the power.

Step 152i-31

Did the system stop with the same error code as recorded in "Step 152i-1" on page 223?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152i-32".

Step 152i-32

Have all the cards listed in "Step 152i-25" on page 226 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152i-29".

Step 152i-33

Turn off the power.

Examine all the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-34

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152i-35”.

No Call for service support.

Step 152i-35

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I6
- Adapter card at P2-I7
- Adapter card at P2-I8
- Adapter card at P2-I9
- Adapter card at P2-I10

Step 152i-36

Turn on the power.

Step 152i-37

Did the system stop with the same error code as recorded in “Step 152i-1” on page 223?

Yes Go to “Step 152i-43” on page 229.

No Go to “Step 152i-38”.

Step 152i-38

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-39

Reinsert one of the cards that is removed and listed in “Step 152i-35”.

Step 152i-40

Turn on the power.

Step 152i-41

Did the system stop with the same error code as recorded in “Step 152i-1” on page 223?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152i-42”.

Step 152i-42

Have all the cards listed in “Step 152i-35” been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152i-39” on page 228.

Step 152i-43

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-44

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152i-45”.

No Call for service support.

Step 152i-45

Remove the following DASD 4-packs, if present, from the I/O subsystem. Record DASD locations:

- DASD 4-pack at P3
- DASD 4-pack at P4
- DASD 4-pack at P5
- DASD 4-pack at P6

Step 152i-46

Turn on the power.

Step 152i-47

Did the system stop with the same error code as recorded in “Step 152i-1” on page 223?

Yes Go to “Step 152i-53” on page 230.

No Go to “Step 152i-48”.

Step 152i-48

One of the DASDs just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-49

Reinsert one of the DASD 4-packs that is removed and listed in “Step 152i-45”.

Step 152i-50

Turn on the power.

Step 152i-51

Did the system stop with the same error code as recorded in "Step 152i-1" on page 223?

Yes One of the DASD in the DASD 4-pack just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152i-52".

Step 152i-52

Have all the cards listed in "Step 152i-45" on page 229 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152i-49" on page 229.

Step 152i-53

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-54

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152i-55".

No Call for service support.

Step 152i-55

Replace the cards in the following list one at a time and in the following order:
- DCA 1 at V1
- DCA 2 at V2

Step 152i-56

Turn on the power.

Step 152i-57

Did the system stop with the same error code as recorded in "Step 152i-1" on page 223?

Yes Go to "Step 152i-58" on page 231.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152i-58
Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-59
Remove the new card that was just installed in “Step 152i-55” on page 230 and reinstall the original card.

Step 152i-60
Have all the cards listed in “Step 152i-55” on page 230 been replaced with new or original cards?

Yes Go to “Step 152i-61”.

No Go to “Step 152i-55” on page 230.

Step 152i-61
Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152i-62
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152i-63”.

No Call for service support.

Step 152i-63
Replace the parts in the following list one at a time and in the following order:
- I/O subsystem backplane at P1
- I/O subsystem backplane at P2

Step 152i-64
Turn on the power.

Step 152i-65
Did the system stop with the same error code as recorded in “Step 152i-1” on page 223?

Yes Go to “Step 152i-66” on page 232.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152i-66

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152i-67

Have all the cards listed in "Step 152i-63" on page 231 been replaced?

Yes Call for service support.

No Go to "Step 152i-63" on page 231.

Map 152j: 2.5 V Current/Voltage Problem in I/O Subsystem

Step 152j-1

Record the error code and location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152j-2

Determine the I/O subsystem location. The remaining steps of this MAP refer to this I/O subsystem.

Step 152j-3

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152j-4

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152j-5".

No Call for service support.

Step 152j-5

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I1
- Adapter card at P1-I2
- Adapter card at P1-I3
- Adapter card at P1-I4
- Adapter card at P1-I5

Step 152j-6

Turn on the power.

Step 152j-7

Did the system stop with the same error code as recorded in "Step 152j-1"?

Yes Go to “Step 152j-13”.

No Go to “Step 152j-8”.

Step 152j-8

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152j-9

Reinsert one of the cards that is removed and listed in “Step 152j-5” on page 232.

Step 152j-10

Turn on the power

Step 152j-11

Did the system stop with the same error code as recorded in “Step 152j-1” on page 232?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152j-12”.

Step 152j-12

Have all the cards listed in “Step 152j-5” on page 232 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152j-9”.

Step 152j-13

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152j-14

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152j-15” on page 234.

No Call for service support.

Step 152j-15

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I6
- Adapter card at P1-I7
- Adapter card at P1-I8
- Adapter card at P1-I9
- Adapter card at P1-I10

Step 152j-16

Turn on the power.

Step 152j-17

Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes Go to "Step 152j-23" on page 235.

No Go to "Step 152j-18".

Step 152j-18

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152j-19

Reinsert one of the cards that is removed and listed in "Step 152j-15".

Step 152j-20

Turn on the power.

Step 152j-21

Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes The card just reinserted is defective. Replace it.

This ends the procedure.

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152j-22".

Step 152j-22

Have all the cards listed in "Step 152j-15" been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152j-19" on page 234.

Step 152j-23

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152j-24

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152j-25".

No Call for service support.

Step 152j-25

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I1
- Adapter card at P2-I2
- Adapter card at P2-I3
- Adapter card at P2-I4
- Adapter card at P2-I5

Step 152j-26

Turn on the power.

Step 152j-27

Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes Go to "Step 152j-33" on page 236.

No Go to "Step 152j-28".

Step 152j-28

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152j-29

Reinsert one of the cards that is removed and listed in "Step 152j-25".

Step 152j-30

Turn on the power.

Step 152j-31

Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152j-32".

Step 152j-32

Have all the cards listed in "Step 152j-25" on page 235 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152j-29" on page 235.

Step 152j-33

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152j-34

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152j-35".

No Call for service support.

Step 152j-35

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I6
- Adapter card at P2-I7
- Adapter card at P2-I8
- Adapter card at P2-I9
- Adapter card at P2-I10

Step 152j-36

Turn on the power.

Step 152j-37

Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes Go to "Step 152j-43" on page 237.

No Go to "Step 152j-38".

Step 152j-38

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152j-39

Reinsert one of the cards that is removed and listed in "Step 152j-35" on page 236.

Step 152j-40

Turn on the power.

Step 152j-41

Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152j-42".

Step 152j-42

Have all the cards listed in "Step 152j-35" on page 236 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152j-39".

Step 152j-43

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152j-44

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152j-45" on page 238.

No Call for service support.

Step 152j-45
Replace the cards in the following list one at a time and in the following order:
- DCA 1 at V1
- DCA 2 at V2

Step 152j-46
Turn on the power

Step 152j-47
Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes Go to "Step 152j-48".

No The card just replaced is defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152j-48
Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152j-49
Remove the new card that was just installed in "Step 152j-45" and reinstall the original card.

Step 152j-50
Have all the cards listed in "Step 152j-45" been replaced with new or original cards?

Yes Go to "Step 152j-51"

No Go to "Step 152j-45".

Step 152j-51
Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152j-52
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152j-53".

No Call for service support.

Step 152j-53
Replace the parts in the following list one at a time and in the following order:
- I/O subsystem backplane at P1
- I/O subsystem backplane at P2

Step 152j-54
Turn on the power.

Step 152j-55
Did the system stop with the same error code as recorded in "Step 152j-1" on page 232?

Yes Go to "Step 152j-56".

No The part just replaced is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152j-56
Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152j-57
Have all the cards listed in "Step 152j-53" on page 238 been replaced with new or original cards?

Yes Call for service support.

No Go to "Step 152j-53" on page 238.

Map 152k: 12.0 V Current/Voltage Problem in I/O Subsystem

Step 152k-1
Record the error code and location code(s) that sent you to this MAP.

Step 152k-2
Determine the I/O subsystem location. The remaining steps of this MAP refer to this I/O subsystem.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152k-3
Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152k-4
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152k-5" on page 240.

No Call for service support.

Step 152k-5

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I1
- Adapter card at P1-I2
- Adapter card at P1-I3
- Adapter card at P1-I4
- Adapter card at P1-I5

Step 152k-6

Turn on the power.

Step 152k-7

Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes Go to "Step 152k-13" on page 241.

No Go to "Step 152k-8".

Step 152k-8

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-9

Reinsert one of the cards that is removed and listed in "Step 152k-5".

Step 152k-10

Turn on the power.

Step 152k-11

Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152k-12".

Step 152k-12

Have all the cards listed in "Step 152k-5" been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152k-9” on page 240.

Step 152k-13

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152k-14

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152k-15”.

No Call for service support.

Step 152k-15

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I6
- Adapter card at P1-I7
- Adapter card at P1-I8
- Adapter card at P1-I9
- Adapter card at P1-I10

Step 152k-16

Turn on the power.

Step 152k-17

Did the system stop with the same error code as recorded in “Step 152k-1” on page 239?

Yes Go to “Step 152k-23” on page 242.

No Go to “Step 152k-18”.

Step 152k-18

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-19

Reinsert one of the cards that is removed and listed in “Step 152k-15”.

Step 152k-20

Turn on the power.

Step 152k-21

Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152k-22".

Step 152k-22

Have all the cards listed in "Step 152k-15" on page 241 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152k-19" on page 241.

Step 152k-23

Turn off the power.

Examine the green Power Good Out″ LEDs of both I/O subsystem DCAs.

Step 152k-24

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152k-25".

No Call for service support.

Step 152k-25

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I1
- Adapter card at P2-I2
- Adapter card at P2-I3
- Adapter card at P2-I4
- Adapter card at P2-I5

Step 152k-26

Turn on the power.

Step 152k-27

Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes Go to "Step 152k-33" on page 243.

No Go to “Step 152k-28”.

Step 152k-28

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-29

Reinsert one of the cards that is removed and listed in “Step 152k-25” on page 242.

Step 152k-30

Turn on the power.

Step 152k-31

Did the system stop with the same error code as recorded in “Step 152k-1” on page 239?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152k-32”.

Step 152k-32

Have all the cards listed in “Step 152k-25” on page 242 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152k-29”.

Step 152k-33

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152k-34

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152k-35” on page 244.

No Call for service support.

Step 152k-35

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I6
- Adapter card at P2-I7
- Adapter card at P2-I8
- Adapter card at P2-I9
- Adapter card at P2-I10

Step 152k-36

Turn on the power.

Step 152k-37

Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes Go to "Step 152k-43" on page 245.

No Go to "Step 152k-38".

Step 152k-38

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-39

Reinsert one of the cards that is removed and listed in "Step 152k-35".

Step 152k-40

Turn on the power.

Step 152k-41

Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152k-42".

Step 152k-42

Have all the cards listed in "Step 152k-35" been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152k-39” on page 244.

Step 152k-43

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152k-44

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152k-45”.

No Call for service support.

Step 152k-45

Remove the following DASD 4-packs, if present, from the I/O subsystem. Record DASD locations:

- DASD 4-pack at P3
- DASD 4-pack at P4
- DASD 4-pack at P5
- DASD 4-pack at P6

Step 152k-46

Turn on the power.

Step 152k-47

Did the system stop with the same error code as recorded in “Step 152k-1” on page 239?

Yes Go to “Step 152k-53” on page 246.

No Go to “Step 152k-48”.

Step 152k-48

One of the DASDs just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-49

Reinsert one of the DASD 4-packs that is removed and listed in “Step 152k-45”.

Step 152k-50

Turn on the power.

Step 152k-51
Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes One of the DASD in the DASD 4-pack just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152k-52".

Step 152k-52
Have all the cards listed in "Step 152k-45" on page 245 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152k-49" on page 245.

Step 152k-53
Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152k-54
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152k-55".

No Call for service support.

Step 152k-55
Replace the cards in the following list one at a time and in the following order:
- DCA 1 at V1
- DCA 2 at V2

Step 152k-56
Turn on the power.

Step 152k-57
Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes Go to "Step 152k-58" on page 247.

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152k-58
Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-59
Remove the new card that was just installed in "Step 152k-55" on page 246 and reinstall the original card.

Step 152k-60
Have all the cards listed in "Step 152k-55" on page 246 been replaced with new or original cards?

Yes Go to "Step 152k-61".

No Go to "Step 152k-55" on page 246.

Step 152k-61
Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152k-62
Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152k-63".

No Call for service support.

Step 152k-63
Replace the parts in the following list one at a time and in the following order:
- I/O subsystem backplane at P1
- I/O subsystem backplane at P2

Step 152k-64
Turn on the power.

Step 152k-65
Did the system stop with the same error code as recorded in "Step 152k-1" on page 239?

Yes Go to "Step 152k-66" on page 248.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152k-66

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152k-67

Have all the cards listed in "Step 152k-63" on page 247 been replaced?

Yes Call for service support.

No Go to "Step 152k-63" on page 247.

Map 152l: -12.0 V Current/Voltage Problem in I/O Subsystem

Step 152l-1

Record the error code and location code(s) that sent you to this MAP.

Step 152l-2

Determine the I/O subsystem location. The remaining steps of this MAP refer to this I/O subsystem.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152l-3

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152l-4

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152l-5".

No Call for service support.

Step 152l-5

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I1
- Adapter card at P1-I2
- Adapter card at P1-I3
- Adapter card at P1-I4
- Adapter card at P1-I5

Step 152l-6

Turn on the power.

Step 152l-7

Did the system stop with the same error code as recorded in "Step 152l-1"?

Yes Go to “Step 152I-13”.

No Go to “Step 152I-8”.

Step 152I-8

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152I-9

Reinsert one of the cards that is removed and listed in “Step 152I-5” on page 248.

Step 152I-10

Turn on the power

Step 152I-11

Did the system stop with the same error code as recorded in “Step 152I-1” on page 248?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152I-12”.

Step 152I-12

Have all the cards listed in “Step 152I-5” on page 248 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152I-9”.

Step 152I-13

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152I-14

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152I-15” on page 250.

No Call for service support.

Step 152I-15

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P1-I6
- Adapter card at P1-I7
- Adapter card at P1-I8
- Adapter card at P1-I9
- Adapter card at P1-I10

Step 152I-16

Turn on the power.

Step 152I-17

Did the system stop with the same error code as recorded in "Step 152I-1" on page 248?

Yes Go to "Step 152I-23" on page 251.

No Go to "Step 152I-18".

Step 152I-18

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152I-19

Reinsert one of the cards that is removed and listed in "Step 152I-15".

Step 152I-20

Turn on the power.

Step 152I-21

Did the system stop with the same error code as recorded in "Step 152I-1" on page 248?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152I-22".

Step 152I-22

Have all the cards listed in "Step 152I-15" been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152I-19” on page 250.

Step 152I-23

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152I-24

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152I-25”.

No Call for service support.

Step 152I-25

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I1
- Adapter card at P2-I2
- Adapter card at P2-I3
- Adapter card at P2-I4
- Adapter card at P2-I5

Step 152I-26

Turn on the power.

Step 152I-27

Did the system stop with the same error code as recorded in “Step 152I-1” on page 248?

Yes Go to “Step 152I-33” on page 252.

No Go to “Step 152I-28”.

Step 152I-28

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152I-29

Reinsert one of the cards that is removed and listed in “Step 152I-25”.

Step 152I-30

Turn on the power.

Step 152I-31

Did the system stop with the same error code as recorded in "Step 152I-1" on page 248?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152I-32".

Step 152I-32

Have all the cards listed in "Step 152I-25" on page 251 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to "Step 152I-29" on page 251.

Step 152I-33

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152I-34

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152I-35".

No Call for service support.

Step 152I-35

Remove the following adapter cards, if present, from the I/O subsystem. Record adapter locations:

- Adapter card at P2-I6
- Adapter card at P2-I7
- Adapter card at P2-I8
- Adapter card at P2-I9
- Adapter card at P2-I10

Step 152I-36

Turn on the power.

Step 152I-37

Did the system stop with the same error code as recorded in "Step 152I-1" on page 248?

Yes Go to "Step 152I-43" on page 253.

No Go to “Step 152I-38”.

Step 152I-38

One of the cards just removed is defective.

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152I-39

Reinsert one of the cards that is removed and listed in “Step 152I-35” on page 252.

Step 152I-40

Turn on the power.

Step 152I-41

Did the system stop with the same error code as recorded in “Step 152I-1” on page 248?

Yes The card just reinserted is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152I-42”.

Step 152I-42

Have all the cards listed in “Step 152I-35” on page 252 been reinserted?

Yes The symptom has changed. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152I-39”.

Step 152I-43

Turn off the power.

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152I-44

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152I-45” on page 254.

No Call for service support.

Step 152I-45

Replace the DCAs in the following list one at a time and in the following order:

- DCA 1 at V1
- DCA 2 at V2

Step 152I-46

Turn on the power.

Step 152I-47

Did the system stop with the same error code as recorded in “Step 152I-1” on page 248?

Yes Go to “Step 152I-48”.

No The DCA just replaced is defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152I-48

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152I-49

Remove the new DCA that was just installed in “Step 152I-45” and reinstall the original DCA.

Step 152I-50

Have all the DCAs listed in “Step 152I-45” been replaced with new or original cards?

Yes Go to “Step 152I-51”.

No Go to “Step 152I-45”.

Step 152I-51

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152I-52

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to “Step 152I-53”.

No Call for service support.

Step 152I-53

Replace the parts in the following list one at a time and in the following order:

- I/O subsystem backplane at P1
- I/O subsystem backplane at P2

Step 152l-54

Turn on the power.

Step 152l-55

Did the system stop with the same error code as recorded in "Step 152l-1" on page 248?

Yes Go to "Step 152l-56".

No The part just replaced is defective. Replace it. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152l-56

Turn off the power.

Ensure that all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152l-57

Have all the cards listed in "Step 152l-53" on page 254 been replaced with new or original cards?

Yes Call for service support.

No Go to "Step 152l-53" on page 254.

Map 152m: Cable Problem in Power Subsystem

Step 152m-1

Record the error code and location code(s) that sent you to this MAP. You should be supplied with two location codes from the action for the error code described in this guide. These error codes identify the ends of the cable in question. The fourth nibble of the error code indicates the side of the power subsystem that detected the failure. 101A indicates side A (front). Error code 101B indicates side B (rear). The following steps apply to the power subsystem side indicated by the error code recorded.

1. Generate the first FRU location code (from U1.35) to be replaced by taking the location code given for the action of the error code and truncating the connector ID (/Qx).
2. Generate the second FRU location code to be replaced by taking the location code (not from U1.35) given for the action of the error code and truncating the connector ID (/Qx).
3. Generate the third FRU location code code to be replaced (the cable) by taking the location code (from U1.35) given for the action of the error code and appending a #.

   For example, the service guide for error code 101A x125 lists the location codes U1.35-P1-X3/Q1 and U1.14-V1/Q2 (assuming there is a processor subsystem at the location in the rack that is provided power by the indicated cable).From the error code indicated, you are working on the A (front) side. From the location codes of the FRUs, the replacement order (if replacement is required) is:

   a. U1.35-P1-X3 - BPD1
   b. U1.14-V1 processor subsystem DCA
   c. U1.35-P1-X3# - cable

Refer to “AIX and Physical Location Code Reference” on page 54 and “Power Distribution Cabling” on page 34.

Step 152m-2

Press the green start service button on the panel with the UEPO switch.

Step 152m-3

From the action column in the ″Error Code to FRU″ table entry for the error code recorded in “Step 152m-1”, find the location codes of both ends of the suspect power cable.

Step 152m-4

Examine both ends of the power cable, and ensure that each end is properly connected and fully seated.

Step 152m-5

Is the power cable properly connected and seated fully at both ends?

Yes Go to “Step 152m-6” on page 257.

No Go to “Step 152m-12” on page 257.

Step 152m-6

Have you replaced the first FRU in the list of FRUs recorded in "Step 152m-1" on page 256 in a previous service action?

Yes Go to "Step 152m-18" on page 258.

No Go to "Step 152m-7".

Step 152m-7

Is the power on LED of the first FRU generated from the location codes recorded in "Step 152m-1" on page 256 off?

Yes Go to "Step 152m-8".

No Call for service support.

Step 152m-8

Replace the first FRU in the list of FRUs recorded in "Step 152m-1" on page 256 with the Power On LED off. Press the white Service Complete button on the UEPO switch panel after replacement.

Step 152m-9

Does the error code recorded in "Step 152m-1" on page 256 reappear?

Yes Return the system to its original configuration. Go to "Step 152m-11".

No Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152m-10

Press the white Service Complete button on the panel with the UEPO switch.

Step 152m-11

Schedule nonconcurrent service with the customer to replace the second FRU in the list of FRUs recorded in "Step 152m-1" on page 256. **This ends the procedure**.

Step 152m-12

Is the power on LED of the first FRU generated from the location codes recorded in "Step 152m-1" on page 256 off?

Yes Go to "Step 152m-13".

No Call for service support.

Step 152m-13

Reseat and properly connect the power cable ends with location codes recorded in "Step 152m-1" on page 256.

Step 152m-14

Set the power on switches of all BPRs on the same side with the power cable that was not connected properly to the off (right) position.

Step 152m-15

Wait 30 seconds and then turn the power-on switches of the BPRs found in “Step 152m-14” on page 257 to the on (left) position.

Step 152m-16

Press the white Service Complete button on the UEPO switch panel after replacement.

Step 152m-17

Does the error code recorded in “Step 152m-1” on page 256 reappear?

Yes Go to “Step 152m-2” on page 256.

No Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152m-18

Note: The following steps require that the system power be removed. AIX must be shut down in all partitions before turning off the power.

Turn off the power. Turn off the UEPO switch. Examine the green Power-In LED on the processor subsystem DCA. Also examine the green Power Good Out LEDs of all installed I/O subsystem DCAs.

CAUTION:
Hazardous AC Voltage is present within the BPA with the UEPO off. Hazardous DC voltage is also present on IBF connectors on all BPRs with the UEPO off. Under normal conditions, access to these voltages is restricted. Use caution when servicing BPA components.

Step 152m-19

Are all green ″power-in″ LEDs of all installed processor subsystem DCAs and all green ″logic power out″ LEDs of all installed I/O subsystem DCAs off?

Yes Go to “Step 152m-20”.

No Call for service support.

Step 152m-20

Replace the second FRU in the list of FRUs recorded in step “Step 152m-1” on page 256.

Step 152m-21

Turn on the UEPO switch. Turn on the power.

Step 152m-22

Does the error code recorded in “Step 152m-1” on page 256 reappear?

Yes Go to Step “Step 152m-23” on page 259.

No Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152m-23

Go to“Step 152m-24”.

Step 152m-24

Turn off the power. Turn off the UEPO switch. Examine the green Power-In LED on the processor subsystem DCA. Also examine the green Power Good Out LEDs of all installed I/O subsystem DCAs.

Step 152m-25

Are all green ″power-in″ LEDs of all installed processor subsystem DCAs and all green ″logic power out″ LEDs of all installed I/O subsystem DCAs off?

Yes Go to “Step 152m-26”.

No Call for service support.

Step 152m-26

Replace the third FRU in the list of FRUs recorded in step 152m-1.

Step 152m-27

Turn on the UEPO switch. Turn on the power.

Step 152m-28

Does the error code recorded in “Step 152m-1” on page 256 reappear?

Yes Call for service support.

No Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Map 152n: DASD Subsystem Power Problem

Step 152n-1

Record the error code and location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 152n-2

Press the green start service button on the panel with the UEPO switch. Determine the location of the I/O subsystem.

Step 152n-3

Examine the last 2 characters of the error code recorded in "Step 152n-1" and use the following list to determine the DASD backplane to service.

- If the last 2 characters of the error code is 96 then the following steps refer to DASD backplane D of I/O subsystem number found in "Step 152n-2".
- If the last 2 characters of the error code is A6 then the following steps refer to DASD backplane C of I/O subsystem number found in "Step 152n-2".
- If the last 2 characters of the error code is B6 then the following steps refer to DASD backplane B of I/O subsystem number found in "Step 152n-2".
- If the last 2 characters of the error code is C6 then the following steps refer to DASD backplane A of I/O subsystem number found in "Step 152n-2".

Step 152n-4

Turn off the power. Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152n-5

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to "Step 152n-6".

No Call for service support.

Step 152n-6

Are there any DASD in positions A8, A9, Aa, or Ab of the DASD backplane found in "Step 152n-2" and "Step 152n-3" in a previous service action?

Yes Go to "Step 152n-7".

No Go to "Step 152n-15" on page 261.

Step 152n-7

Turn on the power.

Step 152n-8

Did the error code recorded in "Step 152n-1" reappear?

Yes Go to "Step 152n-14" on page 261.

No One of the DASD just removed is defective. Go to “Step 152n-9”.

Step 152n-9

Turn off the power. Ensure that all green Power Good Out LEDs of all installed I/O subsystem DCAs are off.

Step 152n-10

Reinstall one of the DASD removed in “Step 152n-6” on page 260.

Step 152n-11

Turn on the power.

Step 152n-12

Did the error code recorded in “Step 152n-1” on page 260 reappear?

Yes The DASD just reinstalled is defective. Replace it. This ends the procedure. Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

No Go to “Step 152n-13”.

Step 152n-13

Have all DASD that were removed in “Step 152n-6” on page 260 been reinstalled?

Yes The problem has changed. **This ends the procedure**.

No Go to “Step 152n-9” to reinstall the next DASD.

Step 152n-14

Turn off the power. Ensure that all green Power Good Out LEDs of all installed I/O subsystem DCAs are off.

Step 152n-15

Replace the cards in the following list one at a time and in the following order:

1. DCA 1 at V1
2. DCA 2 at V2

Step 152n-16

Turn on the power.

Step 152n-17

Did the system stop with the same error code as recorded in “Step 152n-1” on page 260?

Yes Go to “Step 152n-18” on page 262.

No The card just replaced was defective. This ends the procedure. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152n-18

Turn off the power, and then ensure all the green Power Good Out LEDs of both I/O subsystem DCAs are off.

Step 152n-19

Remove the new card that was just installed in “Step 152n-15” on page 261 and reinstall the original card.

Step 152n-20

Have all the cards listed in “Step 152n-15” on page 261 been replaced with new or original cards??

Yes Go to “Step 152n-21”.

No Go to “Step 152n-15” on page 261.

Step 152n-21

Examine the green Power Good Out LEDs of both I/O subsystem DCAs.

Step 152n-22

Are all the green Power Good Out LEDs of both I/O subsystem DCAs off?

Yes Go to Step “Step 152n-23”.

No Call for service support.

Step 152n-23

Replace the DASD backplane.

Step 152n-24

Turn on the power.

Step 152n-25

Did the system stop with the same error code as recorded in “Step 152m-1” on page 256?

Yes Call for service support.

No The card just replaced was defective. This ends the procedure. Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

Map 152o: BPJ Problem Indicated

Step 152o-1

Record the error code and location code(s) that sent you to this MAP.

Step 152o-2

Press the green start service button on the panel with the UEPO switch.

Step 152o-3

Is the error code recorded in "Step 152o-1" on page 262, 101A 24C1, 101A 25C1, 101B 24C1 or 101B 25C1?

No Go to "Step 152o-8".

Yes Go to "Step 152o-4".

Step 152o-4

Visually inspect the BPJ hardware for correct installation on both side A and side B of the BPA.

Step 152o-5

Do the BPJs appear to be installed correctly on both side A and side B of the BPA?

No Power must be removed from the entire rack to repair. Schedule nonconcurrent service with the customer to correctly connect and install the BPJ hardware. This ends the procedure.

Yes Go to "Step 152o-6".

Step 152o-6

Examine the table in "Bulk Power Jumper (BPJ)" on page 26 to determine if the system configuration requires the BPJ hardware to be installed. You may have to call service support to determine the system configuration.

Step 152o-7

Is the BPJ requirement determined in "Step 152o-6" consistent with the system BPJ installation?

No Power must be removed from the entire rack to repair. Schedule nonconcurrent service with the customer to correctly connect and install the BPJ hardware. This ends the procedure.

Yes Go to "Step 152o-8".

Step 152o-8

Power must be removed from the entire rack to continue. If the system is not already powered down, check with the customer to determine if the system can be powered off.

Step 152o-9

Can the system be powered down?

No Schedule nonconcurrent service with the customer to continue with this MAP. This ends the procedure.

Yes Go to "Step 152o-10" on page 264.

Step 152o-10

Attention: Continuing will cause a system outage on the associated BPA and all hardware being supplied power by it.

Is the error code recorded in "Step 152o-1" on page 262 101A 26C1, or 101B 26C1?

No Go to "Step 152o-15".

Yes Go to "Step 152o-11".

Step 152o-11

Are both ends of cable connecting the two BPJs connected and securely to each BPJ?

No Go to "Step 152o-12".

Yes Go to "Step 152o-15".

Step 152o-12

Power off the system as described in "Powering the System Off" on page 140. Be sure to remove rack power by turning the UEPO switch to the OFF position.

Step 152o-13

Correctly and securely connect the two BPJs together. **This ends the procedure**.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152o-14

Power on the system as described in "Powering the System On and Off" on page 139. Be sure to apply rack power by turning the UEPO switch to the ON position.

Is the error code 101A 26C1, or 101B 26C1 displayed?

No Go to "Entry MAP" on page 147 with the new symptom.

Yes Go to "Step 152o-15".

Step 152o-15

Power off the system as described in "Powering the System On and Off" on page 139. Be sure to remove rack power by turning the UEPO switch to the OFF position.

Step 152o-16

Remove the following from the power subsystem one at a time, checking for physical damage to the BPJ and cable connectors. Leave the BPJ or cable out of the system when instructed so in this step.

- Unplug the cable from the BPJ on side A
- Unplug the cable for the BPJ on side B

- Remove the BPJ on side A
- Remove the BPJ on side B

Are the cable connectors or BPJ connectors damaged?

No Leave the BPJ out of the system or cable disconnected. Go to “Step 152o-17”.

Yes Replace the BPJ and/or the cable as required. Return the system to its original configuration. **This ends the procedure**.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 152o-17

Have all items in the list in “Step 152o-16” on page 264 been disconnected or removed?

No Go to “Step 152o-16” on page 264 to remove or disconnect the next item.

Yes Go to “Step 152o-18”.

Step 152o-18

Power on the system as described in “Powering the System On and Off” on page 139. Be sure to apply rack power by turning the UEPO switch to the ON position.

Step 152o-19

Check the Power Good LEDs on both side A and side B of the BPA.

Step 152o-20

Are the Power Good LEDs on side A and side B (both sides) on?

No Go to “Step 152o-21”.

Yes Go to “Step 152o-24” on page 266.

Step 152o-21

Are the Power Good LEDs on side A or side B (one side only) on?

No Go to “Step 152o-22”.

Yes Go to “Entry MAP” on page 147 with the new symptom of the BPA side with Power Good LEDs on.

Step 152o-22

Power off the system as described in “Powering the System On and Off” on page 139. Be sure to remove rack power by turning the UEPO switch to the OFF position.

Step 152o-23

Both side A and side B of the BPA have independent faults. Reinstall the BPJ hardware. Return the system to the original configuration. Call service support. **This ends the procedure**.

Step 152o-24

Power off the system as described in “Powering the System On and Off” on page 139. Be sure to remove rack power by turning the UEPO switch to the OFF position.

Step 152o-25

Reinstall the following into the power subsystem, one at a time:

- Reinstall the BPJ on side A
- Reinstall the BPJ on side B
- Reconnect the cable to the BPJ on side A and BPJ on side B

Step 152o-26

Power on the system as described in “Powering the System On and Off” on page 139. Be sure to apply rack power by turning the UEPO switch to the ON position.

Step 152o-27

Do the Power Good LEDs on both side A and side B of the BPA come on?

No Replace the BPJ or cable just installed. Reinstall the remaining BPJ hardware. Return the system to the original configuration. **This ends the procedure**.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 152o-28”.

Step 152o-28

Have all items in the list in “Step 152o-25” been installed or reconnected?

No Go to “Step 152o-25” to reinstall or reconnect the next item.

Yes Go to “Step 152o-29”

Step 152o-29

The symptom has changed or the problem is no longer present. Return the system to the original configuration. **This ends the procedure**.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

MAP 1540: Problem Isolation Procedures

These procedures are used to locate problems in the processor subsystem, I/O subsystem(s) or rack. If a problem is detected, these procedures help you isolate the problem to a failing unit. Find the symptom in the following table; then follow the instructions given in the Action column.

This system is configured with an arrangement of LEDs that help identify various components of the system. These include, but are not limited to:

- Rack identify LED
- Processor subsystem drawer identify LED
- I/O drawer identify LED
- RIO port identify LED
- FRU identify LED
  - Power subsystem FRUs
  - Processor subsystem FRUs
  - I/O subsystem FRUs
- I/O adapter identify LED
- DASD identify LED

The identify LEDs are arranged hierarchically with the FRU identify LED at the bottom of the hierarchy, followed by the corresponding processor subsystem, or I/O drawer identify LED, and the corresponding rack identify LED to locate the failing FRU more easily.

Any identify LED in the system may be flashed by using the service processor LED Control Menu contained in the System Information Menu of the Privileged User Menus. To use the LED Control Menu, see page 453.

Any identify LED in the system can also be flashed by using the Identify and Attention Indicators task in diagnostics. The procedure to operate the Identify and Attention Indicators task in diagnostics is outlined in @server *pSeries Diagnostic Information for Multiple Bus Systems*.

If the service processor menus and AIX diagnostics are not available, the FRU identify LEDs can be flashed by one of the following procedures:

- If the system is configured as a full partition, the system may be booted to the open firmware prompt and the command **FRU-LED-MENU** entered. A menu displays that allows you to enable the desired FRU identify LED. See “System Power Control Menu” on page 445 for instructions on setting up the boot mode to enable the boot to the open firmware prompt.
- If the system is logically partitioned, the HMC must be attached. You can use the HMC to enable any FRU identify LED to be flashed. See the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for instructions on activating and deactivating a FRU identify LED.

Problem Isolation Procedures	
Symptom/Reference Code/Checkpoint	**Action**
You were sent here by the @server *pSeries Diagnostic Information for Multiple Bus Systems* card.	Go to "MAP 1542: I/O Problem Isolation" on page 274.
406x 00B7	Go to "MAP 154B: Insufficient Hardware Resources Problem Isolation" on page 303.
406x 0EB1, 406x 0EB2, 406x 0EB3, 406x 0EB4, 406x 0EB5, 406x 0EB6, 406x 0EB7, 406x 0EB8, 406x 0EB9, 406x 0EBA, 406x 0EBB, 406x 0EBC	Go to "MAP 1549: Attention Problem Isolation" on page 294. **Attention:** Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: "MCM Module (Processor)" on page 534 and "L3 Cache Modules" on page 547.
406x 0EB0	Go to "MAP 1541: JTAG Problem Isolation".
4B2x 25F5, 4B2x 25F6	Go to "MAP 1543: MCM Module Problem Isolation" on page 288. **Attention:** Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: "MCM Module (Processor)" on page 534 and "L3 Cache Modules" on page 547.
450x 25F7, 4B2x 25F7	Go to "MAP 1544: L3 Cache Module Problem Isolation" on page 290. **Attention:** Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: "MCM Module (Processor)" on page 534 and "L3 Cache Modules" on page 547.
B1xx 4643, B1xx 4645, B1xx 4648	Go to "MAP 154A: I2C Bus Problem Isolation" on page 300. **Attention:** Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: "MCM Module (Processor)" on page 534 and "L3 Cache Modules" on page 547.
E101, E102, E10A, E10B, E111, E120, E121, E122, E130, E131, E132, E133, E134, E135, E138, E139, E13A, E149, E14C, E191, E19A, E19B, E19D, E1A0, E1A1, E1A2, E1A3, E1A4, E1A5, E1A6, E1A7, E1A8, E1A9, E1AA, E1AB, E1AC, E1AD, E1AE, E1AF, E1B1, E1C4, E1C5, E1C6, E1D0, E1D3, E1D4, E1DB, E1F0	Go to "MAP 1548: Memory and Processor Problem Isolation" on page 292. **Attention:** Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: "MCM Module (Processor)" on page 534 and "L3 Cache Modules" on page 547.

MAP 1541: JTAG Problem Isolation

Step 1541-1

Record the error code and location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 1541-2

Check the following list to find the location code(s) recorded in "Step 1541-1" on page 268:

- L3 module at U1.x-P1-C1
- L3 module at U1.x-P1-C3
- L3 module at U1.x-P1-C4
- L3 module at U1.x-P1-C5
- MCM module 0 at U-P1-C2

Step 1541-3

Is (are) the location code(s) recorded in "Step 1541-1" on page 268 listed in "Step 1541-2"?

Yes Go to "Step 1541-19" on page 271.

No Go to "Step 1541-4".

Step 1541-4

Check the following list to find the location code(s) recorded in "Step 1541-1" on page 268:

- Service processor card at U1.x-P1-X1
- SMA I/O book at U1.x-P1-H1

Step 1541-5

Is (are) the location code(s) recorded in "Step 1541-1" on page 268 listed in "Step 1541-4"?

Yes Go to "Step 1541-25" on page 272.

No Go to "Step 1541-6".

Step 1541-6

Check the following list to find the location code(s) recorded in "Step 1541-1" on page 268:

- Memory card 1 at U1.x-P1-M1
- Memory card 2 at U1.x-P1-M2
- Memory card 3 at U1.x-P1-M3
- Memory card 4 at U1.x-P1-M4

Step 1541-7

Is (are) the location code(s) recorded in "Step 1541-1" on page 268 listed in "Step 1541-6"?

Yes Go to "Step 1541-31" on page 273.

No Go to "Step 1541-8" on page 270.

Step 1541-8
Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1541-9
Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1541-10”.

No Call for service support.

Step 1541-10
Replace the item recorded in “Step 1541-1” on page 268.

Step 1541-11
Turn on the power.

Step 1541-12
Did the system stop with the same error code as recorded in “Step 1541-1” on page 268?

Yes Go to “Step 1541-13”.

No **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *eserver pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1541-13
Turn off the power.

Step 1541-14
Examine the green Power-In LED on the processor subsystem DCA.

Step 1541-15
Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1541-16”.

No Call for service support.

Step 1541-16
Replace the service processor card at U1.x-P1-X1 if not recorded in “Step 1541-1” on page 268

Step 1541-17
Turn on the power.

Step 1541-18

Did the system stop with the same error code as recorded in “Step 1541-1” on page 268?

Yes Go to “Step 1541-37” on page 274.

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1541-19

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1541-20

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1541-21”.

No Call for service support.

Step 1541-21

Attention: Before you remove or replace any MCM or L3 module, *stop, read and understand* the following procedures: “MCM Module (Processor)” on page 534 and “L3 Cache Modules” on page 547.

Attention: MCM and L3 modules have a limit of three plug cycles. Before removing any of the modules in the following list, call for service support.

Replace the following modules or cards, if present, one at a time and in the order listed:

- First location code item recorded, if any, “Step 1541-1” on page 268.
- Second location code item recorded, if any, in “Step 1541-1” on page 268.
- Third location code item recorded, if any, in “Step 1541-1” on page 268.
- Fourth location code item recorded, if any, in “Step 1541-1” on page 268.
- Service processor card at U1.x-P1-X1 if not recorded in “Step 1541-1” on page 268.
- L3 module, at location U1.x-P1-C1 if not recorded in “Step 1541-1” on page 268.
- L3 module, at location U1.x-P1-C3 if not recorded in “Step 1541-1” on page 268.
- L3 module, at location U1.x-P1-C4 if not recorded in “Step 1541-1” on page 268.
- L3 module, at location U1.x-P1-C5 if not recorded in “Step 1541-1” on page 268.
- MCM module at U1.x-P1-C2 if not recorded in “Step 1541-1” on page 268.

Step 1541-22

Turn on the power.

Step 1541-23

Did the system stop with the same error code as recorded in “Step 1541-1” on page 268?

Yes Go to “Step 1541-24” on page 272.

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1541-24

Have all the MCM's and cards listed in "Step 1541-21" on page 271 been replaced?

Yes Go to "Step 1541-25".

No Go to "Step 1541-19" on page 271.

Step 1541-25

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1541-26

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 1541-27".

No Call for service support.

Step 1541-27

Replace the following cards, if present, one at a time:

- First location code item recorded in "Step 1541-1" on page 268, if any.
- Second location code item recorded, if any, in "Step 1541-1" on page 268.
- Third location code item recorded, if any, in "Step 1541-1" on page 268.
- Fourth location code item recorded, if any, in "Step 1541-1" on page 268.
- Service processor card at U1.x-P1-X1 if not recorded in "Step 1541-1" on page 268.
- SMA I/O book at U1.x-P1-H1 if not recorded in "Step 1541-1" on page 268.

Step 1541-28

Turn on the power.

Step 1541-29

Did the system stop with the same error code as recorded in "Step 1541-1" on page 268?

Yes Go to "Step 1541-30" on page 273.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1541-30

Have all the cards listed in “Step 1541-27” on page 272 been replaced?

Yes Go to “Step 1541-37” on page 274.

No Go to “Step 1541-25” on page 272.

Step 1541-31

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1541-32

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1541-33”.

No Call for service support.

Step 1541-33

Replace the following cards, if present, one at a time:

- First location code item recorded in “Step 1541-1” on page 268.
- Second location code item recorded, if any, in “Step 1541-1” on page 268.
- Third location code item recorded, if any, in “Step 1541-1” on page 268.
- Fourth location code item recorded, if any, in “Step 1541-1” on page 268.
- Service processor card at U1.x-P1-X1 if not recorded in “Step 1541-1” on page 268.
- Memory card 1 at U1.x-P1-M1 if not recorded in “Step 1541-1” on page 268.
- Memory card 2 at U1.x-P1-M2 if not recorded in “Step 1541-1” on page 268.
- Memory card 3 at U1.x-P1-M3 if not recorded in “Step 1541-1” on page 268.
- Memory card 4 at U1.x-P1-M4 if not recorded in “Step 1541-1” on page 268.

Step 1541-34

Turn on the power.

Step 1541-35

Did the system stop with the same error code as recorded in “Step 1541-1” on page 268?

Yes Go to “Step 1541-36”.

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1541-36

Have all the cards listed in “Step 1541-33” been replaced?

Yes Go to “Step 1541-37” on page 274.

No Go to “Step 1541-31”.

Step 1541-37

Turn off the power.

Step 1541-38

Examine the green Power-In LED on the processor subsystem DCA.

Step 1541-39

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1541-40”.

No Call for service support.

Step 1541-40

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at U1.x-P1.

Step 1541-41

Turn on the power.

Step 1541-42

Did the system stop with the same error code as recorded in “Step 1541-1” on page 268?

Yes Go to “Step 1541-43”.

No The component just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1541-43

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 1541-44

Call for service support.

This ends the procedure.

MAP 1542: I/O Problem Isolation

This MAP is used to locate defective FRUs not found by normal diagnostics. For this procedure, diagnostics are run on a minimally configured system. If a failure is detected on the minimally configured system, the remaining FRUs are exchanged one at a time until the failing FRU is identified. If a failure is not detected, FRUs are added back until the failure occurs. The failure is then isolated to the failing FRU.

This I/O problem-determination MAP isolates I/O card and I/O subsystem failures. When I/O problem isolation is complete, all cables and cards exhibiting a failure will have been replaced or reseated.

Notes:

1. This MAP requires that a NIM server be accessible to provide the ability to boot to standalone diagnostics. Alternately, the customer engineer may choose to use online diagnostics available from a bootable hard drive already attached to the system. Using online diagnostics reduces coverage (especially for boot device problems) and magnifies problems with missing resources during I/ O isolation. The preferred method is to use the standalone diagnostics from a NIM server.
2. If a general-access password or privileged-access password is installed, you are prompted to enter the password before the diagnostics can load.
3. The term *POST indicators* refers to the device mnemonics (words **Memory, Keyboard, Network, SCSI,** and **Speaker**) that appear on the system console during the power-on self-test (POST).
4. The service processor may have recorded one or more symptoms in its error log. It is a good idea to examine that error log before proceeding (see "System Information Menu" on page 448).
5. The service processor may have been set by the user to monitor system operations and to attempt recoveries. You can disable these actions while you diagnose and service the system. If you disable them, make notes of their current settings so that you can restore them easily. The following table lists the settings:

Surveillance	From the service processor Setup Menu, go to the Surveillance Setup Menu and disable surveillance. (Operating System Surveillance is disabled in partitioned mode.)
Unattended Start	From the service processor System Power Control Menu, disable unattended start mode.
Reboot Policy	From the System Power Control Menu, go to the Reboot/Restart Policy Setup Menu and set: a. Number of reboot attempts to **0** (zero) b. Use OS-Defined restart policy to **No** c. Enable supplemental restart policy to **No**.
Call Out	From the Call-In/Call-Out Setup Menu, go to the Serial Port Selection Menu and disable call-out on both serial ports.

The steps in this procedure will attempt to slow boot the system into service mode diagnostics. The following procedure describes booting a nonpartitioned system with an attached 3151 console. The procedure for booting a partitioned system with an attached HMC is slightly different and is described in "Performing Slow Boot" on page 345. "Performing Slow Boot" describes the procedure for booting online diagnostics (6 key between the **Keyboard** and **Speaker** indicators) and the following procedure requires booting standalone diagnostics (5 key between the **Keyboard** and **Speaker** indicators). Therefore, on a partitioned system, ensure the partition you selected to boot in the following procedure has an Ethernet interface allocated to it, as described in Chapter 6, “Using the Online and Standalone Diagnostics”, on page 425.

Step 1542-1

1. Ensure that the diagnostics and the operating system are shut down.

   Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.
2. Turn off the power.
3. Select slow-boot mode (select **Disable Fast Boot**) on the System Power Control Menu from the Service Processor Main Menu.
4. Turn on the power.

Step 1542-2

1. When the keyboard indicator is displayed (the word **Keyboard**), press the 5 key on the firmware console.
2. Enter the appropriate password when you are prompted to do so.

Is the Please Define the System Console screen displayed?

No Go to “Step 1542-3”.

Yes Go to “Step 1542-4”.

Step 1542-3

The system is unable to boot standalone diagnostics.

Check the service processor error log for additional error codes resulting from the slow boot in “Step 1542-1”. Did the slow boot generate a different error code from the one that originally sent you to MAP 1542?

No It appears you have a processor subsystem problem. Call for service support. **This ends the procedure.**

Yes Restore fast-boot mode (select **Enable Fast Boot**) on the System Power Control Menu from the Service Processor Main Menu. Go to “Checkpoints and Error Codes Index” on page 349 and follow the actions for the new error code.

Step 1542-4

The system stopped with the Please Define the System Console prompt appearing on the system console.

Standalone diagnostics can be booted. Perform the following:

1. Follow the instructions on the screen to select the system console.
2. When the `DIAGNOSTIC OPERATING INSTRUCTIONS` screen is displayed, press Enter.
3. If the terminal type has not been defined, you must use the Initialize Terminal option of the Function Selection Menu to initialize the AIX operating system environment before you can continue with the diagnostics. This is a separate and different operation from selecting the firmware console display.

4. Select **Advanced Diagnostic Routines**.
5. When the Diagnostic Mode Selection Menu displays, select **System Verification** to run diagnostics on all resources.

   Did running diagnostics produce a different symptom?

   No Go to step number 6, below.

   Yes Go to “Entry MAP” on page 147. Use the new symptom.
6. Record any devices missing from the list of all adapters and devices. Continue with this MAP. When you have fixed the problem, use this record to verify that all devices appear when you run System Verification.

Are there any devices missing from the list of all adapters and devices?

No Reinstall all remaining adapters, if any, and reconnect all devices. Return the system to its original configuration. Be sure to select fast-boot mode (select **Enable Fast Boot**) on the System Power Control Menu from the Service Processor Main Menu. Go to ″Map 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes The boot attempts that follow will attempt to isolate any remaining I/O subsystem problems with missing devices. Ignore any codes that may display on the operator panel value on the HMC unless stated otherwise. Go to “Step 1542-5”.

Step 1542-5

Examine the processor subsystem RIO port A0 (U1.x-P1/Q1).

Are there any I/O subsystems attached to this processor subsystem?

No Go to “Step 1542-22” on page 286.

Yes Go to “Step 1542-6”.

Step 1542-6

There may be missing devices associated with one or more I/O subsystems.

Note: Before continuing, check the cabling from the processor subsystem to I/O subsystem(s) to ensure that the system is cabled correctly. Refer to “Cabling for I/O Subsystem to Processor Subsystem (Split I/O Drawer)” on page 32 and “Cabling I/O Subsystem to Processor Subsystem (Looped)” on page 33 for valid configurations. Record the current cabling configuration and then continue with the following steps:

1. Turn off the power.
2. At the processor subsystem, disconnect the cable connection at RIO port A0 (U1.x-P1/Q1). Follow this RIO cable to a RIO connector on an I/O subsystem at the other end.
3. If the RIO cable in substep 2 above is connected to the right side of the I/O subsystem, disconnect the right I/O port connector 0 (U1.x-P2/Q2). The RIO cable that was connected to RIO port A0 on the processor subsystem should now be

loose and can be removed. Record the location of this I/O subsystem and that it is ″not looped right.″ Go to substep 5.

4. If the RIO cable in substep 2 on page 277 above is connected to the left side of the I/O subsystem, disconnect the left I/O port connector 0 (U1.x-P1/Q2). The RIO cable that was connected to RIO port A0 on the processor subsystem should now be loose and can be removed. Record the location of this I/O subsystem. Go to 8.
5. At the processor subsystem, disconnect the cable connection at RIO port A1 (U1.x-P1/Q2) and reconnect it to RIO port A0 (U1.x-P1/Q1).
6. At the I/O subsystem recorded in substep 3 on page 277, disconnect the right I/O port connector 1 (U1.x-P2/Q1) and reconnect to the right I/O port connector 0 (U1.x-P2/Q2).
7. Verify that a single RIO cable connects processor subsystem RIO port A0 (U1.x-P1-Q1) to the right I/O port connector 0 (U1.x-P2/Q2) of the I/O subsystem. Go to substep 14.
8. Examine the connection at the left I/O port connector 1 of the I/O subsystem recorded in substep 4. If the RIO cable attached to the left I/O port connector 1 of the I/O subsystem leads to the right I/O port connector 0 of the I/O subsystem, record that the I/O subsystem is ″looped.″ Go to substep 13.
9. If the RIO cable attached to the left I/O port connector 1 of the I/O subsystem leads to port A1 of the processor subsystem, record that the I/O subsystem is ″not looped left.″
10. At the processor subsystem, disconnect the cable connection at RIO port A1 (U1.x-P1/Q2) and reconnect it to RIO port A0 (U1.x-P1/Q1).
11. At the I/O subsystem recorded in substep 4, disconnect the left I/O port connector 1 (U1.x-P1/Q1) and reconnect to the left I/O port connector 0 (U1.x-P1/Q2).
12. Verify that a single RIO cable connects processor subsystem RIO port A0 (U1.x-P1-Q1) to the left I/O port connector 0 of the I/O subsystem. Go to substep 14.
13. At the I/O subsystem recorded in substep 4, disconnect the right I/O port connector 1 (U1.x-P2/Q1) and reconnect to the left I/O port connector 0 (U1.x-P1/Q2). Go to substep 12.
14. If the I/O subsystem was ″looped,″ verify that the I/O subsystem left I/O port connector 1 (U1.x-P1/Q1) is connected to the I/O subsystem right I/O port connector 0 (U1.x-P2/Q2).
15. Turn on the power to boot standalone diagnostics from the NIM server.
16. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
17. Use the **Display Configuration and Resource List** to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary)
18. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to “Step 1542-7”.

Yes The RIO cable that was removed in substep 3 on page 277 or 4 on page 278 above is defective. Replace the RIO cable. If the I/O subsystem was ″looped,″ connect the new RIO cable from I/O subsystem 1 right I/O port connector 1 (U1.x-P2/Q1) to processor subsystem RIO port A1 (U1.x-P1/Q2). If the I/O subsystem was ″not looped left,″ connect the new RIO cable from the I/O subsystem left I/O port connector 1 (U1.x-P1/Q1) to processor subsystem RIO port A1 (U1.x-P1/Q2). If the I/O subsystem was ″not looped right,″ connect the new RIO cable from the I/O subsystem right I/O port connector 1 (U1.x-P2/Q1) to processor subsystem RIO port A1 (U1.x-P1/Q2).

Reconfigure the system to its original condition. Go to Map 0410: Repair Checkout in the @server *pSeries Diagnostic Information for Multiple Bus Systems*

Step 1542-7

The system may have up to two full-width I/O subsystems attached to a processor subsystem. The following steps reduce the system I/O to the minimum required:

1. Turn off the system power.
2. At the processor subsystem, disconnect the cable connection at RIO port A0 (U1.x-P1/Q1).
3. At the processor subsystem, disconnect the cable connection at RIO port A1 (U1.x-P1/Q2).
4. Disconnect the power cables from the I/O subsystem(s) that were attached to the processor subsystem. All I/O subsystems should now be physically disconnected from the processor subsystem.

Go to “Step 1542-8” on page 280.

Step 1542-8

The processor subsystem is running from the integrated I/O or from I/O attached to an adapter installed into one of the integrated PCI slots.

1. Turn on the power to boot standalone diagnostics from the NIM server.
2. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
3. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
4. Check that all attached devices and adapters are listed.

If the Please Define the System Console prompt did not display or all attached devices and adapters are not listed, the problem is in processor subsystem (U1.x).

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to "Step 1542-22" on page 286.

Yes Go to "Step 1542-21" on page 285.

Step 1542-9

If the I/O subsystem is ″looped″ or ″not looped left″ (see "Step 1542-6" on page 277), are there any adapters in slots 1, 2, 3, 4 or 5 (location codes Ux.y-P1-I1 through I5) on the left side of the I/O subsystem?

No Go to "Step 1542-10".

Yes Go to "Step 1542-13" on page 282.

Step 1542-10

If the I/O subsystem is ″looped″ or ″not looped left″ (see "Step 1542-6" on page 277), are there any adapters in slots 6, 7, 8, 9 or 10 (location codes Ux.y-P1-I6 through I10) on the left side of the I/O subsystem?

No Go to "Step 1542-11".

Yes Go to "Step 1542-14" on page 282.

Step 1542-11

If the I/O subsystem is ″looped″ or ″not looped right″ (see "Step 1542-6" on page 277), are there any adapters in slots 1, 2, 3, 4 or 5 (location codes (Ux.y-P2-I1 through I5) on the right side of the I/O subsystem?

No Go to "Step 1542-12".

Yes Go to "Step 1542-15" on page 283.

Step 1542-12

If the I/O subsystem is ″looped″ or ″not looped right″ (see "Step 1542-6" on page 277), are there any adapters in slots 6, 7, 8, 9 or 10 (location codes (Ux.y-P2-I7 through I10) on the right side of the I/O subsystem?

No Go to "Step 1542-19" on page 285.

Yes Go to "Step 1542-16" on page 283.

Step 1542-13

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 1, 2, 3, 4 and 5 (location codes Ux.y-P1-I1 through I5) from the left side of the I/O subsystem.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn on the power to boot standalone diagnostics from the NIM server.
6. If the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to "Step 1542-10" on page 281.

Yes Go to "Step 1542-17" on page 284.

Step 1542-14

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 6, 7, 8, 9 and 10 (location codes Ux.y-P1-I6 through I10) from the left side of the I/O subsystem.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn on the power to boot standalone diagnostics from the NIM server.
6. If the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary)
9. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to "Step 1542-11" on page 281.

Yes Go to "Step 1542-17" on page 284.

Step 1542-15

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 1, 2, 3, 4 and 5 (location codes Ux.y-P2-I1 through I5) from the right side of the I/O subsystem.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn on the power to boot standalone diagnostics from the NIM server.
6. If the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to "Step 1542-12" on page 281.

Yes Go to "Step 1542-17" on page 284.

Step 1542-16

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 6, 7, 8, 9 and 10 (location codes Ux.y-P2-I6 through I10) from the right side of the I/O subsystem.
3. Label and record the location of any cables attached to the adapters.
4. Record the slot number of the adapters.
5. Turn on the power to boot standalone diagnostics from the NIM server.
6. If the TTY screen displays `Enter 0 to select this console`, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to "Step 1542-19" on page 285.

Yes Go to "Step 1542-17" on page 284.

Step 1542-17

If the Please Define the System Console screen does display and all attached devices and adapters are listed, the problem is with one of the adapter cards or devices that was removed or disconnected from the I/O subsystem.

1. Turn off the power.
2. Reinstall one adapter or device that was removed. Use the original adapter cards in their original slots when reinstalling adapters.
3. Turn on the power to boot standalone diagnostics from the NIM server.
4. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
5. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
6. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to "Step 1542-18".

Yes Reinstall the next adapter or device and return to the beginning of this step. Continue repeating this process until an adapter or device causes the Please Define the System Console screen to not display or all attached devices and adapters to not be listed.

After installing all of the adapters and the Please Define the System Console screen does display and all attached devices and adapters are listed, return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1542-18

Replace the adapter you just installed with a new adapter and retry the boot to standalone diagnostics from the NIM server.

1. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
2. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
3. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No The I/O subsystem backplane is defective. Replace the I/O subsystem backplane on the side of the problem adapter (Ux.y-P1 or Ux.y-P2). Go to "Step 1542-20" on page 285.

Yes The adapter was defective. Go to "Step 1542-20" on page 285.

Step 1542-19

1. Turn off the power.
2. Disconnect the I/O subsystem power cables.
3. Replace the following parts, one at a time, in the sequence listed:
   a. I/O subsystem backplane at P1.
   b. I/O subsystem backplane at P2.
   c. I/O subsystem DCA at V1.
   d. I/O subsystem DCA at V2.
4. Reconnect the I/O subsystem power cables.
5. Turn on the power.
6. Boot standalone diagnostics from the NIM server.
7. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

No Replace the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the Please Define the System Console screen to be displayed and all attached devices and adapters to be listed. If you have replaced all the items listed above and the Please Define the System Console screen does not display or all attached devices and adapters are not listed, check any external devices and cabling. If you do not find a problem, contact your next level of support for assistance.

Yes

Go to "Step 1542-20".

Step 1542-20

1. Turn off the power.
2. The item just replaced fixed the problem.
3. Plug in all adapters that were previously removed but not reinstalled.
4. Reconnect the I/O subsystem power cables that were previously disconnected.

Reconfigure the system to its original condition. Go to Map 0410: Repair Checkout in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1542-21

1. Turn off the power.
2. At the processor subsystem, reconnect the cable connection at RIO port A0 (U1.x-P1/Q1).

3. At the processor subsystem, reconnect the cable connection at RIO port A1 (U1.x-P1/Q2).
4. Reconnect the power cables from the I/O subsystem(s) that were attached to the processor subsystem. All I/O subsystems should now be physically reconnected to the processor subsystem.
5. Ensure that the I/O subsystem is cabled correctly as shown in "Cabling for I/O Subsystem to Processor Subsystem (Split I/O Drawer)" on page 32 or "Cabling I/O Subsystem to Processor Subsystem (Looped)" on page 33.
6. Go to "Step 1542-9" on page 281.

Step 1542-22

Are there any adapters in slots 1, 2, or 3 (location codes (U1.x-P1-I1 through I3) in the processor subsystem?

No Go to "Step 1542-23".

Yes Go to "Step 1542-25" on page 287.

Step 1542-23

Attention: Call service support before replacing the system backplane.

1. Turn off the power.
2. Disconnect the processor subsystem power cables.
3. Replace the following parts, one at a time, in the sequence listed:
   a. SCSI backplane.
   b. Internal SCSI hard drives.
   c. Processor subsystem backplane
4. Reconnect the processor subsystem power cables.
5. Turn on the power.
6. Boot standalone diagnostics from the NIM server.
7. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
8. Use the **Display Configuration and Resource List** to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

No Replace the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the Please Define the System Console screen to be displayed and all attached devices and adapters to be listed. If you have replaced all the items listed above and the Please Define the System Console screen does not display or all attached devices and adapters are not listed, check any external devices and cabling. If you do not find a problem, contact your next level of support for assistance.

Yes Go to "Step 1542-24" on page 287.

Step 1542-24

1. Turn off the power.
2. The item just replaced fixed the problem.
3. Plug in all adapters that were previously removed but not reinstalled.
4. Reconnect the I/O subsystem power cables that were previously disconnected. Reconfigure the system to its original condition. Go to “Map 0410: Repair Checkout” in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1542-25

If the Please Define the System Console screen does display and all attached devices and adapters are listed, the problem is with one of the adapter cards or devices that was removed or disconnected from the processor subsystem.

1. Turn off the power.
2. Reinstall one adapter or device that was removed. Use the original adapter cards in their original slots when reinstalling adapters.
3. Turn on the power to boot standalone diagnostics from the NIM server.
4. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
5. Use the **Display Configuration and Resource List** to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
6. Check that all attached devices and adapters are listed.

Did the Please Define the System Console screen display and are all attached devices and adapters listed?

No Go to “Step 1542-26”.

Yes Reinstall the next adapter or device and return to the beginning of this step. Continue repeating this process until an adapter or device causes the Please Define the System Console screen to not display or all attached devices and adapters to not be listed.

After installing all of the adapters and the **Please Define the System Console** screen does display and all attached devices and adapters are listed, return the system to its original configuration. Go to “Map 0410: Repair Checkout” in @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1542-26

Replace the adapter you just installed with a new adapter and retry the boot to standalone diagnostics from the NIM server.

1. If the Please Define the System Console screen is displayed, follow the directions to select the system console.
2. Use the **Display Configuration and Resource List** to list all attached devices and adapters (refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*, if necessary).
3. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

No The processor subsystem backplane is defective. Replace the processor subsystem backplane (U1.x-P1). Go to “Step 1542-20” on page 285.

Yes The adapter was defective. Go to “Step 1542-20” on page 285.

MAP 1543: MCM Module Problem Isolation

Step 1543-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 1543-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1543-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1543-4”.

No Call for service support.

Step 1543-4

Attention: Some of the parts in the following list are modules that have a limit of three plug cycles. Before replacing any of the modules in the following list, call for service support.

Replace the following cards and modules, if present, one at a time:

1. First location code item recorded, if any, in “Step 1543-1”.
2. Second location code item recorded, if any, in “Step 1543-1”.
3. Third location code item recorded, if any, in “Step 1543-1”.
4. Fourth location code item recorded, if any, in “Step 1543-1”.
5. MCM module at U1.x-P1-C2, if not recorded in “Step 1543-1”.

Step 1543-5

Turn on the power.

Step 1543-6

Did the system stop with the same error code as recorded in “Step 1543-1”?

Yes Go to “Step 1543-7” on page 289.

No The module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1543-7

Have all the modules listed in "Step 1543-4" on page 288 been replaced?

Yes Go to "Step 1543-8".

No Go to "Step 1543-2" on page 288.

Step 1543-8

Turn off the power.

Step 1543-9

Examine the green Power-In LED on the processor subsystem DCA.

Step 1543-10

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 1543-11".

No Call for service support.

Step 1543-11

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at U1.x-P1.

Step 1543-12

Turn on the power.

Step 1543-13

Did the system stop with the same error code as recorded in "Step 1541-1" on page 268?

Yes Go to "Step 1543-14".

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1543-14

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 1543-15

Call for service support. **This ends the procedure.**

MAP 1544: L3 Cache Module Problem Isolation

Step 1544-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 1544-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1544-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 1544-4".

No Call for service support.

Step 1544-4

Attention: Some of the parts in the following list are modules that have a limit of three plug cycles. Before replacing any of the modules in the following list, call for service support.

You may be asked to replace one or more of the following cards and modules:

- Memory card 1 at U1.x-P1-M1
- Memory card 2 at U1.x-P1-M2
- Memory card 2 at U1.x-P1-M3
- Memory card 3 at U1.x-P1-M4
- L3 module at U1.x-P1-C1
- L3 module at U1.x-P1-C3
- L3 module at U1.x-P1-C4
- L3 module at U1.x-P1-C5

Replace the following cards and modules, if present, one at a time:

1. First location code item recorded, if any, in "Step 1544-1".
2. Second location code item recorded, if any, in "Step 1544-1".
3. Third location code item recorded, if any, in "Step 1544-1".

Step 1544-5

Turn on the power.

Step 1544-6

Did the system stop with the same error code as recorded in "Step 1544-1"?

Yes Go to "Step 1544-7" on page 291.

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1544-7

Have all the cards or modules listed in "Step 1544-4" on page 290 been replaced?

Yes Go to "Step 1544-8".

No Go to "Step 1544-2" on page 290.

Step 1544-8

Turn off the power.

Step 1544-9

Examine the green Power-In LED on the processor subsystem DCA.

Step 1544-10

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to "Step 1544-11".

No Call for service support.

Step 1544-11

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at U1.x-P1.

Step 1544-12

Turn on the power.

Step 1544-13

Did the system stop with the same error code as recorded in "Step 1544-1" on page 290?

Yes Go to "Step 1544-14".

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1544-14

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 1544-15

Call for service support. **This ends the procedure.**

MAP 1548: Memory and Processor Problem Isolation

Step 1548-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 1548-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1548-3

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1548-4”.

No Call for service support.

Step 1548-4

Attention: Some of the parts in the following list are modules that have a limit of three plug cycles. Before replacing any of the modules in the following list, call for service support.

Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in “Step 1548-1”.
- Second location code item recorded, if any, in “Step 1548-1”.
- Third location code item recorded, if any, in “Step 1548-1”.
- Memory card 1 at U1.x-P1-M1, if not recorded in “Step 1548-1”.
- Memory card 2 at U1.x-P1-M2, if not recorded in “Step 1548-1”.
- Memory card 3 at U1.x-P1-M3, if not recorded in “Step 1548-1”.
- Memory card 4 at U1.x-P1-M4, if not recorded in “Step 1548-1”.
- L3 module at U1.x-P1-C1, if not recorded in “Step 1548-1”.
- L3 module at U1.x-P1-C3, if not recorded in “Step 1548-1”.
- L3 module at U1.x-P1-C4, if not recorded in “Step 1548-1”.
- L3 module at U1.x-P1-C5, if not recorded in “Step 1548-1”.
- MCM module at U1.x-P1-C2, if not recorded in “Step 1548-1”.

Step 1548-5

Turn on the power.

Step 1548-6

Did the system stop with the same error code as recorded in “Step 1548-1”?

Yes Go to “Step 1548-7” on page 293.

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1548-7

Have all the cards or modules listed in “Step 1548-4” on page 292 been replaced?

Yes Go to “Step 1548-8”.

No Go to “Step 1548-2” on page 292.

Step 1548-8

Turn off the power.

Step 1548-9

Examine the green Power-In LED on the processor subsystem DCA.

Step 1548-10

Is the green Power-In LED on the processor subsystem DCA off?

Yes Go to “Step 1548-11”.

No Call for service support.

Step 1548-11

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at U1.x-P1.

Step 1548-12

Turn on the power.

Step 1548-13

Did the system stop with the same error code as recorded in “Step 1548-1” on page 292?

Yes Go to “Step 1548-14”.

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Step 1548-14

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 1548-15

Call for service support. **This ends the procedure.**

MAP 1549: Attention Problem Isolation

Step 1549-1

Record the error code and the location code(s) that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 1549-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 1549-3

Is the green Power-In LED on the processor subsystem DCA off?

No Call for service support.

Yes Go to "Step 1549-4".

Step 1549-4

Examine the following table and locate the error code that sent you to this MAP to determine your next step.

Error Code	Action
406x 0EB1	Go to "Step 1549-13" on page 296.
406x 0EB2	Go to "Step 1549-17" on page 296.
406x 0EB3	Go to "Step 1549-37" on page 299.
406x 0EB4	Go to "Step 1549-41" on page 300.
406x 0EB5	Go to "Step 1549-21" on page 297.
406x 0EB6	Go to "Step 1549-25" on page 298.
406x 0EB7	Go to "Step 1549-25" on page 298.
406x 0EB8	Go to "Step 1549-25" on page 298.
406x 0EB9	Go to "Step 1549-25" on page 298.
406x 0EBA	Go to "Step 1549-25" on page 298.
406x 0EBB	Go to "Step 1549-5".
406x 0EBC	Go to "Step 1549-9" on page 295.

Step 1549-5

Attention: Some of the parts in the following list are modules that have a limit of three plug cycles. Before replacing any of the modules in the following list, call for service support. Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in "Step 1549-1".
- Second location code item recorded, if any, in "Step 1549-1".
- Third location code item recorded, if any, in "Step 1549-1".

- Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.
- MCM module at U1.x-P1-C2, if not recorded in "Step 1549-1" on page 294.

Step 1549-6

Turn on the power.

Step 1549-7

Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to "MAP 0410: Repair Checkout" in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-8".

Step 1549-8

Have all the cards or modules listed in "Step 1549-5" on page 294 been replaced?

No Go to "Step 1549-2" on page 294.

Yes Go to "Step 1549-29" on page 298.

Step 1549-9

Attention: Some of the parts in the following list are modules that have a limit of three plug cycles. Before replacing any of the modules in the following list, call for service support.

Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in "Step 1549-1" on page 294.
- Second location code item recorded, if any, in "Step 1549-1" on page 294.
- Third location code item recorded, if any, in "Step 1549-1" on page 294.
- Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.
- L3 module at U1.x-P1-C1, if not recorded in "Step 1549-1" on page 294.
- L3 module at U1.x-P1-C3, if not recorded in "Step 1549-1" on page 294.
- L3 module at U1.x-P1-C4, if not recorded in "Step 1549-1" on page 294.
- L3 module at U1.x-P1-C5, if not recorded in "Step 1549-1" on page 294.

Step 1549-10

Turn on the power.

Step 1549-11

Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-12".

Step 1549-12

Have all the cards listed in "Step 1549-9" on page 295 been replaced?

No Go to "Step 1549-2" on page 294.

Yes Go to "Step 1549-13".

Step 1549-13

Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in "Step 1549-1" on page 294.
- Second location code item recorded, if any, in "Step 1549-1" on page 294.
- Third location code item recorded, if any, in "Step 1549-1" on page 294.
- Memory card 1 at U1.x-P1-M1, if not recorded in "Step 1549-1" on page 294.
- Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.

Step 1549-14

Turn on the power.

Step 1549-15

Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-16".

Step 1549-16

Have all the cards or modules listed in "Step 1549-13" been replaced?

No "Step 1549-2" on page 294.

Yes Go to "Step 1549-29" on page 298.

Step 1549-17

Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in "Step 1549-1" on page 294.
- Second location code item recorded, if any, in "Step 1549-1" on page 294.
- Third location code item recorded, if any, in "Step 1549-1" on page 294.
- Memory card 2 at U1.x-P1-M2, if not recorded in "Step 1549-1" on page 294.
- Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.

Step 1549-18
Turn on the power.

Step 1549-19
Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-20".

Step 1549-20
Have all the cards or modules listed in "Step 1549-17" on page 296 been replaced?

No Go to "Step 1549-2" on page 294.

Yes Go to "Step 1549-29" on page 298.

Step 1549-21
Replace the following cards and modules, if present, one at a time:
- First location code item recorded, if any, in "Step 1549-1" on page 294.
- Second location code item recorded, if any, in "Step 1549-1" on page 294.
- Third location code item recorded, if any, in "Step 1549-1" on page 294.
- SMA I/O book at U1.x-P1-H1, if not recorded in "Step 1549-1" on page 294.
- Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.

Step 1549-22
Turn on the power.

Step 1549-23
Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-24".

Step 1549-24
Have all the cards or modules listed in "Step 1549-21" been replaced?

No Go to "Step 1549-2" on page 294.

Yes Go to "Step 1549-29" on page 298.

Step 1549-25

Replace the following cards and modules, if present, one at a time:

- Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.
- First location code item recorded, if any, in "Step 1549-1" on page 294.
- Second location code item recorded, if any, in "Step 1549-1" on page 294.
- Third location code item recorded, if any, in "Step 1549-1" on page 294.

Step 1549-26

Turn on the power.

Step 1549-27

Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the eServer *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-28".

Step 1549-28

Have all the cards or modules listed in "Step 1549-25" been replaced?

No Go to "Step 1549-2" on page 294.

Yes Go to "Step 1549-29".

Step 1549-29

Turn off the power.

Step 1549-30

Examine the green Power-In LED on the processor subsystem DCA.

Step 1549-31

Is the green Power-In LED on the processor subsystem DCA off?

No Call for service support.

Yes Go to "Step 1549-32".

Step 1549-32

Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at U1.x-P1.

Step 1549-33

Turn on the power.

Step 1549-34

Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The part just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-35".

Step 1549-35

Turn off the power. Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 1549-36

Call for service support. **This ends the procedure.**

Step 1549-37

Replace the following cards and modules, if present, one at a time:

1. First location code item recorded, if any in "Step 1549-1" on page 294.
2. Second location code item recorded, if any in "Step 1549-1" on page 294.
3. Third location code item recorded, if any in "Step 1549-1" on page 294.
4. Memory card 3 at U1.x-P1-M3, if not recorded in "Step 1549-1" on page 294.
5. Service processor card at U1.x-P1-X1, if not recorded in "Step 1549-1" on page 294.

Step 1549-38

Turn on the power.

Step 1549-39

Did the system stop with the same error code as recorded in "Step 1549-1" on page 294?

No The card or module just replaced was defective. This ends the procedure.

Return the system to its original configuration. Go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 1549-40".

Step 1549-40

Have all of the cards or modules listed in "Step 1549-37" been replaced?

No Go to "Step 1549-2" on page 294.

Yes Go to "Step 1549-29" on page 298.

Step 1549-41

Replace the following cards and modules, if present, one at a time:

1. First location code item recorded, if any in “Step 1549-1” on page 294.
2. Second location code item recorded, if any in “Step 1549-1” on page 294.
3. Third location code item recorded, if any in “Step 1549-1” on page 294.
4. Memory card 4 at U1.x-P1-M4, if not recorded in “Step 1549-1” on page 294.
5. Service processor card at U1.x-P1-X1, if not recorded in “Step 1549-1” on page 294.

Step 1549-42

Turn on the power.

Step 1549-43

Did the system stop with the same error code as recorded in “Step 1549-1” on page 294?

No The card or module just replaced was defective. This ends the procedure.

Return the system to its original configuration.Go to “Step 1549-2” on page 294.

Yes Go to “Step 1549-29” on page 298.

Step 1549-44

Have all the cards or modules listed in “Step 1549-41” been replaced?

No The card or module just replaced was defective. This ends the procedure.

Return the system to its original configuration.Go to “Step 1549-2” on page 294.

Yes Go to “Step 1549-29” on page 298.

MAP 154A: I2C Bus Problem Isolation

Step 154A-1

Record the error code, location code(s) and word 13 that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in “Powering the System On and Off” on page 139.

Step 154A-2

Turn off the power.

Examine the green Power-In LED on the processor subsystem DCA.

Step 154A-3

Is the green Power-In LED on the processor subsystem DCA off?

No Call for service support.

Yes Go to “Step 154A-4” on page 301.

Step 154A-4

Examine the following table and locate the error code that sent you to this MAP to determine your next step.

Error Code	Action
B1xx 4643	Go to "Step 154A-9".
B1xx 4645, B1xx 4648	Go to "Step 154A-5".

Step 154A-5

Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in "Step 154A-1" on page 300.
- Second location code item recorded, if any, in "Step 154A-1" on page 300.
- Service processor card at U1.x-P1-X1, if not recorded in "Step 154A-1" on page 300.
- SMA I/O book at U1.x-P1-H1, if not recorded in "Step 154A-1" on page 300.
- Memory card 1 at U1.x-P1-M1, if not recorded in "Step 154A-1" on page 300.
- Memory card 2 at U1.x-P1-M2, if not recorded in "Step 154A-1" on page 300.
- Memory card 3 at U1.x-P1-M3, if not recorded in "Step 154A-1" on page 300.
- Memory card 4 at U1.x-P1-M4, if not recorded in "Step 154A-1" on page 300.
- DASD pack card at U1.x-P2, if not recorded in "Step 154A-1" on page 300.

Step 154A-6

Turn on the power.

Step 154A-7

Did the system stop with the same error code as recorded in "Step 154A-1" on page 300?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 154A-8".

Step 154A-8

Have all the cards listed in "Step 154A-5" been replaced?

No Go to "Step 154A-2" on page 300.

Yes Go to "Step 154A-14" on page 302.

Step 154A-9

Is the value recorded in "Step 154A-1" on page 300 for word 13 of this error code equal to 0000A218 or 0000A21B?

No Go to "Step 154A-5".

Yes Go to "Step 154A-10" on page 302.

Step 154A-10
Replace the following cards and modules, if present, one at a time:

- First location code item recorded, if any, in "Step 154A-1" on page 300.
- Second location code item recorded, if any, in "Step 154A-1" on page 300.
- Service processor card at U1.x-P1-X1, if not recorded in "Step 154A-1" on page 300.
- Component on which you are trying to turn on the identify LED at the location you selected.

Step 154A-11
Turn on the power.

Step 154A-12
Did the system stop with the same error code as recorded in "Step 154A-1" on page 300?

No The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 154A-13".

Step 154A-13
Have all the cards or modules listed in "Step 154A-10" been replaced?

No Go to "Step 154A-2" on page 300.

Yes Go to "Step 154A-14".

Step 154A-14
Turn off the power.

Step 154A-15
Examine the green Power-In LED on the processor subsystem DCA.

Step 154A-16
Is the green Power-In LED on the processor subsystem DCA off?

No Call for service support.

Yes Go to "Step 154A-17".

Step 154A-17
Attention: Before replacing the system backplane, call for service support.

Replace the system backplane at U1.x-P1.

Step 154A-18
Turn on the power.

Step 154A-19

Did the system stop with the same error code as recorded in "Step 154A-1" on page 300?

No

The card or module just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to "Step 154A-20".

Step 154A-20

Turn off the power.

Ensure that the green Power-In LED on the processor subsystem DCA is off.

Step 154A-21

Call for service support. **This ends the procedure.**

MAP 154B: Insufficient Hardware Resources Problem Isolation

Step 154B-1

Record the error code, location code(s) and word 13 that sent you to this MAP.

Note: When you are directed to turn power off or turn power on in this procedure, follow the instructions in "Powering the System On and Off" on page 139.

Step 154B-2

Turn off the power.

Step 154B-3

Ensure that the power is off on the base system drawer.

Step 154B-4

Attention: Before replacing any parts, examine the base system drawer for violation of any of the following configuration constraints:

- The MCM (processor) module is installed.
- At least one memory card is installed.
- At least one L3 cache module is installed.

Replace the following cards, if present, one at a time:

- First location code item recorded, if any, in "Step 154B-1".
- Second location code item recorded, if any, in "Step 154B-1".
- Third location code item recorded, if any, in "Step 154B-1".
- If the value of word 13, recorded in "Step 154B-1", is 402F0000, replace the MCM module at location U1.x-P1-C2, if not recorded in "Step 154B-1".

- If the value of word 13, recorded in “Step 154B-1” on page 303, is 40FF0000, replace the memory card at location U1.x-P1-M1, if not recorded in “Step 154B-1” on page 303.
- If the value of word 13, recorded in “Step 154B-1” on page 303, is 40FF0000, replace the memory card at location U1.x-P1-M2, if not recorded in “Step 154B-1” on page 303.
- If the value of word 13, recorded in “Step 154B-1” on page 303, is 40FF0000, replace the memory card at location U1.x-P1-M3, if not recorded in “Step 154B-1” on page 303.
- If the value of word 13, recorded in “Step 154B-1” on page 303, is 40FF0000, replace the memory card at location U1.x-P1-M4, if not recorded in “Step 154B-1” on page 303.
- Service processor card at location U1.x-P1-X1, if not recorded in “Step 154B-1” on page 303.

Step 154B-5

Turn on the power.

Step 154B-6

Did the system stop with the same error code as recorded in “Step 154B-1” on page 303?

No The card just replaced was defective. **This ends the procedure.**

Go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 154B-7”.

Step 154B-7

Have all the cards listed in “Step 154B-4” on page 303 been replaced?

No Go to “Step 154B-2” on page 303.

Yes Go to “Step 154B-8”.

Step 154B-8

Turn off the power.

Step 154B-9

Ensure that the power is off on the system drawer.

Step 154B-10

Attention: Before replacing the processor subsystem backplane, call for service support.

Replace the processor subsystem backplane at U1.x-P1.

Step 154B-11

Turn on the power.

Step 154B-12

Did the system stop with the same error code as recorded in “Step 154B-1” on page 303?

No The card just replaced was defective. **This ends the procedure.**

Return the system to its original configuration.

Go to ″MAP 0410: Repair Checkout″ in the eserver *pSeries Diagnostic Information for Multiple Bus Systems*.

Yes Go to “Step 154B-13”.

Step 154B-13

Turn off the power.

Step 154B-14

Call for service support. **This ends the procedure.**

Chapter 4. Checkpoints

Checkpoints display as operator panel values on the Hardware Management Console (HMC) while the system is powering on and going through the initial program load (IPL). This chapter explains the IPL flow of the system and provides a table that lists checkpoints that you might see on the HMC.

IPL Flow

The IPL process starts when ac power is connected to the system. The IPL process has the following phases:

- **Phase 1: Service Processor Initialization**

  Phase 1 starts when ac power is connected to the system and ends when OK is displayed in the operator panel value on the HMC.
- **Phase 2: Hardware Initialization by the Service Processor**

  Phase 2 starts when system power-on is initiated by selecting the proper command at the HMC. 9xxx checkpoints are displayed during this time. 91FF, the last checkpoint in this phase, indicates the transition to phase 3 is taking place.
- **Phase 3: System Firmware initialization**

  On a full system partition, at phase 3, a system processor takes over control and continues initializing partition resources. During this phase, checkpoints in the form Exxx are displayed. E105, the last checkpoint in this phase, indicates that control is being passed to the AIX boot program.

  On a partitioned system, there is a global systemwide initialization phase 3, during which a system processor continues the initialization process. Checkpoints in this phase are of the form Exxx. This global phase 3 ends with a `"LPAR..."` on the operator panel value on the HMC. As a logical partition begins a partition-initialization phase 3, one of the system processors assigned to that partition continues initialization of resource assigned to that partition. Checkpoints in this phase are also of the form Exxx. This partition phase 3 ends with an E105 displayed on the partition's virtual operator panel on the HMC, indicating control has been passed to that logical partition's AIX boot program. For both the global and partition phase 3, location codes may also be displayed on the partition's virtual terminal.
- **Phase 4: AIX Boot**

  When AIX starts to boot, checkpoints in the form 0xxx and 2xxx are displayed in the operator panel value on the HMC. This phase ends when the AIX login prompt displays on the AIX console.

  At this point the state observed on the HMC of the system/partition will be ″running″ and the operator panel value will be blank.

The following table outlines the IPL phases from power-on to the AIX login prompt, matching the phases to corresponding checkpoints for a typical partition boot. Also listed are the approximate boot times for each phase, along with their dependencies for each phase.

Note: The following table lists the major checkpoints only.

Phase #	Checkpoints on HMC	Time in Phase (minutes)	Major Contributors to Time in Phase
Phase 1	=> OK	Approx. 1	
Phase 2	9xxx => 91FF	3 to 6	Number of I/O drawers
Phase 3	Exxx => E105	1 to 3	Number of bootable adapters
Phase 4	0xxx or 2xxx => blank	2 to 30+	Number of SSA drives Number of SCSI drives Number of asynchronous sessions Number of processors Number of adapters Amount of memory

Checkpoints enable users and service personnel to know what the server is doing, with some detail, as it initializes. These checkpoints are not intended to be error indicators, but in some cases a server could hang at one of the checkpoints without displaying an 8-character error code. It is for these hang conditions, only, that any action should be taken with respect to checkpoints. The most appropriate action is included with each checkpoint.

Before taking actions listed with a checkpoint, check for additional symptoms in the service processor error log. For information about how to access the service processor error log, see the “System Information Menu” on page 448.

Note: Go to “MAP 1540: Problem Isolation Procedures” on page 267 for any of the following checkpoint hang conditions:

- A four-digit code in the range of 8xxx through EFFF not listed in the checkpoint tables.
- A four-digit code is in the checkpoint tables, but does not contain a repair action or FRU listing.
- All of the FRUs listed in the repair action have been replaced and the problem has not been corrected.

Checkpoints listed in the following tables are in the format 8xxx, 9xxx, Axxx, Bxxx, or Exxx, where x is any hexadecimal digit from 1-9 or A-F. If your system hangs with a checkpoint displayed that begins with anything other than 8, 9, A, B, or E, go to the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Use the following table to determine where to find the checkpoint.

Symptom	**Action**
You have a code that is of the form 8xxx, 9xxx, Axxx, or Bxxx.	Go to “Service Processor Checkpoints” on page 310.
You have a code of the form Exxx.	Go to “Firmware Checkpoints” on page 316.
You have a four-character code that is *not* of the form 8xxx, 9xxx, Axxx, Bxxx, or Exxx.	See the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Service Processor Checkpoints

Service processor checkpoints are in the range 8xxx to Bxxx. The message **OK** indicates successful service processor testing and initialization. Firmware checkpoints are listed in “Firmware Checkpoints” on page 316.

Note: A spinning (or twirling) slash displays in the upper-right corner of the operator panel value on the HMC while some checkpoints are being displayed. If the slash stops spinning, a hang condition is indicated.

Checkpoint	Description	Action/ Possible Failing FRU
8000	Test of the service processor DRAM	See note 1 on page 315.
8004	Verify base code checksum	See note 1 on page 315.
8008	Verify base code mirror checksum	See note 1 on page 315.
8009	Set NVRAM configuration in TITAN	See note 1 on page 315.
800F	Start base code	See note 1 on page 315.
8010	Start supervisor in base code	See note 1 on page 315.
8012	Initialize hardware interrupts	See note 1 on page 315.
8014	Allocate and initialize area in DRAM	See note 1 on page 315.
8016	Initialize debugger and build VPD	See note 1 on page 315.
8018	Initialize service processor interfaces	See note 1 on page 315.
801A	Initialize external FLASH load	See note 1 on page 315.
801B	Initialize and test WINBOND chip	See note 1 on page 315.
801C	Initialize and test SUPER I/O chip	See note 1 on page 315.
801F	Initialize diskette, verify VDASD and start operational loader	See note 1 on page 315.
8100	Start operational loader	See note 1 on page 315.
81xx	Load code into DRAM from VDASD (where xx = number of loads)	See note 1 on page 315.
81FE	Load service processor operating system	See note 1 on page 315.
81FF	Start service processor operating system	See note 1 on page 315.
9000	Primary service processor task initializing	See note 1 on page 315.
9009	System processor IPL has started	See note 1 on page 315.
9010	Primary service processor thread waiting for response	See note 1 on page 315.
9020	Service processor state set to pre-standby	See note 1 on page 315.
9021	Service processor state set to standby	See note 1 on page 315.

Checkpoint	Description	Action/ Possible Failing FRU
9022	Service processor state set to IPL	See note 1 on page 315.
9023	Service processor state set to runtime	See note 1 on page 315.
9024	Service processor state set to terminate	See note 1 on page 315.
9025	Service processor state set to DPO	See note 1 on page 315.
9030	Waiting for secondary thread acknowledgement	See note 1 on page 315.
9033	I/O base initialization	See note 1 on page 315.
9034	I2C initialization	See note 1 on page 315.
9035	ISA initialization	See note 1 on page 315.
9036	Mailbox initialization	See note1 on page 315.
9037	SLLA initialization (VPD)	See note 1 on page 315.
9038	NVRAM initialization	See note 1 on page 315.
9039	U55 serial port initialization	See note 1 on page 315.
903A	Serial I/O initialization	See note 1 on page 315.
903B	SPCN initialization	See note 1 on page 315.
9051	End of reset/reload operation: service processor dump has completed	See note 1 on page 315.
9055	Start menus thread	See note 1 on page 315.
906A	Create mailbox processing thread	See note 1 on page 315.
906B	Create menu interface thread	See note 1 on page 315.
906C	Create general thread	See note 1 on page 315.
906D	Create SPCN thread	See note 1 on page 315.
9070	Create thread to control LEDs on I/O subsystems	See note 1 on page 315.
9071	Initialize thread to control LEDs on I/O subsystems	See note 1 on page 315.
9080	Start VPD collection program	See note 1 on page 315.
9081	Start SC VPD data collection	See note 1 on page 315.
9082	I2C/SPCN VPD data collection	See note 1 on page 315.
9083	End SC VPD data collection	See note 1 on page 315.
9084	End I2C/SPCN VPD data collection	See note 1 on page 315.
90FD	Waiting for IBIST to complete	See note 1 on page 315.
9101	Setup load source	See note 1 on page 315.
9102	Open load source	See note 1 on page 315.
9103	Verify open status of load source	See note 1 on page 315.

Checkpoint	Description	Action/ Possible Failing FRU
9104	Waiting for SPCN VPD collection to be completed	See note 1 on page 315.
9105	Load IPL LIDs	See note 1 on page 315.
9106	Initialize MOPs	See note 1 on page 315.
9107	System flush	See note 1 on page 315.
9108	Processor scan interface BATs and LBIST	See note 1 on page 315.
9109	ABIST	See note 1 on page 315.
910A	Non-processor scan interface BATs and LBIST	See note 1 on page 315.
910B	Wire test	See note 1 on page 315.
910C	Initialize main storage (system memory)	See note 1 on page 315.
910D	Configure processors	See note 1 on page 315.
910E	Configure and initialize I/O	See note 1 on page 315.
910F	Test and initialize main storage (system memory)	See note 1 on page 315.
9110	Free IPL LIDs	See note 1 on page 315.
9111	Load run-time LIDS	See note 1 on page 315.
9112	Load dump LIDs	See note 1 on page 315.
9113	Enable attention	See note 1 on page 315.
9114	Enable function 22	See note 1 on page 315.
9115	Load system IPL program	See note 1 on page 315.
9116	Load system data areas (NACA/PACA)	See note 1 on page 315.
9117	Start system IPL program	See note 1 on page 315.
9119	Waiting for VPD collection to complete	See note 1 on page 315.
9184	Firmware image being loaded into service processor's control storage during firmware update.	1. Remove, then reapply power to the processor subsystem using the HMC. If the service processor comes up to the OK prompt, try again to update the firmware. 2. Call service support.
91C4	Flash update pending, either a firmware update or hypervisor dump.	This checkpoint may be displayed during the firmware update process. The checkpoint may be displayed for a long period of time during the process. If the process does not complete, the service processor is hung and the processor subsystem must be reset using the HMC.

Checkpoint	Description	Action/ Possible Failing FRU
91FF	Control being handed to system processor from service processor	See note 1 on page 315.
9200	Scan interface BATs	See note 1 on page 315.
9300	Logic BIST	See note 1 on page 315.
9301	Scanned ABIST	See note 1 on page 315.
9302	Dedicated ABIST	See note 1 on page 315.
9303	Dedicated ABIST array fuse repair calculation	See note 1 on page 315.
9380	Built-in-self-test (BIST)	See note 2 on page 315.
9400	Service processor is requesting system flush	See note 1 on page 315.
9410	Service processor is issuing request to start instruction execution	See note 1 on page 315.
9411	Service processor is issuing request to stop instruction execution	See note 1 on page 315.
9420	Service processor is issuing request to start system clocks	See note 1 on page 315.
9421	Service processor is issuing request to stop system clocks	See note 1 on page 315.
94B0	Wire test faulty driver status refcode	See note 2 on page 315.
94B1	Wire test shorted net status refcode	See note 2 on page 315.
94B2	Wire test elastic interface test	See note 2 on page 315.
94BB	Wire test starting	See note 2 on page 315.
9501	IPL diagnostic initialization	See note 2 on page 315.
9502	IPL diagnostic L3 cache march test	See note 2 on page 315.
9503	IPL diagnostic L3 connections test	See note 2 on page 315.
9504	IPL diagnostic L2 cache march test	See note 2 on page 315.
9505	IPL diagnostic RIO wrap test	See note 2 on page 315.
9506	IPL diagnostic cleanup	See note 2 on page 315.
9507	IPL diagnostic test	See note 2 on page 315.
9508	IPL diagnostic main storage march test	See note 2 on page 315.
9509	IPL diagnostic main storage connections test	See note 2 on page 315.
950A	IPL diagnostic elastic interface slack test	See note 2 on page 315.
950B	IPL diagnostic fast initialization to zeros	See note 2 on page 315.
96C2	IPL MOPs processor configuration	See note 2 on page 315.
96C3	IPL MOPs main storage size	See note 2 on page 315.

Checkpoint	Description	Action/ Possible Failing FRU
96C4	IPL MOPs main storage configuration	See note 2 on page 315.
96C6	IPL MOPs I/O configuration	See note 2 on page 315.
96C7	IPL MOPs: enable chip machine checks	See note 2 on page 315.
96E1	Initialize run-time PRD objects and memory	See note 2 on page 315.
96E2	Run-time initialization: enable attention handling	See note 2 on page 315.
96EE	Firmware update module corrupted	1. Remove, then reapply power to the processor subsystem using the HMC. Retry the firmware update. 2. Call service support.
99FD	Service processor receiving firmware update module	1. Remove, then reapply power to the processor subsystem using the HMC. Retry the firmware update. 2. Call service support.
99FF	Service processor writing firmware update module	1. Remove, then reapply power to the processor subsystem using the HMC. Retry the firmware update. 2. Call service support.
A800	Start service processor dump process	See note 1 on page 315.
A801	Start dump to NVRAM	See note 1 on page 315.
A802	Start dump to debug port	See note 1 on page 315.
A803	NVRAM not usable	See note 1 on page 315.
A804	NVRAM dump done	See note 1 on page 315.
A805	Start dump to flash	See note 1 on page 315.
A806	Flash dump area done	See note 1 on page 315.
A807	Flash area not usable	See note 1 on page 315.
A808	Flash error log to debug port	See note 1 on page 315.
A809	Flash erase start	See note 1 on page 315.
A80A	Flash erase end	See note 1 on page 315.
A80B	Reserved; not used	See note 1 on page 315.
A80C	Reserved; not used	See note 1 on page 315.
A80D	Reserved; not used	See note 1 on page 315.
A80E	Reserved; not used	See note 1 on page 315.
A80F	Service processor dump done	See note 1 on page 315.

Checkpoint	Description	Action/ Possible Failing FRU
A810-A8FF	Scan log dump in progress	Informational message. (See "Scan Log Dump Policy" on page 443.) The last two characters of the checkpoints will change as the scan log dump progresses. If the last two characters do not change after five minutes, the service processor is hung and must be reset. Follow the procedure outlined in Note 1 following this table. When the scan log dump is complete, depending on how the reboot policy is set, the system will either: • Go to the standby state (and the service processor menus will be available), indicated by OK or STBY in the virtual operator panel display on the HMC OR • Attempt to reboot.
B0F5	Delayed power-off sequence has begun	See note 1.
B0FA	Delayed power-off acknowledged	See note 1.
B0FF	Power-off requested program executing	See note 1.

Notes:

1. If the system fails to progress after this checkpoint is put in the display, do the following:
   a. Reset the processor subsystem using the HMC.
   b. If the hang repeats, check with service support to see if there is a firmware update that fixes the problem.
   c. If not, or the update does not fix the problem, replace the service processor at location: U1.x-P1-X1.
   d. If this procedure does not fix the problem, call service support.
2. If the system fails to progress after this checkpoint is put in the virtual operator panel displayed on the HMC, do the following:
   a. Reset the processor subsystem using the HMC.
   b. Reboot the system in slow mode. (Slow/fast IPL is set using a service processor menu.) If the hang repeats, check with service support to see if there is a system firmware update that fixes this problem.
   c. If not, or the update does not fix the problem, call service support.

Firmware Checkpoints

Firmware uses checkpoints (progress codes) in the range of Exxx to EFFF. These checkpoints occur during system startup and can be useful in diagnosing certain problems. Service processor checkpoints are listed in “Service Processor Checkpoints” on page 310.

If you have a checkpoint with no location code associated with it, see “Determining Location Code” on page 347. If a checkpoint has a location code associated with a FRU replacement, see “AIX and Physical Location Code Reference” on page 54 for physical location information.

If you replace FRUs and the problem is still not corrected, go to “MAP 1542: I/O Problem Isolation” on page 274 unless otherwise indicated in the tables.

Note: If you receive a four-digit code in the range of E1xx to EFFF that is not listed in the table above, go to “MAP 1542: I/O Problem Isolation” on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E101	Create RTAS node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E102	Load/Init RTAS	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E105	Transfer control to operating system (normal boot).	See “Boot Problems” on page 341.
E10A	Load RTAS device tree	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E10B	Set RTAS device properties	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E111	GOOD CRC - jump to composite image	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E120	Initialize I/O and early memory block	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E121	Initialize service processor	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E122	RTAS sensor setup complete	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E130	Build device tree	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E131	Build device tree	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E132	Build device tree, just before setting up root node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E133	Build device tree, just before setting up processor subsystem	Go to “MAP 1540: Problem Isolation Procedures” on page 267.

Checkpoint	Description	Action/ Possible Failing FRU
E134	Create memory node	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E135	Configuring memory nodes	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E138	Create options node	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E139	Create node aliases and system aliases	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E13A	Create packages node	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E140	Operating system load	See "Boot Problems" on page 341.
E149	Create boot manager node	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E14C	Create terminal-emulator node	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
E14D	Loading boot image	See "Boot Problems" on page 341.
E150	Create host (primary) PCI controller node	If a location code is specified, replace the adapter at that location code. If no location code is specified, go to "MAP 1542: I/O Problem Isolation" on page 274.
E151	Probing primary PCI bus	If a location code is specified, replace the adapter at that location code. If no location code is specified, go to "MAP 1542: I/O Problem Isolation" on page 274.
E152	Probing for adapter FCODE, evaluate if present	Follow the repair action listed for checkpoint E151.
E153	End adapter FCODE, probe/evaluate	Follow the repair action listed for checkpoint E151.
E154	Create PCI bridge node	Follow the repair action listed for checkpoint E151.
E155	Probing PCI bridge secondary bus	Follow the repair action listed for checkpoint E151.
E156	Create PCI Ethernet node	If a location code is specified, replace the adapter at that location code. If no location code is specified, go to "MAP 1542: I/O Problem Isolation" on page 274.
E158	System firmware waiting for virtual terminal to be opened on HMC for SMS menu to be displayed	Open a virtual terminal window on the HMC
E15B	Transferring control to operating system (service mode boot)	See "Boot Problems" on page 341.

Checkpoint	Description	Action/ Possible Failing FRU
E15F	Adapter VPD probe	Follow the repair action listed for checkpoint E151.
E170	Start of PCI bus probe	Follow the repair action listed for checkpoint E151.
E172	First pass of PCI device probe	Follow the repair action listed for checkpoint E151.
E174	Establishing host connection	If the system is not connected to an active network, or if the target server is inaccessible (which can result from incorrect IP parameters being specified), the system still attempts to boot and because time-out durations are necessarily long to accommodate retries, the system may appear to hang. Restart the system and get to the SMS utilities menu. In the multi-boot menu, verify: • Is the intended boot device correctly specified in the boot list? • Are the IP parameters correct? • Look at the server configuration for this client. • Attempt to ping the target server using the ping utility in SMS.
E175	BootP request	Follow the repair actions for checkpoint E174.
E176	TFTP file transfer	Follow the repair actions for checkpoint E174.
E177	Transfer failure due to TFTP error condition	See “Boot Problems” on page 341.
E17B	Processor clock speed measurement	Replace the service processor, Location: U1.x-P1-X1.
E183	Service processor POST	Replace the service processor, Location: U1.x-P1-X1.
E191	Create ISA reserved node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E19A	NVRAM auto-boot? variable not found - assume FALSE	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E19B	NVRAM menu? variable not found - assume FALSE	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E19D	Create NVRAM node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E19E	Real-time clock (RTC) initialization	Refer to error code 28030xxx in “Firmware/POST Error Codes” on page 381.
E1A0	User requested boot to SMS menus via keyboard entry	Go to “MAP 1540: Problem Isolation Procedures” on page 267.

Checkpoint	Description	Action/ Possible Failing FRU
E1A1	User requested boot to open firmware prompt via keyboard entry	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A2	User requested boot using default service mode boot list via keyboard entry	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A3	User requested boot using customized service mode boot list via keyboard entry	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A4	User requested boot to SMS menus via HMC or CSP command	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A5	User requested boot to open firmware prompt via HMC or CSP command	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A6	User requested boot using default service mode boot list via HMC or CSP command	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A7	User requested boot using customized service mode boot list via HMC or CSP command	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A8	System booting to open firmware prompt	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1A9	System booting to SMS menus	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1AA	System NVRAM settings during boot	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1AB	System booting using default service mode boot list	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1AC	System booting using customized service mode boot list	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1AD	System booting to operating system	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1AE	System booted to multiboot menu via NVRAM settings	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1AF	System booted to utilities menu via NVRAM settings	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1B1	Create serial node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1B6	Probe for (ISA) keyboard	Replace the service processor, Location: U1.x-P1-X1
E1BD	Probe for (ISA) mouse	Replace the service processor, Location: U1.x-P1-X1

Checkpoint	Description	Action/ Possible Failing FRU
E1C4	Build ISA timer chip node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1C5	Create ISA interrupt controller (pic) node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1C6	Create DMA node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1D0	Create PCI SCSI node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1D3	Create SCSI block device node (SD)	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1D4	Create SCSI byte device node (ST)	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1DB	Create floppy controller (FDC) node	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1DC	Dynamic console selection.	1. If a console is attached, but nothing is displayed on it, go to ″All display problems″ in the Entry MAP. 2. If selection screens can be seen on the terminals and the appropriate key on the input device is pressed within 60 seconds but there is no response to the keystroke: a. If selecting the console with a keyboard attached to a USB card, replace the keyboard, then replace the USB card. b. If selecting the console in a virtual terminal on the HMC, refer to the *Hardware Management Console for pSeries Maintenance Guide* for troubleshooting procedures. **Note:** Terminal setting should be: • 9600 baud • no parity • 8 data bits • 1 stop bit
E1F0	Start O.B.E.	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
E1F1	Begin selftest sequence on boot devices.	Go to “MAP 1542: I/O Problem Isolation” on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E1F2	Power-on password prompt	The prompt should be visible on the firmware console (usually a VTERM on the HMC). If a console is attached but nothing is displayed on it, go to the “Entry MAP” on page 147 with the symptom ″All display problems.″
E1F3	Privileged-access password prompt	The prompt should be visible on the firmware console (usually a VTERM on the HMC). If a console is attached but nothing is displayed on it, go to the “Entry MAP” on page 147 with the symptom ″All display problems.″
E1F4	End self-test sequence on boot devices; begin SMS	Go to “MAP 1542: I/O Problem Isolation” on page 274.
E1F5	Build boot device list	Go to “MAP 1542: I/O Problem Isolation” on page 274.
E1F6	Determine boot device sequence	Go to “MAP 1542: I/O Problem Isolation” on page 274.
E1F7	No boot image located	Go to “Boot Problems” on page 341.
E1F8	Partition (system firmware) is waiting for a virtual terminal to be opened on HMC.	Open a virtual terminal for the partition on the HMC. If the partition hangs at this checkpoint after a virtual terminal is opened on the HMC: 1. Replace the service processor Location: U1.x-P1-X1 2. Call service support.
E1FB	Scan SCSI bus for attached devices	1. If a location code is available, follow the Repair actions listed for error code 21A0 00XX. 2. If no location code is available, go to “MAP 1542: I/O Problem Isolation” on page 274.
E1FD	The operator panel values displayed on the HMC alternates between the code E1FD and another Exxx code, where Exxx is the point at which the error occurred.	1. If a location code is available, follow the actions listed for error code 21A0 00xx. 2. If no location code is available, go to “MAP 1542: I/O Problem Isolation” on page 274.
E20F	System firmware has exited to open firmware prompt.	1. Replace the service processor Location: U1.x-P1-X1. 2. Call service support.

Checkpoint	Description	Action/ Possible Failing FRU
E440	Validate NVRAM, initialize partitions as needed	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1 3. Call service support.
E441	Generate /options node NVRAM configuration variable properties	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1. 3. Call service support.
E442	Validate NVRAM partitions	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1 3. Call service support.
E443	Generate NVRAM configuration variable dictionary words	Suspect a system firmware problem if problem persists. If a system firmware update is available, install it.
E500	Begin I/O drawer configuration	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E501	Initialize I/O data structures	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E502	Set up I/O data structure pointers	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E503	Initialize location code data structures	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E504	Initialize memory map data structures	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E505	Enable the time base for all RIO hubs	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E506	Reset time base of processors	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E507	I/O hub assignment	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E508	Begin initializing I/O hubs	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E509	Begin configuring EADS chips in I/O subsystems	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E50A	Check for missing RIO interface chips	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E50B	Save I/O hub information	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E50C	Copy all of the memory ranges	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E50D	Copy all of the I/O data	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E50E	Copy all of the RIO hub information	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E50F	Clean up the error registers	1. Check for system firmware updates 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to “MAP 1542: I/O Problem Isolation” on page 274
E51F	End of I/O configuration	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E520	Set up the RIO architecture registers	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E521	Set up interrupts for the current RIO hub	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E522	Set up miscellaneous registers for the current RIO hub	1. Check for system firmware updates 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274
E523	Initialize data structures and enable all RIO hub ports	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E524	Determine I/O configuration of current RIO hub	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E525	Set up the ETE of the current RIO hub	1. Check for system firmware updates. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E526	Reassign the I/O subsystems to the nearest RIO hub	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E527	Enable the memory map and I/O map for the current RIO hub port	1. Check for system firmware updates 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E528	Begin search for the next available I/O drawer from a current RIO port.	1. Check the RIO cable specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, check the RIO cables going into and out of the I/O subsystem. 2. Replace the RIO cables specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, replace the RIO cables going into and out of the I/O subsystem. 3. Replace the processor subsystem backplane, U1.x-P1. 4. Replace the I/O subsystem backplane specified by the location code, or the I/O subsystem backplane that the RIO cables in step 1 are attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E529	Enable the control port and driver of the current RIO hub	1. Check the RIO cable specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, check the RIO cables going into and out of the I/O subsystem. 2. Replace the RIO cables specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, replace the RIO cables going into and out of the I/O subsystem. 3. Replace the processor subsystem backplane, U1.x-P1. 4. Replace the I/O subsystem backplane specified by the location code, or the I/O subsystem backplane that the RIO cables in step 1 are attached to.
E52A	Search for the next available I/O drawer from a current RIO port	1. Check the RIO cable specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, check the RIO cables going into and out of the I/O subsystem. 2. Replace the RIO cables specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, replace the RIO cables going into and out of the I/O subsystem. 3. Replace the processor subsystem backplane, U1.x-P1. 4. Replace the I/O subsystem backplane specified by the location code, or the I/O subsystem backplane that the RIO cables in step 1 are attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E52B	The RIO cable connected to the RIO port has been detected	1. Check the RIO cable specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, check the RIO cables going into and out of the I/O subsystem. 2. Replace the RIO cables specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, replace the RIO cables going into and out of the I/O subsystem. 3. Replace the processor subsystem backplane, U1.x-P1. 4. Replace the I/O subsystem backplane specified by the location code, or the I/O subsystem backplane that the RIO cables in step 1 are attached to.
E53D	Disable the anynode mode	Replace the I/O subsystem backplane that the RIO cable specified by the location code is attached to.
E54A	Configure the I/O drawer	1. Check the RIO cable specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, check the RIO cables going into and out of the I/O subsystem. 2. Replace the RIO cables specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, replace the RIO cables going into and out of the I/O subsystem. 3. Replace the I/O subsystem backplane specified by the location code, or the I/O subsystem backplane that the RIO cables in step 1 are attached to.
E54B	Update the I/O drawer routing table of RIO ports	1. Check the RIO cable specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, check the RIO cables going into and out of the I/O subsystem. 2. Replace the RIO cables specified by the location code. If the location code specifies an I/O subsystem or its RIO interface, replace the RIO cables going into and out of the I/O subsystem. 3. Replace the I/O subsystem backplane specified by the location code, or the I/O subsystem backplane that the RIO cables in step 1 are attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E5FE	Get the system's licensed memory quantity from the service processor	1. Replace the I/O drawer subsystem backplane specified by the location code. 2. Remove power, then reapply power to the system using the HMC. 3. Call service support.
E52F	End of configuration of the RIO hub	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E530	Checking I/O hub ports on current RIO hub	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E531	Get RIO hub node ID	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E532	RIO cable detected; enable the RIO hub port	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E533	Set up the RIO hub routing table	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to "MAP 1542: I/O Problem Isolation" on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E534	Get the node ID of the node on the other end of the RIO cable	1. This error code may indicate that the RIO cables are not properly connected to the I/O subsystems. Check the RIO cabling. 2. Replace the RIO cable specified by the location code. 3. Replace the processor subassembly backplane, Location: U1.x-P1. 4. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 5. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E535	Valid node ID detected at other end of the RIO cable	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E536	I/O subsystem detected at other end of the RIO cable	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E537	Configuring the I/O subsystem	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E538	Detected the RIO hub at other end of the RIO cable	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E539	Enabling the RIO hub ports	1. Check for system firmware updates. 2. Replace the I/O subsystem specified by the location code. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E53A	Set up the RIO port speed of the exit port of the I/O subsystem connected to the RIO hub port	1. Replace the RIO cable specified by the location code. 2. Replace the processor subassembly backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 4. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E53B	End of looking for next node port	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E53C	End of looking for next RIO hub port	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E540	Begin initialization of I/O subsystem	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E541	Initialize the routing table	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to. 3. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E544	Enable the RIO ports	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E545	Set up the device routing address for this new node ID	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E546	Set up the RIO interface chip new node ID	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E547	Set up the RIO interface chip routing table	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E548	Disable any node mode	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E549	Adjust RIO hub table	1. Replace the RIO cable specified by the location code. 2. Replace the processor subsystem backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E550	Begin to initialize I/O interface chip	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E551	Set up the I/O speed	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E552	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E553	Set up the I/O interface chip base address	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E554	Set up more I/O interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E555	Set up the RIO interface chip RIO link	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E556	Set up and initialize RIO interface chips under current RIO interface chip	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E55F	End of I/O drawer initialization	1. Replace the RIO cable specified by the location code. 2. Replace the processor subsystem backplane, Location: U1.x-P1. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E560	Begin initializing the I/O subsystem	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E561	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E562	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E563	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E564	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E565	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E566	Enable device arbitration on the RIO interface chip	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E567	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E568	Set up the external interrupt vector register	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E569	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E56A	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E56B	Set up RIO interface chip registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E56C	Set up RIO interface chip PCI bus	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E56D	Identify devices on current bus	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E56E	Begin initializing the service processor control chip	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E56F	End initializing the service processor control chip	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E570	Initialize the PCI-ISA bridge chip	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E571	Initialize the integrated Ethernet (if present)	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E572	Initialize the integrated SCSI	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E57F	End of RIO interface chip initialization	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E580	Begin initializing the EADS module	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E581	Read the PCI bus configuration header	1. This error code may indicate that the RIO cables are not properly connected to the I/O subsystems. Check the RIO cabling; refer to "System Cables" on page 28. 2. Replace the RIO cable specified by the location code. 3. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E582	EADS has been detected	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E583	Running BIST on the current EADS	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E584	Checking function of current EADS	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E585	Valid function of current EADS detected	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E586	Set up EADS function	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E587	Set up EADS BIST	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E588	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E589	Set up EADS function	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E58A	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E58B	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E58C	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E58D	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E58E	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E58F	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E590	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E591	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E592	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.

Checkpoint	Description	Action/ Possible Failing FRU
E593	Set up EADS function registers	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E594	Begin probing slots	1. Replace the RIO cable specified by the location code. 2. Replace the I/O subsystem backplane that the RIO cable in step 1 is attached to.
E595	Detected valid adapter in slot	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E59E	End of walking bus of current EADS	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E59F	End of EADS initialization	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E0	Initialize system processor array	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E1	Reserved	
E5E2	Initialization of the hypervisor, phase 1	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E3	Not in quick-restart: load and set up open firmware code in memory	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E4	Activate slave processors	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E5	Initialize the hypervisor, phase 2	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E6	Set L2 and processor status	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
E5E7	Save RIO hub information for RTAS and open firmware	1. Check for system firmware updates. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.

Checkpoint	Description	Action/ Possible Failing FRU
E5E8	Set up registers	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E5E9	Reset the quick restart path	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E5EE	Hang state in main control code	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E5EF	End of low-level firmware	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274.
E600	SSA PCI adapter open firmware has run successfully.	Replace the adapter.
E601	SSA PCI adapter BIST has started but failed to complete after 4 seconds.	Replace the adapter.
E602	SSA PCI open firmware has started.	Replace the adapter.
E603	SSA PCI adapter BIST has completed with an error.	Replace the adapter.
E604	SSA PCI adapter BIST and subsequent POSTs have completed successfully.	Replace the adapter.
E605	SSA PCI adapter BIST has completed successfully but subsequent POSTS have failed.	Replace the adapter.
E60E	SSA PCI open firmware about to exit (no stack corruption).	Replace the adapter.
E60F	SSA PCI open firmware has run unsuccessfully.	Replace the adapter.
E6FF	SSA PCI open firmware about to exit (with stack corruption).	Replace the adapter.
E700	Create system firmware VPD	System firmware may be corrupted. Reinstall system firmware.
E701	Create memory VPD.	1. Check for system firmware updates. 2. Call service support.
E702	Create processor VPD.	1. Check for system firmware updates. 2. Call service support.
E703	Create operator panel VPD.	1. Check for system firmware updates. 2. Call service support.

Checkpoint	Description	Action/ Possible Failing FRU
E704	Create processor subsystem VPD.	1. Check for system firmware updates. 2. Call service support.
E705	Create clock card VPD.	1. Check for system firmware updates. 2. Call service support.
E706	Create RIO extender card VPD.	1. Check for system firmware updates. 2. Call service support.
E707	Create system VPD.	1. Check for system firmware updates. 2. Call service support.
E708	Create RIO to PCI adapter VPD.	Go to "MAP 1542: I/O Problem Isolation" on page 274.
E709	Create VPD via SPCN.	1. Check for system firmware updates. 2. Call service support.
E70A	Create service processor VPD.	1. Check for system firmware updates. 2. Call service support.
E70B	Create L3 module VPD	1. Check for system firmware updates. 2. Call service support.
E70C	Create I/O backplane VPD (I2C problem)	Go to "MAP 1542: I/O Problem Isolation" on page 274.
E70D	Create capacitor card VPD	1. Check for system firmware updates. 2. Call service support.
E70F	Create processor subsystem VPD	1. Check for system firmware updates. 2. Call service support.
E7EE	Delaying while waiting for power subsystem VPD collection to be completed; informational only	1. Check for system firmware updates. 2. Call service support.
E7FF	Successful end of VPD creation	Informational message.
E800	RTAS initialization problem	1. Check for system firmware updates. 2. Call service support.
E841	Initializing RTAS/open firmware device tree interface	1. Check for system firmware updates. 2. Call service support.
E842	Initializing RTAS/service processor interface	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1. 3. Call service support.
E843	Initializing RTAS/sensor interface	1. Check for system firmware updates. 2. Call service support.

Checkpoint	Description	Action/ Possible Failing FRU
E844	Initializing RTAS/time-of-day clock interface	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1. 3. Call service support.
E845	Initializing interface/sensor access	1. Check for system firmware updates. 2. Call service support.
E846	Initializing interface/sensors/let_table access	1. Check for system firmware updates. 2. Call service support.
E84F	Initializing RTAS/operator panel interface	1. Check for system firmware updates. 2. Call service support.
E850	Initializing RTAS/cache interface	1. Check for system firmware updates. 2. Call service support.
E851	Initializing RTAS/hardware access	1. Check for system firmware updates. 2. Call service support.
E852	Initializing RTAS/PCI bus interface	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274. 3. Call service support.
E860	Initializing RTAS/power subsystem interface	1. Check for system firmware updates. 2. Call service support.
E861	Initializing RTAS/PCI bus interface	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274 3. Call service support.
E870	Initializing RTAS/logs interface	1. Check for system firmware updates. 2. Call service support.
E871	Initializing RTAS/EEH handling interface	1. Check for system firmware updates. 2. Go to "MAP 1542: I/O Problem Isolation" on page 274. 3. Call service support.
E872	Initializing RTAS/error inject interface	1. Check for system firmware updates. 2. Call service support.
E873	Initializing RTAS/error handling interface	1. Check for system firmware updates. 2. Call service support.
E880	Initializing RTAS/debug interface	1. Check for system firmware updates. 2. Call service support.

Checkpoint	Description	Action/ Possible Failing FRU
E881	Initializing RTAS/utility interface	1. Check for system firmware updates. 2. Call service support.
E882	Initializing RTAS/softpatch register interface	1. Check for system firmware updates. 2. Call service support.
E890	Initializing RTAS/hot-plug interface	1. Check for system firmware updates. 2. Call service support.
E8C1	Initializing interface/client memory access	1. Check for system firmware updates. 2. Call service support.
E8D1	Initializing interface/special memory access	1. Check for system firmware updates. 2. Call service support.
EAA1	Probe PCI-PCI bridge bus	Follow the repair actions for checkpoint E151.

Boot Problems

Attention: If the system is running partitions from partition standby (LPAR), the following procedure addresses the problem in which one partition will not boot while other partitions boot successfully and run the operating system successfully.

This procedure also addresses the problem in which a system does not boot to a full system partition. All of the system's resources are available to the diagnostics; the same general procedure applies, with the exception of moving resources between partitions.

Attention: It is the customer's responsibility to move devices between partitions. If a device must be moved to another partition to run standalone diagnostics, contact the customer or system administrator. Both partitions must be rebooted if a device is moved between partitions.

Depending on the boot device, a checkpoint may be displayed on the operator panel value on the HMC for an extended period of time while the boot image is retrieved from the device. This is particularly true for tape and network boot attempts. If the checkpoint/code is displayed for an extended time, there may be a problem loading the boot image from the device.

For network boot attempts, refer to checkpoint E174.

If the checkpoint is displayed for an extended time, there may be a problem with the integrity of the boot image.

This procedure assumes that the diagnostics can be run from a NIM (Network Installation Management) server.

1. Look at the service action event-error log in the Service Focal Point on the HMC (see the for instructions on accessing the service action event log). If there are open entries that affect devices in the boot path of the partition, perform the actions to correct those errors. If there are open entries that indicate problems with I/O cabling, perform the actions to correct those problems. Try to reboot the partition.

   If the partition hangs with a 4-character checkpoint in the display, the partition must be deactivated, then reactivated before attempting to reboot.

   If a 20EE xxxx error code is reported, the partition is already deactivated and in the error state. Reboot by activating the partition. If the system is running in full system partition, it must be powered off and then powered on through the HMC before the system can be rebooted. If the reboot is still not successful, continue to step 2.
2. Boot to the SMS main menu as follows:
   - If you are rebooting a partition from partition standby (LPAR), go to the properties of the partition and select **Boot to SMS**, then activate the partition. Be sure to select **Open Terminal Window** before clicking the `OK` button.
   - If you are rebooting the system in full system partition, start the service processor menus in a virtual terminal window on the HMC, select option 2, **System Power Control Menu**, then select option 7, **Boot Mode Menu**, then select option 1,

Boot to SMS menu. Enter 98 to return to the system power control menu, then select option 4, **Power-on System**. Enter y to confirm.

At the SMS main menu, select **Select Boot Options**.

a. Check to see if the intended boot device is correctly specified in the boot list. If it is in the boot list:
   1) Remove all removable media from devices in the boot list from which you do not want to boot.
   2) If attempting to boot from a network, go to step 3.

      If attempting to boot from a disk drive, go to step 4.
b. If the intended boot device is not correctly listed in the boot sequence, add it to the boot sequence using the SMS menus. If the device can be added to the boot sequence, reboot the partition. If the intended boot device cannot be added to the boot list, ask the customer or system administrator to verify that the device you are trying to boot from is assigned to the correct partition. If it is, go to step 4.

3. If attempting to boot from the network:
   a. Verify that the IP parameters are correct.
   b. Attempt to ″ping″ the target server using the SMS ping utility. If the ping is not successful, have the network administrator verify the server configuration for this client.
   c. Check with the network administrator to ensure that the network is up. Also ask the network administrator to verify the settings on the server from which you are trying to boot.
   d. Check the network cabling to the adapter.
   e. Restart the partition and retry the boot operation.
4. Try to boot and run standalone diagnostics against the devices in the partition, particularly against the intended boot device. Standalone diagnostics can be run from a NIM server. To boot standalone diagnostics from a NIM server, follow the detailed procedures in “Running Standalone Diagnostics from a Network Installation Management (NIM) Server” on page 430.

   Attention: Standalone diagnostics may be run on systems configured for either full system partition or partition standby. When attempting to boot diagnostics on a partition from partition standby, the device from which you are booting standalone diagnostics must be made available to the partition that is not able to boot, if it is not already in that partition. Contact the customer or system administrator if a device must be moved between partitions in order to boot standalone diagnostics. If devices are moved between partitions, both partitions must be rebooted.

   If standalone diagnostics boot successfully:

   a. Go to the Task Selection menu, and select **Display Configuration and Resource List**. If the intended boot device is not listed, ask the customer or system administrator to verify that it is assigned to the correct partition. If it is, and does not appear in the NEW RESOURCE list, go to ″MAP 0290: Missing Resource Problem Resolution″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

b. Run diagnostics on the device you want to boot from. If an SRN, not an 8-digit error code, is reported, go to the eserver *pSeries Diagnostic Information for Multiple Bus Systems* manual.

c. If the diagnostics are successful, it may be necessary to perform an operating system-specific recovery process, or reinstall the operating system.

If standalone diagnostics do not boot successfully from a NIM server:

a. Verify that the network adapter is assigned to the correct partition.

b. Check the network settings and flag settings, as detailed in “Running Standalone Diagnostics from a Network Installation Management (NIM) Server” on page 430.

c. Follow the procedure outlined in step 3 on page 342.

5. Go to “MAP 1542: I/O Problem Isolation” on page 274.

Chapter 5. Error Code to FRU Index

The Error Code to FRU Index lists fault symptoms and possible causes. The most likely cause is listed first. Use this index to help you decide which FRUs to replace when servicing the system.

Attention: If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to “MAP 1542: I/O Problem Isolation” on page 274 unless you were already directed to any MAP 154*x* by the error code. Otherwise, call service support if the action(s) for an error code do not resolve the problem.

Attention: If the error code that brought you to this chapter originated in the AIX error log, please be aware that an error may require an additional 15 minutes to be propagated to the AIX error log.

If you replace FRUs and the problem is corrected, go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Performing Slow Boot

On this system, the error code displayed in the operator panel value on the HMC or in the service action event (SAE) log may not indicate the root cause of the problem. To fully analyze all of the available information, perform the following steps before doing a hardware repair or replacement:

1. Record the 8-character error code (and location code if present) in operator panel value on the HMC.
2. Do a slow-mode boot in service mode. (A fast-mode boot skips much of the built-in diagnostic testing.) A slow-mode boot may yield a new 8-character error code on the operator panel value on the HMC or new errors in the service processor error log. If a new error code is reported, record it for use in subsequent steps. Slow boot is selected through the service processor menus. The procedure for selecting service mode diagnostics is different for nonpartitioned systems and partitioned systems:
   - Nonpartitioned system:

     Use the System Power Control Menu on the service processor main menu.
   - Partitioned system:
     a. From the HMC, select **Partition Manager**.
     b. Highlight the CEC name.
     c. Right-click the mouse and select **Open Terminal Window**.
     d. From the Service Processor Menu on the vitural terminal window, select Option 2 **System Power Control Menu**.
     e. Select option 6. Verify that the state changes to currently disabled. Disabling fast system boot automatically enables slow boot.
     f. Select Option 98 to exit the system power control menu.
     g. From the partition manager, highlight any available partition that has access to an AIX diagnostics boot image.

h. Right-click the mouse and select **Open Terminal Window** for this partition.
i. Right-click the mouse again and select **activate** to make the partition active.
j. When the keyboard indicator appears in the open terminal window, enter 6 on the HMC keyboard before the speaker indicator is displayed.

3. A slow boot in service mode should result in the Diagnostic Operating Instructions panel being displayed on the serial console or the HMC partition vitural terminal window.
4. Press Enter to continue to the Function Selection menu.
5. Enter option 5, **Single User Mode**.
6. When prompted, enter the root password.
7. At the prompt, issue the **shutdown** command.
8. At this point, the service processor menus should be available to examine the service processor error log.

Confirming Initial Error Code

The service processor may have recorded one or more symptoms in its error log. If the system has attempted to boot since an error terminated normal operation, there may be specific fault information in the service processor error log. Examine this error log before proceeding (see “System Information Menu” on page 448).

In the service processor error log, the most recent error is at the top of the list and the oldest error is at the bottom. It is also important to look at the time stamp associated with each error. (The time stamps in the service processor error log reflect coordinated universal time (UTC), which is also referred to as Greenwich mean time.)

On this system, the error code displayed in the operator panel value on the HMC may not be indicative of the root cause of the problem. This is also true of the most recent error in the service processor error log.

Attempt to find the error code that originally sent you to the “Checkpoints and Error Codes Index” on page 349 table.

1. If you cannot find the error code in the service processor error log, start with the error code at the bottom of the list. Proceed to Step 3 below.
2. If you find the error code in the service processor error log, observe the time stamps and look for a group of failures that happened within minutes prior to this error code. In this group, start at the error code with the earliest time stamp.
3. Examine the list of error codes you obtained from Step 1 or Step 2 and look for any of the form 4xxB xxxx.

   Can you find any error codes of the form 4xxB xxxx?

   No Proceed to Step 6 on page 347.

   Yes Proceed to Step 4.
4. Do any of the error codes of the form 4xxB xxxx have the same first two characters on the left as the first two characters on the left of the error code that sent you to the MAP?

No Proceed to Step 6.

Yes Proceed to Step 5.

5. Adjust the order of the list of error codes you obtained from steps 1 or 2 by placing the error codes of the form 4xxB xxxx with the same first two characters as the error code that sent you to this MAP on the bottom of the list. Start Step6 at the bottom of the adjusted list of error codes.
6. To get a list of possible FRUs, select the detail screen for each error code. Record the listed location codes and their order. Return to the step in the “Checkpoints and Error Codes Index” on page 349 table immediately after the step that sent you to this ″Confirming Initial Error Code″ procedure to perform the listed repair actions. If the repair actions for an error code are ineffective, continue to work upward through this group of error codes (which is forward in time from the earliest time stamp to the latest) until either the problem is fixed, you reach the error code that was first reported, or you are at the top of the list.

Four-Character Checkpoints

Four-character checkpoints in the form 8xxx, 9xxx, Axxx, Bxxx, and Exxx are listed in “Firmware Checkpoints” on page 316. If you have a four-character code that begins with any character other than 8, 9, A, B, or E, refer to the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Replacing the Network Adapter

If a network adapter is replaced, the network administrator must be notified so that the client IP addresses used by the server can be updated. In addition, the operating system configuration of the network controller may need to be changed in order to enable system startup. Also check to ensure that any client or server that accesses this system is updated.

Determining Location Code

If you have an error code in the form 2xxx xxxx or Exxx, and no location code associated with it, the location code may possibly be found in three places, depending on the state of the system:

- If the system will boot into AIX, the location code will be reported when error log analysis is run under AIX diagnostics.
- If the system will boot into the system management services (SMS) menus, the SMS error log will contain the location code associated with the error code. See “View Error Log” on page 476.
- If the system halted when the error occurred, the error code and location can be found in the LCD progress indicator log, which can be accessed using the service processor menus. See “System Information Menu” on page 448, then select **Read Progress Indicator From Last System Boot**. Find the error code that directed you to this note in the list, and the location code should be a part of the entry in the log.

FRU Identify LEDs

This system is configured with an arrangement of LEDs that help identify various components of the system. These include, but are not limited to:

- Rack identify LED
- Processor subsystem drawer identify LED
- I/O drawer identify LED
- RIO port identify LED
- FRU identify LED
  - Power subsystem FRUs
  - Processor subsystem FRUs
  - I/O subsystem FRUs
- I/O adapter identify LED
- DASD identify LED

The identify LEDs are arranged hierarchically with the FRU identify LED at the bottom of the hierarchy, followed by the corresponding processor subsystem, or I/O drawer identify LED, and the corresponding rack identify LED to locate the failing FRU more easily.

Any identify LED in the system may be flashed by (when the system is in the failed state with power on) using the service processor LED Control Menu contained in the System Information Menu of the Privileged User Menus. To use operate the LED Control Menu, see page 453.

Any identify LED in the system can also be flashed by using the Identify and Attention Indicators task in diagnostics. The procedure to operate the Identify and Attention Indicators task in diagnostics is outlined in *@server pSeries Diagnostic Information for Multiple Bus Systems*.

If the service processor menus and AIX diagnostics are not available, the FRU identify LEDs can be flashed by one of the following procedures:

- If the system is configured as a full partition, the system may be booted to the open firmware prompt and the command **FRU-LED-MENU** entered. A menu displays that allows you to enable the desired FRU identify LED. See “System Power Control Menu” on page 445 for instructions on setting up the boot mode to enable the boot to the open firmware prompt.
- If the system is logically partitioned, the HMC must be attached. You can use the HMC to flash any FRU identify LED. See the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for instructions on activating and deactivating a FRU identify LED.

Checkpoints and Error Codes Index

The following table is an index to the checkpoints or error codes that you may receive to help diagnose a failure. Locate the code you received, and follow the instructions to determine your next step.

<table>
<tr><th>8-Digit Error Code
or
4-Digit Checkpoint</th><th>What You Should Do</th></tr>
<tr><td>0000 xxxx</td><td>Virtual Operator Panel Error Codes displayed on the HMC

Go to “Virtual Operator Panel Error Codes” on page 351, and follow the instructions in the virtual operator panel error code table.</td></tr>
<tr><td>1xxx xxxx</td><td>System Power Control Network (SPCN) Error Codes
1. There may be additional error codes and information in the service processor error log. The system must be powered off to examine the contents of the service processor error log. Is the system already powered off or may the system be powered off at this time?
NO Go to Step 3 below.
YES Power off the system, if necessary, and go to 2 below.
2. Confirm this is the first error code that caused the failure, as described in “Confirming Initial Error Code” on page 346.
3. Go to “SPCN Error Codes” on page 352, and follow the instructions in the SPCN error code table.</td></tr>
<tr><td>2xxx xxxx</td><td>Firmware Error Codes

Go to “Firmware/POST Error Codes” on page 381, and follow the instructions in the firmware error code table.</td></tr>
<tr><td>4xxx xxxx</td><td>Service Processor Error Codes
1. Is the error code of the form 4B2x xxxx, 450x xxxx, or 460x xxxx?
NO Go to Step 4 below.
YES Go to Step 2 below.
2. Find the error code in the service processor error log and check the value of word 13.
3. Is the value of word 13 C0xx xxxx?
NO Go to Step 4 below.
YES Go to “MAP 1541: JTAG Problem Isolation” on page 268.
4. Perform slow boot as described in “Performing Slow Boot” on page 345.
5. Confirm this is the first error code that caused the failure, as described in “Confirming Initial Error Code” on page 346.
6. Go to “Service Processor Error Codes” on page 406 and follow the instructions in the service processor error codes table.</td></tr>
<tr><td>8xxx
9xxx
Axxx
Bxxx</td><td>Service Processor Checkpoints

Go to “Service Processor Checkpoints” on page 310 for more information on these checkpoints.</td></tr>
</table>

8-Digit Error Code or 4-Digit Checkpoint	What You Should Do
B006 xxxx B1xx xxxx	Common Firmware Error Codes Go to “Common Firmware Error Codes” on page 412 and follow the instructions in the Common Firmware Error Codes table.
Exxx	Firmware Checkpoints Go to “Firmware Checkpoints” on page 316 for more information on these checkpoints.
Mxxx xxxx	Problem Determination-Generated Error Codes Go to “Problem Determination-Generated Error Codes” on page 422 and follow the instructions in the more general error code table.

Virtual Operator Panel Error Codes

Attention: If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to "MAP 1542: I/O Problem Isolation" on page 274 unless you were already directed to any MAP 154*x* by the error code. Otherwise, call service support if the action(s) for an error code do not resolve the problem.

Attention: If the error code that brought you to this chapter originated in the AIX error log, an error may require an additional 15 minutes to be propagated to the AIX error log.

If you replace FRUs and the problem is corrected, go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Error Code	Description	Action/ Possible Failing FRU
0000 1111	At power on, failure of power-good signal from power supply	1. CEC backplane Location: U1.x-P1. 2. DCAs providing power to the CEC Location: U1.x-V1.
0000 1112	At power off, failure of power-good signal from power supply	1. CEC backplane Location: U1.x-V1. 2. DCAs providing power to the processor subsystem Location: U1.x-V1.
0000 1113	While powered on, failure of power-good signal from power supply	1. CEC backplane Location: U1.x-P1. 2. DCAs providing power to the CEC Locations: U1.x-V1.
0000 1114	Service processor has been reset after main power disturbance	Informational message.
0000 3333	SPCN communications error	CEC backplane Location: U1.x-P1.
0000 3334	I2C repeater error	CEC backplane Location: U1.x-P1.
0000 BBBB	Time-of-day battery malfunction	Time-of-day battery Location: U1.x-P1-X1-V1.

SPCN Error Codes

Attention: If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to “MAP 1542: I/O Problem Isolation” on page 274 unless you were already directed to any MAP 154*x* by the error code. Otherwise, call service support if the action(s) for an error code do not resolve the problem.

Attention: If the error code that brought you to this chapter originated in the AIX error log, an error may require an additional 15 minutes to be propagated to the AIX error log.

If you replace FRUs and the problem is corrected, go to ″MAP 0410: Repair Checkout″ in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Error Code	Description	Action/ Possible Failing FRU
1011 00AC	Last power down was the result of loss of AC.	Informational message
1011 00CA	Thermal calibration in progress	Has this code been displayed longer than 15 minutes? **YES** Reboot the system. The code will be cleared when the system successfully reboots. **NO** Wait until this code has been displayed for 15 mintues to allow thermal calibration to complete. The system will not IPL while thermal calibration is in progress.
1011 00EF	Emergency power off took place	Informational message
1011 1F01	No error code translation available	1. Check for system firmware updates. Apply if available. 2. Call service service support.
1011 3100	I2C bus controller communication fault	Service processor Location: U1.x-P1-X1
1011 3101	I2C bus 1 controller communication fault	Service processor Location: U1.x-P1-X1
1011 3102	I2C bus 2 controller communication fault	Service processor Location: U1.x-P1-X1
1011 3104	I2C bus 4 controller communication fault	Service processor Location: U1.x-P1-X1
1011 3113	I2C bus adapter communications fault	CEC backplane Location: U1.x-P1
1011 3114	I2C bus to PCI backplane	CEC backplane Location: U1.x-P1

Error Code	Description	Action/ Possible Failing FRU
1011 3115	I2C bus to HMC communications fault	Service processor Location: U1.x-P1-X1
1011 3118	I2C bus 4 VPD communications fault	1. Service processor Location: U1.x-P1-X1 2. SES backplane Location: U1.x-P2
1011 8400	No VPD found due to invalid bypass	Service processor Location: U1.x-P1-X1
1011 8401	Timeout when VPD was requested	Service processor Location: U1.x-P1-X1
1011 8402	VPD access problem	1. Replace the processor MCM Location: U1.x-P1-C2 and the VPD card Location: U1.x-P1-X1.1 2. Replace the service processor Location: U1.x-P1-X1
1011 8403	VPD critical mismatch	Service processor Location: U1.x-P1-X1.
1011 8404	MCM 1 VPD mismatch	Set I/O type to correct value.
1011 8405	MCM 2 VPD mismatch	Set I/O type to correct value.
1011 8406	MCM 3 VPD mismatch	Set I/O type to correct value.
1011 8409	No valid processor VPD	1. Verify that the MCM's VPD card is installed and properly seated. 2. Go to "MAP 1543: MCM Module Problem Isolation" on page 288.
1011 840A	VPD +5 stuck high	MCM Location: U1.x-P1-C2 and VPD card, Location: U1.x-P1-X1.1.
1011 840B	VPD 5V power-on failure	MCM Location: U1.x-P1-C2 and VPD card, Location: U1.x-P1-X1.1.
1011 840C	Memory card misplug	Inspect the memory riser cards in the processor subsystem for proper installation.
1011 840D	SPCN configuration mismatch	Set I/O type to correct value. See "Change I/O Type" on page 453.
1011 840E	SPCN default configuration loaded	Set I/O type to correct value. See "Change I/O Type" on page 453.
1011 8413	Invalid MCM 0 VPD (VPD card, or MCM)	MCM Location: U1.x-P1-C2 and VPD card, Location: U1.x-P1-X1.1.
1011 8414	Invalid MCM 1 VPD	Set I/O type to correct value. See "Change I/O Type" on page 453.

Error Code	Description	Action/ Possible Failing FRU
1011 8415	Invalid MCM 2 VPD	Set I/O type to correct value. See “Change I/O Type” on page 453.
1011 8416	Invalid MCM 3 VPD	Set I/O type to correct value. See “Change I/O Type” on page 453.
1011 8423	No MCM 0 VPD (VPD card, or MCM)	MCM Location: U1.x-P1-C2 and VPD card, Location: U1.x-P1-X1.1.
1011 8426	No MCM 3 VPD	Set I/O type to correct value. See “Change I/O Type” on page 453.
1011 8700	BPA A ac loss	Go to “MAP 1520: Power” on page 173.
1011 8701	BPA B ac loss	Go to “MAP 1520: Power” on page 173.
1011 8710	BPC A communication failure	1. BPC A cable to DCA Location: U1.x-V1/Q1# 2. BPC A controller Location: U1.35-P1-X4 3. DCA Location: U1.x-V1 4. Go to “Map 1525: There Is A 350 Volt Bulk Failure” on page 184.
1011 8711	BPC B communication failure	1. BPC B cable to DCA Location: U1.x-V1/Q2# 2. BPC B controller Location: U1.35-P2-X4 3. DCA Location: U1.x-V1 4. Go to “Map 1525: There Is A 350 Volt Bulk Failure” on page 184.
1011 8722	BPC A and B are not at standby.	1. BPC A controller Location: U1.35-P1-X4 2. BPC B controller Location: U1.35-P2-X4
1011 8731	BPC critical failure	1. Ensure that the red switch on the front of the EPO panel is in the ON position. If there is no external EPO cable, also ensure that the internal toggle switch to the room EPO bypass is set to the left before proceeding 2. BPC A controller Location: U1.35-P1-X4 and BPC-B controller, Location: U1.35-P2-X4

Error Code	Description	Action/ Possible Failing FRU
1011 8732	A power cabling error has been detected	1. This indicates that the UPIC cables have been swapped between two drawers. If a location code is reported with this error code, check the UPIC cables going to that drawer. Then check all of the UPIC cable to make sure that they follow the “Processor Subsystem Power Cable Routing” on page 37. 2. Call service support.
1011 CB15	SPCN EPROM failure	Informational message
1011 xxxx (any 1011 code not explicitly listed)	SPCN configuration error	Set I/O type to correct value. See “Change I/O Type” on page 453.
1012 1B17	Problem with fan 1 in I/O subsystem	1. DCA-1 Location: U1.x-V1 2. Fan 1 Location:U1.x-F1
1012 1B27	Problem with fan 2 in I/O subsystem	1. DCA-2 Location: U1.x-V2 2. Fan 2 Location:U1.x-F2
1012 1C06	Loss of airflow in I/O subsystem	Go to “Map 1527: An Air Flow Loss Has Been Detected” on page 188.
1012 6014	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6024	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6034	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6044	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6054	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6814	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6824	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6834	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6844	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 6854	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.

Error Code	Description	Action/ Possible Failing FRU
1012 7017	Problem with fan 3 in I/O subsystem	1. DCA-1 Location: U1.x-V1 2. Fan 3 Location: U1.x-F3
1012 7027	Problem with fan 4 in I/O subsystem	1. DCA-2 Location: U1.x-V2 2. Fan 4 Location: U1.x-F4
1012 7117	Problem with fan 1 and fan 3 in I/O subsystem	1. DCA-1 Location: U1.x-V1 2. Fans 1 and 3 Location: U1.x-F1 and U1.x-F3
1012 7127	Problem with fan 2 and fan 4 in I/O subsystem	1. DCA-2 Location: U1.x-V2 2. Fans 2 and 4 Location: U1.x-F2 and U1.x-F4
1012 B014	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B024	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B034	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B044	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B054	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B814	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B824	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B834	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B844	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 B854	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1012 CD96	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.
1012 CDA6	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.
1012 CDB6	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.

Error Code	Description	Action/ Possible Failing FRU
1012 CDC6	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.
1012 F4x6	Hardware configuration does not support N-mode power.	Call service support.
1012 F516	An N+1 boundary (DCA or fan) has dropped to N-mode status in an I/O subsystem, location: U1.x.	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, the FRU indicated with this error code (if there is one) should be replaced.
1012 F526	An N+1 boundary (DCA or fan) has dropped to N-mode status in an I/O subsystem, location: U1.x.	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, the FRU indicated with this error code (if there is one) should be replaced.
1012 xx11	I/O subsystem, DCA-1	U1.x-V1
1012 xx13	Seeprom fault on DCA-1 in I/O subsystem	U1.x-V1
1012 xx15	I/O subsystem, DCA-1, cable fault	Go to “MAP 1520: Power” on page 173 with these location codes: U1.x-V1-Q1# and U1.x-V1-Q2#.
1012 xx21	I/O subsystem, DCA-2	U1.x-V2
1012 xx23	Seeprom fault on DCA-2 in I/O subsystem in primary rack	U1.x-V2
1012 xx25	I/O subsystem, DCA-2, cable fault	Go to “MAP 1520: Power” on page 173 with these location codes: U1.x-V2-Q1# U1.x-V2-Q2#
1012 xx31	I/O subsystem backplane 1 fault	U1.x-P1
1012 xx33	Seeprom fault on I/O subsystem backplane 1	U1.x-P1
1012 xx41	I/O subsystem backplane 2 fault	U1.x-P2
1012 xx43	Seeprom fault on I/O subsystem backplane 2	U1.x-P2

Error Code	Description	Action/ Possible Failing FRU
1012 xx51	I/O subsystem, DASD backplane 1 fault	U1.x-P3
1012 xx53	Seeprom fault on DASD backplane 1	U1.x-P3
1012 xx61	I/O subsystem, DASD backplane 2 fault	U1.x-P4
1012 xx63	Seeprom fault on DASD backplane 2	U1.x-P4
1012 xx71	I/O subsystem, DASD backplane 3 fault	U1.x-P5
1012 xx73	Seeprom fault on DASD backplane 3	U1.x-P5
1012 xx81	I/O subsystem, DASD backplane 4 fault	U1.x-P6
1012 xx83	Seeprom fault on DASD backplane 4	U1.x-P6
1013 1B17	Problem with fan 1 in I/O subsystem	1. DCA-1 Location: U1.x-V1 2. Fan 1 Location:U1.x-F1
1013 1B27	Problem with fan 2 in I/O subsystem	1. DCA-2 Location: U1.x-V2 2. Fan 2 Location:U1.x-F2
1013 1C06	Loss of airflow in I/O subsystem	Go to “Map 1527: An Air Flow Loss Has Been Detected” on page 188.
1013 6014	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6024	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6034	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6044	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6054	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6814	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6824	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6834	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6844	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 6854	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.

Error Code	Description	Action/ Possible Failing FRU
1013 7017	Problem with fan 3 in I/O subsystem	1. DCA-1 Location: U1.x-V1 2. Fan 3 Location: U1.x-F3
1013 7027	Problem with fan 4 in I/O subsystem	1. DCA-2 Location: U1.x-V2 2. Fan 4 Location: U1.x-F4
1013 7117	Problem with fan 1 and fan 3 in I/O subsystem	1. DCA-1 Location: U1.x-V1 2. Fans 1 and 3 Location: U1.x-F1 and U1.x-F3
1013 7127	Problem with fan 2 and fan 4 in I/O subsystem	1. DCA-2 Location: U1.x-V2 2. Fans 2 and 4 Location:U1.x-F2 and U1.x-F4
1013 B014	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B024	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B034	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B044	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B054	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B814	Overcurrent or overvoltage problem with 3.3V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B824	Overcurrent or overvoltage problem with 5.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B834	Overcurrent or overvoltage problem with 2.5V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B844	Overcurrent or overvoltage problem with 12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 B854	Overcurrent or overvoltage problem with -12.0V in I/O subsystem	Go to “MAP 1520: Power” on page 173.
1013 CD96	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.
1013 CDA6	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.
1013 CDB6	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.

Error Code	Description	Action/ Possible Failing FRU
1013 CDC6	A power short has been detected in the DASD subsystem in an I/O drawer.	Go to “MAP 1520: Power” on page 173.
1013 F4x6	Hardware configuration does not support N-mode power.	Call service support.
1013 F516	An N+1 boundary (DCA or fan) has dropped to N-mode status in an I/O subsystem, location: U1.x.	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
1013 F526	An N+1 boundary (DCA or fan) has dropped to N-mode status in an I/O subsystem, location: U1.x.	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
1013 xx11	I/O subsystem, DCA-1	U1.x-V1
1013 xx13	Seeprom fault on DCA-1 in I/O subsystem	U1.x-V1
1013 xx15	I/O subsystem, DCA-1, cable fault	Go to “MAP 1520: Power” on page 173 with these location codes: U1.x-V1-Q1# and U1.x-V1-Q2#.
1013 xx21	I/O subsystem, DCA-2	U1.x-V2
1013 xx23	Seeprom fault on DCA-2 in I/O subsystem in primary rack	U1.x-V2
1013 xx25	I/O subsystem, DCA-2, cable fault	Go to “MAP 1520: Power” on page 173 with these location codes: U1.x-V2-Q1# U1.x-V2-Q2#
1013 xx31	I/O subsystem backplane 1 fault	U1.x-P1
1013 xx33	Seeprom fault on I/O subsystem backplane 1 in I/O subsystem in primary rack	U1.x-P1
1013 xx41	I/O subsystem backplane 2 fault	U1.x-P2
1013 xx43	Seeprom fault on I/O subsystem backplane 2	U1.x-P2

Error Code	Description	Action/ Possible Failing FRU
1013 xx51	I/O subsystem, DASD backplane 1 fault	U1.x-P3
1013 xx53	Seeprom fault on DASD backplane 1	U1.x-P3
1013 xx61	I/O subsystem, DASD backplane 2 fault	U1.x-P4
1013 xx63	Seeprom fault on DASD backplane 2 i	U1.x-P4
1013 xx71	I/O subsystem, DASD backplane 3 fault	U1.x-P5
1013 xx73	Seeprom fault on DASD backplane 3	U1.x-P5
1013 xx81	I/O subsystem, DASD backplane 4 fault	U1.x-P6
1013 xx83	Seeprom fault on DASD backplane 4	U1.x-P6
101A 0866	BPR 2A communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101A 0876	BPR 3A communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101A 0D06	350 volt bulk failure, BPA-A	Go to “Map 1525: There Is A 350 Volt Bulk Failure” on page 184.
101A 1C06	Cage air flow missing (temperature problem)	Go to “Map 1527: An Air Flow Loss Has Been Detected” on page 188.
101A 3F06	Invalid I/O subsystem configuration	1. Verify that the I/O subsystems are properly cabled. 2. Call service support.
101A 7A86	IBF 1A failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101A 7A96	IBF 2A failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101A 7AA6	IBF 3A failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101A 7B86	IBF 1A failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101A 7B96	IBF 2A failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101A 7BA6	IBF 3A failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.

Error Code	Description	Action/ Possible Failing FRU
101A D216	BPA to BPA communications failure	Go to "MAP 1520: Power" on page 173 for isolation.
101A D616	Problem with external UPS: utility fail	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101A D716	Problem with external UPS: battery low	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101A D756	Informational message about the IBF.	Informational message.
101A D766	Informational message about the IBF.	Informational message.
101A D776	Informational message about the IBF.	Informational message.
101A D816	External UPS: bypass active (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101A D916	External UPS: power restored (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101A DA16	External UPS: UPS installed (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101A DB16	Problem with external UPS: UPS not available	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.

Error Code	Description	Action/ Possible Failing FRU
101A DC16	External UPS: battery not low (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer’s documentation for the UPS. 3. Call service support.
101A DC56	Informational message about the IBF.	Informational message.
101A DC66	Informational message about the IBF.	Informational message.
101A DC76	Informational message about the IBF.	Informational message.
101A DD16	External UPS: bypass ended (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer’s documentation for the UPS. 3. Call service support.
101A DF16	Problem with external UPS: UPS failure	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer’s documentation for the UPS. 3. Call service support.
101A E106	Critical logic overtemperature	Go to “Map 1528: There Is A Processor (Critical/Warning) Overtemperature Fault” on page 189.
101A E206	Ambient room temperature too high	1. The ambient room temperature has reached a warning level (30 C) or a critical level (36 C). Ask the customer to correct the room temperature problem. 2. Call service support.
101A F4x6	Hardware configuration does not support N-mode power	Call service support.
101A F806	BPC A: loss of ac power or phase missing	Go to “Map 152a: Loss of ac Power or Phase Missing” on page 192.
101A F906	BPC A: loss of ac power or phase missing	Go to “Map 152a: Loss of ac Power or Phase Missing” on page 192.
101A FA06	BPC A: loss of ac power or phase missing	Go to “Map 152a: Loss of ac Power or Phase Missing” on page 192.
101A FDB6	BPI A: open room EPO switch has been detected	Go to “Map 1524: An Open Room EPO Switch Has Been Detected From One Side” on page 182.

Error Code	Description	Action/ Possible Failing FRU
101A FE06	UEPO switch on BPC A is in the bypass position	Go to “Map 1522: UEPO Switch On The BPC Is In The Bypass Position” on page 181.
101A FE16	UEPO switch on BPC A is in the bypass position	Go to “Map 1522: UEPO Switch On The BPC Is In The Bypass Position” on page 181.
101A FE56	BPR 1A communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101A FE66	BPR 2A communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101A FE76	BPR 3A communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101A x125	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x215	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x225	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x315	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x325	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x415	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x425	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x515	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x525	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x615	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.

Error Code	Description	Action/ Possible Failing FRU
101A x625	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x715	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x725	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x825	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A x925	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A xA25	Power cable fault	Go to “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101A xx0x	BPA A-FRU not isolated	U1.35
101A xx11	BPA-A / BPC	U1.35-P1-X4
101A xx13	Seeprom (VPD) fault on BPC-A	U1.35-P1-X4
101A xx17	Fan fault on BPC-A (BPA-A fan)	1. BPE-A side fan Location: U1.35-P1-F1 2. BPC-A Location: U1.35-P1-X4
101A xx21	BPA-A / BPD-1	U1.35-P1-X3
101A xx22	BPC-A to BPD-1 communications fault	1. BPD-1 Location: U1.35-P1-X3 2. BPC-A Location: U1.35-P1-X4 3. BPE backplane A Location: U1.35-P1
101A xx23	Seeprom (VPD) fault on BPD-1A	U1.35-P1-X3
101A xx51	BPA-A / BPR-1	U1.35-P1-V1
101A xx52	BPC-A to BPR-1 communications fault	1. BPR-1 Location: U1.35-P1-V1 2. BPC-A Location: U1.35-P1-X4 3. BPE backplane A Location: U1.35-P1
101A xx53	Seeprom (VPD) fault on BPR-1A	U1.35-P1-V1
101A xx61	BPA-A / BPR-2	U1.35-P1-V2

Error Code	Description	Action/ Possible Failing FRU
101A xx62	BPC-A to BPR-2 communications fault	1. BPR-2 Location: U1.35-P1-V2 2. BPC-A Location: U1.35-P1-X4 3. BPE backplane A Location: U1.35-P1
101A xx63	Seeprom (VPD) fault on BPR-2A	U1.35-P1-V2
101A xx71	BPA-A / BPR-3	U1.35-P1-V3
101A xx72	BPC-A to BPR-3 communications fault	1. BPR-3 Location: U1.35-P1-V3 2. BPC-A Location: U1.35-P1-X4 3. BPE backplane A Location: U1.35-P1
101A xx73	Seeprom (VPD) fault on BPR-3A	U1.35-P1-V1
101A xx81	BPA-A / IBF 1	U1.13-P1-V1
101A xx83	Seeprom (VPD) fault on IBF-1A	U1.13-P1-V1
101A xx91	BPA-A / IBF 2	U1.15-P1-V2
101A xx93	Seeprom (VPD) fault on IBF-2A	U1.15-P1-V2
101A xxA1	BPA-A / IBF 3	U2.17-P1-V5
101A xxA3	Seeprom (VPD) fault on IBF-3A	U2.17-P1-V5
101A xxB1	BPA-A / EPO_SW	1. Replace the UEPO switch, Location: U1-V1 2. Check the cable from BPC-A to the UEPO switch, Location U1-V1/Q1#
101B 0856	BPR 1B communications fault	Go to "Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault" on page 182.
101B 0866	BPR 2B communications fault	Go to "Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault" on page 182.
101B 0876	BPR 3B communications fault	Go to "Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault" on page 182.
101B 0D06	350 volt bulk failure, BPA-B	Go to "Map 1525: There Is A 350 Volt Bulk Failure" on page 184.
101B 1C06	Cage air flow missing (temperature problem)	Go to "Map 1527: An Air Flow Loss Has Been Detected" on page 188.
101B 24C1	The bulk power jumper is required, but not installed	Go to "MAP 1520: Power" on page 173.

Error Code	Description	Action/ Possible Failing FRU
101B 25C1	The bulk power jumper is required, but not installed	Go to “MAP 1520: Power” on page 173.
101B 26C1	The bulk power jumper is required, but not installed	Go to “MAP 1520: Power” on page 173.
101B 3F06	Invalid I/O subsystem configuration	1. Verify that the I/O subsystems are properly cabled. 2. Call service support.
101B 7A86	IBF 1B failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101B 7A96	IBF 2B failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101B 7AA6	IBF 3B failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101B 7B86	IBF 1B failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101B 7B96	IBF 2B failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101B 7BA6	IBF 3B failure	Go to “Map 1526: There Is An Integrated Battery Feature (IBF) Failure” on page 186.
101B D216	BPA to BPA communications failure	Go the “MAP 1520: Power” on page 173.
101B D616	Problem with external UPS: utility fail	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer’s documentation for the UPS. 3. Call service support.
101B D716	Problem with external UPS: battery low	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer’s documentation for the UPS. 3. Call service support.
101B D756	Informational message about the IBF.	Informational message.
101B D766	Informational message about the IBF.	Informational message.
101B D776	Informational message about the IBF.	Informational message.

Error Code	Description	Action/ Possible Failing FRU
101B D816	External UPS: bypass active (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B D916	External UPS: power restored (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B D816	External UPS: installed (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B D916	External UPS: power restored (informational message)	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B DA16	External UPS: UPS installed (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B DB16	Problem with external UPS: UPS not available	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.

Error Code	Description	Action/ Possible Failing FRU
101B DC16	External UPS: battery not low (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B DC56	Informational message about the IBF.	Informational message.
101B DC66	Informational message about the IBF.	Informational message.
101B DC76	Informational message about the IBF.	Informational message.
101B DD16	External UPS: bypass ended (informational message)	Informational message. If a problem is suspected: 1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B DF16	Problem with external UPS: UPS failure	1. Verify the cabling between the UPS and the BPCs. 2. Refer to the manufacturer's documentation for the UPS. 3. Call service support.
101B E106	Critical logic overtemperature	Go to "Map 1528: There Is A Processor (Critical/Warning) Overtemperature Fault" on page 189.
101B E206	Ambient room temperature too high	1. The ambient room temperature has reached a warning level or a critical level. Ask the customer to correct the room temperature problem. 2. Call service support.
101B F4x6	Hardware configuration does not support N-mode power	Call service support.
101B F806	BPC B: loss of ac power or phase missing	Go to "Map 152a: Loss of ac Power or Phase Missing" on page 192.
101B F906	BPC B: loss of ac power or phase missing	Go to "Map 152a: Loss of ac Power or Phase Missing" on page 192.
101B FA06	BPC B: loss of ac power or phase missing	Go to "Map 152a: Loss of ac Power or Phase Missing" on page 192.
101B FDB6	BPI B: open room EPO switch has been detected	Go to "Map 1524: An Open Room EPO Switch Has Been Detected From One Side" on page 182.

Error Code	Description	Action/ Possible Failing FRU
101B FE16	UEPO switch on BPC B is in the bypass position	Go to “Map 1522: UEPO Switch On The BPC Is In The Bypass Position” on page 181.
101B FE06	UEPO switch on BPC B is in the bypass position	Go to “Map 1522: UEPO Switch On The BPC Is In The Bypass Position” on page 181.
101B FE56	BPR 1B communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101B FE66	BPR 2B communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101B FE76	BPR 3B communications fault	Go to “Map 1523: There Is A Bulk Power Regulator (BPR) Communications Fault” on page 182.
101B x125	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x215	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x225	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x315	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x325	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x415	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x425	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x515	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x525	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x615	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.

Error Code	Description	Action/ Possible Failing FRU
101B x625	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x715	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x725	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x825	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B x925	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B xA25	Power cable fault	Go the “Power Cable Error Codes to Location Code Index” on page 380 to determine location codes.
101B xx0x	BPA B-FRU not isolated	U1.35
101B xx11	BPA-B / BPC	U1.35-P2-X4
101B xx13	Seeprom (VPD) fault on BPC-B	U1.35-P2-X4
101B xx17	Fan fault on BPC-B (BPA-B fan)	1. BPE-B side fan Location: U1.35-P2-F1 2. BPC-A Location: U1.35-P1-X4
101B xx21	BPA-B / BPD-1	U1.35-P2-X3
101B xx22	BPC-B to BPD-1 communications fault	1. BPD-1 Location: U1.35-P2-X3 2. BPC-B Location: U1.35-P2-X4 3. BPE backplane B Location: U1.35-P2
101B xx23	Seeprom (VPD) fault on BPD-1B	U1.35-P2-X2
101B xx51	BPA-B / BPR-1	U1.35-P2-V1
101B xx52	BPC-B to BPR-1 communications fault	1. BPR-1 Location: U1.35-P2-V1 2. BPC-B Location: U1.35-P1-X4 3. BPE backplane B Location: U1.35-P2-V1
101B xx53	Seeprom (VPD) fault on BPR-1B	U1.35-P2-V1
101B xx61	BPA-B / BPR-2	U1.35-P2-V2

Error Code	Description	Action/ Possible Failing FRU
101B xx62	BPC-B to BPR-2 communications fault	1. BPR-1 Location: U1.35-P2-V2 2. BPC-B Location: U1.35-P2-X4 3. BPE backplane B Location: U1.35-P2–V2
101B xx63	Seeprom (VPD) fault on BPR-2B	U1.35-P2-V2
101B xx71	BPA-B / BPR-3	U1.35-P2-V3
101B xx72	BPC-B to BPR-3 communications fault	1. BPR-3 Location: U1.35-P2-V3 2. BPC-B Location: U1.35-P2-X4 3. BPE backplane B Location: U1.35-P2-V3
101B xx73	Seeprom (VPD) fault on BPR-3B	U1.35-P2-V3
101B xx81	BPA-B / IBF 1	U1.13-P2-V3
101B xx83	Seeprom (VPD) fault on IBF-1B	U1.13-P2-V3
101B xx91	BPA-B / IBF 2	U1.15-P2-V4
101B xx93	Seeprom (VPD) fault on IBF-2B	U1.15-P2-V4
101B xxA1	BPA-B / IBF 3	U2.17-P2-V6
101B xxA3	Seeprom (VPD) fault on IBF-3B	U2.17-P2-V6
101B xxB1	BPA-B / EPO_SW	1. Replace the UEPO switch, Location: U1-V1 2. Check the cable from BPC-A to the UEPO switch, Location U1-V1/Q2#
101C 0206	An LGA short was detected but not isolated	1. If the MCM or an L3 module(s) was recently replaced, remove and inspect it. If an obvious problem is found, correct it and reinstall the module. If the same error code occurs, continue to step 2. 2. Replace the MCM. Location: U1.x-P1-C2. 3. Replace all four L3 cache modules. 4. Before replacing the processor subsystem backplane at location U1.x-P1, call service support. .

Error Code	Description	Action/ Possible Failing FRU
101C 0FB6	Possible over-temperature problem with MCM 0	1. Examine the MCM module at location U1.x-P1-C2 for the following and correct if necessary. a. Check for the presence of the MCM b. Check the airflow to the MCM and its heatsink c. Check the seating of the MCM against the processor backplane. 2. If no problems are found, call service support.
101C 1C06	Loss of airflow in processor subsystem resulting in over-termperature	Go to "Map 1527: An Air Flow Loss Has Been Detected" on page 188 with location U1.18.
101C 5306	A short was detected in an L3's LGA	1. If an L3 module(s) was recently replaced, remove and inspect it. If an obvious problem is found, correct it and reinstall the module. If the same error code occurs, continue to step 2. 2. Replace all four L3 cache modules. 3. Before replacing the processor subsystem backplane at location U1.x-P1, call service support.
101C 5406	A short was detected in the MCM's LGA	1. If the MCM was recently replaced, remove and inspect it. If an obvious problem is found, correct it and reinstall the module. If the same error code occurs, continue to step 2. 2. Replace the MCM. Location: U1.x-P1-C2. 3. Before replacing the processor subsystem backplane at U1.x-P1, call service support.
101C 5506	A short was detected in an L3's LGA	1. If an L3 module(s) was recently replaced, remove and inspect it. If an obvious problem is found, correct it and reinstall the module. If the same error code occurs, continue to step 2. 2. Replace all four L3 cache modules. 3. Before replacing the processor subsystem backplane at location U1.x-P1, call service support.

Error Code	Description	Action/ Possible Failing FRU
101C 6014	Overcurrent or overvoltage problem with 12V in processor subassembly	Go to “MAP 1520: Power” on page 173.
101C 6024	Overcurrent or overvoltage problem with 3.3V in processor subassembly	Go to “MAP 1520: Power” on page 173.
101C 6114	Overcurrent or overvoltage problem with 5.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6124	Overcurrent or overvoltage problem with 1.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6134	Overcurrent or overvoltage problem with 1.635V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6144	Overcurrent or overvoltage problem with 1.95V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6154	Overcurrent or overvoltage problem with 2.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6814	Overcurrent or overvoltage problem with 12.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6824	Overcurrent or overvoltage problem with 3.3V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6914	Overcurrent or overvoltage problem with 5.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6924	Overcurrent or overvoltage problem with1.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6934	Overcurrent or overvoltage problem with 1.635V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6944	Overcurrent or overvoltage problem with 1.95V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C 6954	Overcurrent or overvoltage problem with 2.5V in processor subsystem	
101C 7E06	No MCMs detected or the actual number of MCMs does not match the expected number of MCMs	1. Verify that the processor MCM is plugged in a valid configuration 2. Verify that the processor MCM is seated properly 3. Call service support..

Error Code	Description	Action/ Possible Failing FRU
101C 7EB6	Possible over-temperature problem with MCM 0	1. Examine the MCM module at location U1.x-P1-C2 for the following and correct if necessary. a. Check for the presence of the MCM b. Check the airflow to the MCM and its heatsink c. Check the seating of the MCM against the processor backplane. 2. If no problems are found, Call service support..
101C 7F06	No MCMs detected or the actual number of MCMs does not match the expected number of MCMs	1. Verify that the processor MCM is plugged in a valid configuration. 2. Verify that the processor MCM is seated properly. 3. Call service support.
101C B014	Overcurrent or overvoltage problem with 12.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B024	Overcurrent or overvoltage problem with 3.3V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B114	Overcurrent or overvoltage problem with 5.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B124	Overcurrent or overvoltage problem with 1.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B134	Overcurrent or overvoltage problem with 1.635V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B144	Overcurrent or overvoltage problem with 1.95V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B154	Overcurrent or overvoltage problem with 2.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B814	Overcurrent or overvoltage problem with 12.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B824	Overcurrent or overvoltage problem with 3.3V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B914	Overcurrent or overvoltage problem with 5.0V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B924	Overcurrent or overvoltage problem with 1.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B934	Overcurrent or overvoltage problem with 1.635V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C B944	Overcurrent or overvoltage problem with 1.95V in processor subsystem	Go to “MAP 1520: Power” on page 173.

Error Code	Description	Action/ Possible Failing FRU
101C B954	Overcurrent or overvoltage problem with 2.5V in processor subsystem	Go to “MAP 1520: Power” on page 173.
101C E006	Processor over-temperature detected	Go to “Map 1528: There Is A Processor (Critical/Warning) Overtemperature Fault” on page 189.
101C E106	Processor over-temperature detected	Go to “Map 1528: There Is A Processor (Critical/Warning) Overtemperature Fault” on page 189. There is a critical login over-temperature
101C E1B6	MCM 0 running over temperature	1. Examine the processor MCM module at location U1.x-P1-C2 for the following, and correct if necessary: a. Check for the presence of the MCM b. Check the airflow to the MCM and its heatsink c. Check the seating of the MCM against the processor 2. If no problems are found, call service support.
101C F206	Error not isolated; VPD on BPR may be corrupted	Call service support.
101C F306	The power subsystem does not recognize the processor subsystem type or processor subsystem configuration	Call service support.
101C F406	Hardware configuration cannot support N-mode power	Call service support.
101C F606	The power subsystem does not recognize the processor subsystem type or processor subsystem configuration	Call service support.
101C F516	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.

Error Code	Description	Action/ Possible Failing FRU
101C F526	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C F536	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C F546	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C F556	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.

Error Code	Description	Action/ Possible Failing FRU
101C F566	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C F576	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C F586	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C F596	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.

Error Code	Description	Action/ Possible Failing FRU
101C F5A6	An N+1 boundary (DCA or fan) has dropped to N-mode status in the processor subsystem	This is normally an informational message. It should be accompanied by other error codes that more precisely indicate where the failure is; look at the service processor error log. If there are no other power-related error codes (in the time frame in which this code was generated) in the service processor error log, then the FRU indicated with this error code (if there is one) should be replaced.
101C xx11	Processor subsystem cage/ DCA	U1.x-P1-V1
101C xx13	Seeprom (VPD) fault on processor subsystem DCA	U1.x-P1-V1
101C xx15	Processor subsystem cage/ DCA cable fault	Go to “MAP 1520: Power” on page 173 with these location codes: U1.x-P1-V1/Q1# and U1.x-P1-V1/Q2#
101C xx17	Fan fault in processor subsystem	1. Verify that the fan is free of obstructions and properly plugged into the DCA. 2. Replace the DCA Location: U1.x-V1. 3. Replace the fan Location: U1.x-F1.
101C xx77	Fan fault on processor subsystem fan 1	1. U1.x-V1 2. Fan 1 Location: U1.x-F1
1RRU 1C06		Go to “Map 1527: An Air Flow Loss Has Been Detected” on page 188.
SPCNtoA		Go to “Map 1529: There Is A Bulk Power Assembly (BPA) Communication Failure” on page 190.
SPCNtoB		Go to “Map 1529: There Is A Bulk Power Assembly (BPA) Communication Failure” on page 190.

Power Cable Error Codes to Location Code Index

The following table identifies the destination location codes for power cable error codes. The source is always a connector on a BPC or BPD. The destination is a processor subsystem drawer or an I/O subsystem. Follow the cable from the BPC or BPD to the drawer it is attached to and determine whether it is a processor subsystem or I/O subsystem, then record the appropriate locations code from the following table.

After determining both location codes, go to "MAP 1520: Power" on page 173.

Error Code	Source Location Code	Destination Location Code	
		Processor Subsystem	I/O Subsystem
101A x125	U1.35-P1-X3/Q1	U1.14-V1/Q2	U1.13-V2/Q2
101A x215	U1.35-P1-X4/Q2	U1.2-V1/Q2	U1.1-V2/Q2
101A x225	U1.35-P1-X3/Q2	U1.13-V1/Q2	U1.13-V1/Q2
101A x315	U1.35-P1-X4/Q3	U1.1-V1/Q2	U1.1-V1/Q2
101A x325	U1.35-P1-X3/Q3	U1.32-V1/Q2	U1.31-V2/Q2
101A x415	U1.35-P1-X4/Q4	U1.6-V1/Q2	U1.5-V2/Q2
101A x425	U1.35-P1-X3/Q4	U1.31-V1/Q2	U1.31-V1/Q2
101A x515	U1.35-P1-X4/Q5	U1.5-V1/Q2	U1.5-V1/Q2
101A x525	U1.35-P1-X3/Q5	U1.28-V1/Q2	U1.2 -V2/Q2
101A x615	U1.35-P1-X4/Q6	U1.10-V1/Q2	U1.9-V2/Q2
101A x625	U1.35-P1-X3/Q6	U1.27-V1/Q2	U1.27-V1/Q2
101A x715	U1.35-P1-X4/Q7	U1.9-V1/Q2	U1.9-V1/Q2
101A x725	U1.35-P1-X3/Q7	U1.24-V1/Q2	U1.23-V2/Q2
101A x825	U1.35-P1-X3/Q8	U1.23-V1/Q2	U1.23-V1/Q2
101A x925	U1.35-P1-X3/Q9	U1.20-V1/Q2	U1.19-V2/Q2
101A xA25	U1.35-P1-X3/Q10	U1.19-V1/Q2	U1.19-V1/Q2
101B x125	U1.35-P2-X3/Q1	U1.14-V1/Q1	U1.13-V2/Q1
101B x215	U1.35-P2-X4/Q2	U1.2-V1/Q1	U1.1-V2/Q1
101B x225	U1.35-P2-X3/Q2	U1.13-V1/Q1	U1.13-V1/Q1
101B x315	U1.35-P2-X4/Q3	U1.1-V1/Q1	U1.1-V1/Q1
101B x325	U1.35-P2-X3/Q3	U1.32-V1/Q1	U1.31-V2/Q1
101B x415	U1.35-P2-X4/Q4	U1.6-V1/Q1	U1.5-V2/Q1
101B x425	U1.35-P2-X3/Q4	U1.31-V1/Q1	U1.31-V1/Q1
101B x515	U1.35-P2-X4/Q5	U1.5-V1/Q1	U1.5-V1/Q1
101B x525	U1.35-P2-X3/Q5	U1.28-V1/Q1	U1.27-V2/Q1
101B x615	U1.35-P2-X4/Q6	U1.10-V1/Q1	U1.9-V2/Q1
101B x625	U1.35-P2-X3/Q6	U1.27-V1/Q1	U1.27-V1/Q1
101B x715	U1.35-P2-X4/Q7	U1.9-V1/Q1	U1.9-V1/Q1

101B x725	U1.35-P2-X3/Q7	U1.24-V1/Q1	U1.23-V2/Q1
101B x825	U1.35-P2-X3/Q8	U1.23-V1/Q1	U1.23-V1/Q1
101B x925	U1.35-P2-X3/Q9	U1.20-V1/Q1	U1.19-V2/Q1
101B xA25	U1.35-P2-X3/Q10	U1.19-V1/Q1	U1.19-V1/Q1

Firmware/POST Error Codes

Attention: If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to "MAP 1542: I/O Problem Isolation" on page 274 unless you were already directed to any MAP 154*x* by the error code. Otherwise, call support if the action(s) for an error code do not resolve the problem.

Attention: If the error code that brought you to this chapter originated in the AIX error log, an error may require an additional 15 minutes to be propagated to the AIX error log.

If you replace FRUs and the problem is corrected, go to "MAP 0410: Repair Checkout" in the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Error Code	Description	Action/ Possible Failing FRU
2011 00xy	I/O subsystem power supply failure	1. Replace power supply "y" in I/O subsystem "x". If y=_, then the power supply is: `y = power supply` `3 = Both power supplies (I/O subsystem)` `2 = Reserved` `1 = Reserved` See "AIX and Physical Location Code Tables" in Chapter 1, for location codes. 2. Check ac power source to I/O subsystem "x". See "AIX and Physical Location Code Tables" in Chapter 1, for location codes.
2022 0000	The I/O bus is running slowly	1. Check cabling. 2. Call second level of support.

Error Code	Description	Action/ Possible Failing FRU

203w 0xyz	Remote I/O (RIO) configuration warning.
	
	This code indicates that a RIO configuration was detected that does not result in complete loops. The system continues to boot, however performance or recovery capability may be reduced. In some cases, the problem may result in missing I/O. Remote I/O subsystems are connected in loops. Use the letters w, y, and z in the error code to isolate the location of the open loop. Check RIO cables for loose connections, and verify power on the I/O subsystems by the presence of fan motion.
	
	The following numbers may be used to help isolate the failing component.
	• w = loop number, this is either 0 or 1 in a system with 2 RIO loops.
	• x = Always 0.
	• y is either 1 or 2 on a system with 2 loops. y indicates the nearest associated RIO port number on the processor subsystem according to the following table:
	`y = Nearest RIO Port`
	`1 = 0`
	`2 = 1`
	`3 = 2`
	`4 = 3`
	• z = B, indicates a missing return line from the I/O subsystem to the processor subsystem.
	• z = C, indicates a missing link between two I/O subsystems.
	• z = E, indicates an I/O subsystem was found connected to RIO port 3 with no return to the processor subsystem, and no I/O subsystem was found connected to RIO port 2. In this case, the I/O connected to RIO port 3 is removed from the configuration since the cause of the error and the proper location of the I/O cannot be determined.
		Go to "MAP 1542: I/O Problem Isolation" on page 274.

20A8 0000	Insufficient information to boot.	Verify the IP address in the SMS menu.

Error Code	Description	Action/ Possible Failing FRU
20A8 0001	Client IP address is already in use by other network device	Verify the IP address in the SMS menu.
20A8 0002	Cannot get gateway IP address	Refer to “Firmware Checkpoints” on page 316 using code **E174**.
20A8 0003	Cannot get server hardware address	Refer to “Firmware Checkpoints” on page 316 using code **E174**.
20A8 0004	BootP failed	Refer to “Firmware Checkpoints” on page 316 using code **E175**.
20A8 0005	File transmission (TFTP) failed.	Check network connection, then try again.
20A8 0006	Boot image too large	Contact service support for assistance.
20D0 000F	Selftest failed on device, no error and/or location code information available	1. If a location code is specified, replace the devince at that location. 2. Go to “MAP 1542: I/O Problem Isolation” on page 274.
20D0 0010	Selftest failed on device, can’t locate package	Contact service support for assistance.
20D0 0011	Firmwware RTAS attempt to allocate memory failed.	Contact service support for assistance.
20D0 0800	Firmware update failure: partition does not have service authority	Using the HMC, grant service authority to that partition. Reboot the partition. Retry the flash update
20D0 0801	System firmware update failure: more than one partition running	Shut down all other partitions, then retry the firmware update.
20D0 0997	Operating system terminated with error string	Call service support.
20D0 0998	Operating system terminated with error string	Call service support.
20D0 0999	Operating system terminated with error string	Call service support.
20D0 0A01	Error initializing RTAS NVRAM	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A02	Error initializing RTAS debugging token	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A03	Error initializing interface/service processor access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.

Error Code	Description	Action/ Possible Failing FRU
20D0 0A04	Error initializing interface/operator panel access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A05	Error initializing hardware access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A06	Error initializing interface/PCI access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A07	Error initializing interface/AIX access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A08	Error initializing interface/client_interface access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A09	Error initializing interface/NUMA access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A0A	Error initializing interface/interrupt access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A0B	Error initializing interface/OFDT access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A0C	Error initializing interface/sensor access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A0D	Error initializing interface/sensors/led_table access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.

Error Code	Description	Action/ Possible Failing FRU
20D0 0A0E	Error initializing interface/timebase access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A0F	Error initializing interface/time-of-day access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A10	Error initializing interface/cache access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A11	Error initializing interface/power access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A12	Error initializing interface/hot-plug access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A13	Error initializing interface/log access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A14	Error initializing interface/EEH access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A15	Error initializing interface/error injection access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A16	Error initializing interface/handling access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 0A17	Error initializing interface/utility access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.

Error Code	Description	Action/ Possible Failing FRU
20D0 0A18	Error initializing register softpatch access	1. Check for system firmware updates. Apply update if available. 2. Contact your next level of support for assistance.
20D0 9001	Subsystem information not found in VPD	1. If the location code indicates a processor subassembly, the problem is in the system VPD module on the service processor card, Location U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming theVPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.
20D0 9002	Subsystem machine type and model information not found in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.
20D0 9003	Subsystem serial number information not found in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.

Error Code	Description	Action/ Possible Failing FRU
20D0 9004	Subsystem machine type and model field is empty in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.
20D0 9005	Subsystem serial number field is empty in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.
20D0 9006	Duplicate subsystem serial number found in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.

Error Code	Description	Action/ Possible Failing FRU
20D0 9007	Invalid subsystem machine type and model information in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.
20D0 9008	Invalid subsystem serial number found in VPD	1. If the location code indicates a processor subsystem drawer, the problem is in the system VPD module on the service processor card. Replace the service processor card, Location: U0.1-P1-X1; do not swap the old VPD module onto the new service processor card. Call service support for instructions on programming the VPD information into the new VPD module. 2. If the location code indicates an I/O subsystem, call service support.
20D1 0001	Failed to send state-change message to service processor	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0002	Failed to disable heartbeat alarm	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0003	Failed to send boot status in LPAR partition	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0004	Failed to set PCI read/write permissions array	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.

Error Code	Description	Action/ Possible Failing FRU
20D1 0005	Failed to reboot system in LPAR mode	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0006	Failed to reboot a partition in LPAR mode	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0007	Failed to set PCI read/write permissions array	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0008	Failed to set PCI read/write permissions array for slot	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 0009	Missing or invalid subsystem serial number	1. Check for system firmware updates. Apply update if available. 2. If a location code is shown with this error code, replace the part at that location. **Note:** The location code identifies the failing subsystem. 3. Contact service support for assistance.
20D1 000A	Failed to send boot failed message to service processor	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1000B	Failed to reset PCI read/write permissions array	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 000C	Failed to send LMB-TABLE-INFO mailbox repair	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.
20D1 000D	Hypervisor function to get time-of-day failed	1. Check for system firmware updates. Apply update if available. 2. Contact service support for assistance.

Error Code	Description	Action/ Possible Failing FRU
20E0 0001	Privileged-access password entry error.	The password has been entered incorrectly. Retry installing the privileged-access password.
20E0 0004	Battery drained or needs replacement	1. Replace the battery, Location: U1.x-P1-X1-V2. 2. If problem persists, replace the service processor card Location: U1.x-P1-X1.
20E0 0009	Invalid password entered; system locked	The password has been entered incorrectly 3 times. Turn off, then turn on the system unit, then enter the password correctly.
20EE 0003	IP parameter requires 3 dots (″.″)	Enter valid IP parameter. Example: 000.000.000.000
20EE 0004	Invalid IP parameter	Enter valid IP parameter. Example: 000.000.000.000
20EE 0005	Invalid IP parameter (>255)	Enter valid IP parameter. Example: 255.192.002.000
20EE 0007	Keyborad not found	1. Plug in the keyboard. 2. Replace the USB card the keyboard is plugged into.
20EE 0008	No configurable adapters found in the system by the remote IPL menu in the SMS utilities	This warning occurs when the remote IPL menu in the SMS utilities cannot locate any LAN adapters that are supported by the remote IPL function. If a supported device is installed: 1. Replace the device or adapter. (See notes on 345.) 2. Replace the I/O subsystem backplane in the subsystem containing the device/adapter.
20EE 0009	Unable to communicate with the service processor	Replace the service processor, Location: U1.x-P1-X1.
20EE 000B	The system was not able to find an operating system on the devices in the boot list.	Go to “Boot Problems” on page 341.

Error Code	Description	Action/ Possible Failing FRU
20EE 000C	Pointer to the operating system found in non-volatile storage.	Values normally found in non-volatile storage that point to the location of an operating system were not found. This can happen for either of two reasons: • The operating system does not support storing the values or • An event occurred that caused the system to lose non-volatile storage information (drainage or replacement of the battery). If you are running AIX, this information can be reconstructed by running the **bootlist** command and specifying the device that the operating system is installed on. Refer to the AIX documentation for the syntax and usage of the **bootlist** command. To boot the operating system so that the above-mentioned values can be reconstructed, power the system off and power it back on again. This should cause the system to look for the operating system in the devices contained in the custom boot list or in the default boot list, depending on the condition of the system. If this is not successful, modify the boot sequence (also known as the boot list) to include devices that are known to contain a copy of the operating system. This can be accomplished by using the SMS menus.For example, select a hard disk known to have a copy of the operating system as the first and only device in the boot sequence (boot list) and attempt to boot again. If the problem persists, replace the service processor Location: U1.x-P1-X1.
20EE 000E	Unable to execute the lpar-mgr open firmware method	1. Verify that the system is in LPAR mode, and reboot the system. 2. Reflash the system with the latest level of system firmware. 3. Call service support.

Error Code	Description	Action/ Possible Failing FRU
20EE 000F	Unable to find the lpar-mgr package node	1. Verify that the system is in LPAR mode, and reboot the system. 2. Reflash the system with the latest level of system firmware. 3. Call service support.
20EE 0010	Unable to execute the root vpd method	1. Verify that the system is in LPAR mode, and reboot the system. 2. Reflash the system with the latest level of system firmware. 3. Call service support.
20EE 0011	Unable to execute the root-lpar-vpd vpd method	1. Verify that the system is in LPAR mode, and reboot the system. 2. Reflash the system with the latest level of system firmware. 3. Call service support.
20EE 0012	Unable to execute the mem-dimm-vpd method	1. Verify that the system is in LPAR mode, and reboot the system. 2. Reflash the system with the latest level of system firmware. 3. Call service support.
20EE 0013	Unable to allocate memory for root-lpar-vpd vpd	1. Verify that the system is in LPAR mode, and reboot the system. 2. Reflash the system with the latest level of system firmware. 3. Call service support.
20EE 0014	Unable to allocate memory for root-lpar-vpd location codes	Verify that the system is in LPAR mode, and try again. Otherwise, the system firmware may be corrupted.
20EE 0100	Fcode resident on an I/O adapter is not supported on this system. This error code only affects boot-time operation, and the adapter's functionality under the operating system.	Informational message. The adapter's Fcode driver is not supported on this system. Call service support.
20FB 0010	Failed to find keyword offset of SPCN config table in NVRAM.	Call service support.
20FB 0020	Invalid SPCN configuration table flag before SPCN table update.	Call service support.
20FC 0020	Failed to retrieve power, package, and/or cooling VPD via SPCN for the corresponding drawer. Service processor mailbox failed to get VPD.	1. Check RIO cable connection. 2. Check for system firmware updates. 3. Replace the part specified by the location code.

Error Code	Description	Action/ Possible Failing FRU
20FC 0021	Failed to retrieve power, package, and/or cooling VPD via SPCN for the subsystem. Service processor mailbox failed to get power, packaging, and cooling device VPD.	1. Check RIO cable connection. 2. Check for system firmware updates. 3. Replace the part specified by the location code.
20FC 0030	Corrupted power, packaging, and/or cooling device VPD format in SPCN configuration table	1. Check for system firmware updates. 2. Replace the part specified by the location code.
20FF 0001	Problem with VPD	1. Replace the part indicated by the location code. 2. If no location code is shown with the error code, call service support.
2000 0xx	SCSI controller fault	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21A0 0001	SCSI DASD: test unit ready failed; hardware error	Before replacing any system components: 1. Ensure that the controller and each device on the SCSI bus is assigned a unique SCSI ID. 2. Ensure that the SCSI bus is properly terminated. 3. Ensure that the SCSI signal and power cables are securely connected and not damaged. The location code information is required to identify the ID of SCSI device failures as well as to indicate the location of the controller to which the device is attached. Check the system error logs to determine the location code information associated with the error code. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller.

Error Code	Description	Action/ Possible Failing FRU
21A0 0002	SCSI DASD: test unit ready failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the media (if a removable media device). 2. Replace the SCSI device.
21A0 0003	SCSI DASD: send diagnostic failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21A0 0004	SCSI DASD: send diagnostic failed - devofl command	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21E0 0001	SCSI tape: test unit ready failed; hardware error	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller.
21E0 0002	SCSI tape: test unit ready failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the media (if a removable media device). 2. Replace the SCSI device.
21E0 0003	SCSI tape: send diagnostic failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21E0 0004	SCSI tape: send diagnostic failed - devofl command	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21ED 0001	SCSI C: test unit ready failed; hardware error	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller.

Error Code	Description	Action/ Possible Failing FRU
21ED 0002	SCSI changer: test unit ready failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the media.
21ED 0003	SCSI changer: send diagnostic failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21ED 0004	SCSI changer: send diagnostic failed - devofl command	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21EE 0001	Undetermined SCSI device: test unit ready failed; hardware error	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. If the missing SCSI devices are connected to the same backplane, replace the SCSI backplane. 4. Replace the SCSI controller.
21EE 0002	Undetermined SCSI device: test unit ready failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the media.
21EE 0003	Undetermined SCSI device: send diagnostic failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21EE 0004	Undetermined SCSI device: send diagnostic failed - devofl command	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21F0 0001	SCSI CD-ROM: test unit ready failed; hardware error	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller.

Error Code	Description	Action/ Possible Failing FRU
21F0 0002	SCSI CD-ROM: test unit ready failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the media.
21F0 0003	SCSI CD-ROM: send diagnostic failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21F0 0004	SCSI CD-ROM: send diagnostic failed - devofl command	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI device.
21F2 0001	SCSI read/write optical device: test unit ready failed; hardware error	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller.
21F2 0002	SCSI read/write optical device: test unit ready failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the media.
21F2 0003	SCSI read/write optical drive: send diagnostic failed; sense data available	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI drive.
21F2 0004	SCSI read/write optical drive: send diagnostic failed - devofl command	Before replacing any system components, refer to the Action under error code 21A0 0001. Replace the SCSI drive.
2200 0001	PCI Ethernet BNC/RJ-45 or PCI Ethernet AUI/RJ-45 Adapter Internal Wrap Test failure	Replace the adapter specified by the location code.
2200 1001	10/100 Mbps Ethernet PCI Adapter Internal Wrap Test failure	Replace the adapter specified by the location code.
2200 1002	10/100 Mbps Ethernet PCI Adapter failure	Replace the adapter specified by the location code.

Error Code	Description	Action/ Possible Failing FRU
2201 0001	PCI Auto LANstreamer token ring adapter Adapter failed to complete hardware initialization.	Replace the adapter specified by the location code.
2201 1001	PCI token ring adapter Adapter failed to complete hardware initialization.	Replace the adapter specified by the location code.
25A0 0001	L2 Cache controller failure	Replace the MCM and VPD card Locations: U1.x-P1-C2 and U1.x-P1-X1.1.
25A1 0001	L2 Cache SRAM failure	Replace the MCM and VPD card Locations: U1.x-P1-C2 and U1.x-P1-X1.1.
25A8 0xxx	NVRAM problems	Errors reported against NVRAM can be caused by low battery voltage and (more rarely) power outages that occur during normal system usage. With the exception of the 25A8 0000 error, these errors are warnings that the NVRAM data content had to be re-established and do not require any FRU replacement unless the error is persistent. When one of these errors occurs, any system customization (for example, boot device list) information has been lost, the system may need to be reconfigured. If the error is persistent, replace the service processor Location: U1.x-P1-X1.
25A8 0000	Initialization failed, device test failed	Refer to Action under error code 25A8 0xxx.
25A8 0100	NVRAM data validation check failed.	Turn off, turn on system unit and retry the operation before replacing any system component. Refer to Action under error code 25A8 0xxx.
25A8 0201	Unable to expand target partition - Saving configuration variable.	Refer to Action under error code 25A8 0xxx.
25A8 0202	Unable to expand target partition - Writing error log entry.	Refer to Action under error code 25A8 0xxx.
25A8 0203	Unable to expand target partition - Writing VPD data.	Refer to Action under error code 25A8 0xxx.
25A8 0210	Setenv/$Setenv parameter error - name contains a null character.	Refer to Action under error code 25A8 0xxx.

Error Code	Description	Action/ Possible Failing FRU
25A8 0211	Setenv/$Setenv parameter error - value contains a null character.	Refer to Action under error code 25A8 0xxx.
25A8 0998	NVRAMRC script evaluation error - command line execution error	Execution of a command line within the nvram configuration variable **nvramrc** (script) resulted in a "throw" being executed. This script can be modified by the system firmware **SMS** utilities, the operating system, PCI adapter rom code or utility, or an operator (via the open firmware script editing command **nvedit**). It may not be possible to resolve the problem without a detailed analysis of the **nvram** script, the current system configuration, and device tree contents. 1. The problem can be caused by a SCSI adapter, whose SCSI bus ID has been changed from the default setting, no longer appearing in the system. This can be caused either by removing a SCSI adapter, or a problem with a SCSI adapter. a. Select the SCSI ID utility from the **SMS** menu(s). 1) Verify the list of SCSI controllers/adapters. If the list is not correct, suspect a problem with the adapter(s) installed but not listed. 2) Select the option to Save the configuration information. 3) Restart the system. b. If the problem persists, boot the operating system and verify the SCSI bus IDs of any installed/available SCSI controllers (change as necessary), and restart the system. 2. Contact your support representative for further assistance.
25A8 0999	NVRAMRC script evaluation error - stack unbalanced on completion	This is a firmware debug environment error. There is no user action or FRU replacement for this error. If this error persists, call service support.
25A8 0A00	Unable to retrieve NVRAM LPAR table information	Refer to the actions for error code 25A8 0xxx.
25B0 0001	Memory card failure	Replace the memory card specified by the location code.

Error Code	Description	Action/ Possible Failing FRU
25B0 0004	Memory card is not supported	Replace the unsupported memory card(s) specified by the location code.
25Cy y001	Memory card is not supported	Replace unsupported memory card(s) specified by the location code.
25Cy y002	Memory card failure	Replace the memory card(s) specified by the location code.
2601 0000	Boot failed because the RIO cables, or the power subsystem cables, are not routed correctly to the I/O subsystems	1. Check both ends of the RIO cable specified in the location code that appears with this error code. 2. Determine which I/O subsystem is at the end of the RIO cable specified by the location code shown with this error code. Check both ends of the power cables going to both DCAs in that I/O subsystem. See "Power Cable Error Codes to Location Code Index" on page 380 for power subsystem cable information.
2601 0001	Boot failed because the I/O subsystem has not been programmed correctly.	1. Check RIO cabling. 2. Firmware, including power code, may have to be flashed on both sides of the I/O subsystem. **Note:** The location code identifies the I/O subsystem that has the problem 3. Contact service support.
2601 0002	RIO cable error or DCA power cable error detected on an I/O subsystem	1. Check both ends of the RIO cable specified in the location code that appears with this error code. 2. Determine which I/O subsystem is at the end of the RIO cable specified by the location code shown with this error code. Check the power cables going to both DCAs in that I/O subsystem. See "Power Cable Error Codes to Location Code Index" on page 380 for power subsystem cable information.

Error Code	Description	Action/ Possible Failing FRU
2602 0001	Invalid PCI adapter vendor ID	1. Move adapter to another slot (behind a different PCI bus). 2. Check for available firmware updates for adapter. Apply update if available. 3. Run AIX diagnostics on adapter. Replace if indicated. 4. Replace adapter. 5. Check for system firmware updates. Apply if update available. 6. Replace I/O subsystem backplane (See notes on Chapter 5, “Error Code to FRU Index”, on page 345.)
2602 0002	Invalid PCI adapter device ID	1. Move adapter to another slot (behind a different PCI bus). 2. Check for available firmware updates for adapter. Apply update if available. 3. Run AIX diagnostics on adapter. Replace if indicated. 4. Replace adapter. 5. Check for system firmware updates. Apply if update available. 6. Replace I/O subsystem backplane. (See notes on Chapter 5, “Error Code to FRU Index”, on page 345.)
2602 0010	PCI probe error, bridge in freeze state	If the location code identifies a slot: 1. Move adapter to another slot (behind a different PCI bus). 2. Check for available firmware updates for adapter. Apply update if available. 3. Replace adapter. 4. Check for system firmware updates. Apply if update available. 5. Replace I/O subsystem backplane (See notes on Chapter 5, “Error Code to FRU Index”, on page 345.) If the location code identifies an I/O subsystem backplane: 1. Check for system firmware updates. Apply if update is available. 2. Replace I/O subsystem backplane.

Error Code	Description	Action/ Possible Failing FRU
2602 0011	PCI probe error, bridge is not usable	If the location code identifies an I/O planar: 1. Check for system firmware updates. Apply if update is available. 2. Replace the I/O backplane. If no location code is specified, go to "MAP 1542: I/O Problem Isolation" on page 274.
2602 0012	PCI device run-time error, bridge in freeze state	If the location code identifies a slot: 1. Check for system firmware updates. Apply if update is available 2. Replace the adapter.
2680 0Axy	MX-PCI Bridge BIST Failure	The problem is associated with bridge ″y″ in I/O subsystem ″x″. Replace the I/O board associated with x x = I/O subsystem 1=0 2=1 3=2 4=3 5=4 6=5 See "Determining Location Code" on page 347 or location code information related to this error.
2680 0Cxx	Machine Check occurred	1. Replace the part identified by the location code associated with this error code. 2. If the location code associated with this error code identifies an adapter, and replacing the adapter does not correct the problem, replace the I/O subsystem backplane. See "Determining Location Code" on page 347 for location code information related to this error.
2680 0Dxx	Machine check occurred; unable to isolate to a single device	Go to "MAP 1542: I/O Problem Isolation" on page 274.

Error Code	Description	Action/ Possible Failing FRU
2803 0001	RTC not updating - RTC initialization required	Errors reported against the real time clock can be caused by low battery voltage and (more rarely) power outages that occur during normal system usage. These errors are warnings that the RTC data content needs to be re-established and do not require any FRU replacement unless the error is persistent. When one of these errors occurs, the time and date information has been lost. To set/restore the time and date, use the operating system facility. If the error is persistent, replace the service processor Location: U1.x-P1-X1.
2803 0002	Bad time/date values	1. Set time and date. 2. Refer to Action under error code 2803 0001.
2803 0003	Real-time-clock (RTC) not updating - not correctable	Replace the service processor Location: U1.x-P1-X1.
2803 0004	RTC operating mode parameters (e.g.,. data mode) changed	1. Set time and date. 2. Refer to Action under error code 2803 0001.
2803 0005	RTC battery error	Replace the service processor Location: U1.x-P1-X1. **Note:** Passwords, time, and date need to be reset.
2803 F003	Real-time-clock not updating - not correctable (detected by hypervisor)	Replace the service processor, Location: U1.x-P1-X1.
2900 0002	ISA keyboard/mouse controller failed self-test	Replace the service processor, Location: U1.x-P1-X1.
29A0 0003	ISA keyboard not present/detected	Replace the service processor, Location: U1.x-P1-X1.
29A0 0004	ISA keyboard stuck key detected	Replace the service processor, Location: U1.x-P1-X1.
29B0 0004	ISA mouse not present/detected	Replace the service processor Location: U1.x-P1-X1.
2B20 0011	Processor is manually disabled.	Use the service processor menus to re-enable the processor and reboot the system.

Error Code	Description	Action/ Possible Failing FRU
2B20 0022	Processor is deconfigured by the system.	The processor has previously failed BIST or POST. Replace the processor MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.
2B20 0031	Processor is failing POST	The processor has previously failed BIST or POST. Replace the processor MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.
2B20 0042	Unknown processor card	Remove the unknown/unsupported processor MCM.
2B20 8880	Unrecoverable processor subsystem error	Replace the FRU indicated in the service processor error log entry. If the system has been rebooted, run diagnostics and look for an AIX error log entry in which the description says cache or cache controller error. Replace the FRUs listed in this entry.
2B20 8881	Software error	Call service support.
2B20 8882	Software error	Call service support.
2B20 8883	Software error	Call service support.
2B20 8884	Unrecoverable processor subsystem error	Replace the FRU indicated in the service processor error log entry. If the system has been rebooted, run diagnostics and look for an AIX error log entry in which the description says cache or cache controller error. Replace the FRUs listed in this entry.
2B20 8885	Unrecoverable internal hardware error	Run diagnostics. Look for an AIX error log entry in which the description says I/O bus time out, access, or other error or I/O bridge/device internal error. Replace the FRUs listed in this entry.
2B20 8888	Operating system termination request received	Informational message.

Error Code	Description	Action/ Possible Failing FRU
2B2x 00EE	An exception error has been reported on a global processor	The type of interrupt that caused the exception is specified by the x as follows: **0:** Unknown interrupt **1:** System reset interrupt (SRI) **2.** Machine check interrupt (MCI) **3.** Data storage interrupt (DSI) **4.** Instruction storage interrupt (ISI) **5.** External interrupt (EXI) **6.** Alignment interrupt (ALI) **7.** Program interrupt (SRI) **8.** Floating unavailable interrupt (FUI) 1. Check for system firmware updates. Apply if available. 2. Call service support.
2BA0 0000	Service processor POST failure	Replace the service processor, Location: U1.x-P1-X1.
2BA0 0012	Service processor reports self test failure	Replace the service processor, Location: U1.x-P1-X1.
2BA0 0013	Service processor reports bad NVRAM CRC	Refer to the actions for 25A8 0xxx.
2BA0 0017	Service processor reports bad or low battery.	Refer to the actions for 25A8 0xxx.
2BA0 0041	Service processor VPD is corrupted.	Replace the service processor Location: U1.x-P1-X1.
2BA0 0071	VPD data is corrupted for MCM 0	Replace the MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.
2BA0 0073	VPD data is corrupted for MCM 2	Replace the MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.
2Cmm mhhh	A processor's timebase enable signal is stuck enabled	1. Replace the service processor Location: U1.x-P1-X1. 2. Replace the MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.

Error Code	Description	Action/ Possible Failing FRU
2Dmm mhhh	A processor's timebase enable signal is stuck disabled	1. Replace the service processor Location: U1.x-P1-X1. 2. Replace the MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.

Service Processor Error Codes

Attention: Follow the procedure defined in “Checkpoints and Error Codes Index” on page 349. If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to “MAP 1542: I/O Problem Isolation” on page 274 unless you were already directed to any MAP 154*x* by the error code. Otherwise call support if the action(s) for an error code do not resolve the problem.

Attention: If the error code that brought you to this chapter originated in the AIX error log, please be aware that an error may require an additional 15 minutes to be propagated to the AIX error log.

If you replace FRUs and the problem is corrected, go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Notes:

1. The MCM and its associated VPD card are a single FRU, and must be replaced as a set.
2. The following table lists error codes for a group of error code numbers (prefix) listed in the first row of the table. Error code suffixes for that group of error codes follow in the table.

Error Code Groups (4063, 4064, 4065, 4066, 4067, 4068, 4069, 406A, 406B, 406C, 406D, 406E, 406F)		
Error Code	**Description**	**Action/ Possible Failing FRU**
406x 0002	Processor subsystem backplane failure	Replace processor subsystem backplane Location: U1.x-P1.
406x 0003	Processor subsystem tests detected fault in MCM module 0	Replace the MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1.
406x 000A	Processor subsystem tests detected fault in I/O card	Replace the I/O card Location: U1.x-P1-H1.
406x 0010	Processor subsystem tests detected fault in memory card 1	Replace memory card Location: U1.x-P1-M1.
406x 0011	Processor subsystem tests detected fault in memory card 2	Replace memory card Location: U1.x-P1-M2.
406x 0012	Processor subsystem tests detected fault in memory card 3	Replace memory card Location: U1.x-P1-M3.
406x 0013	Processor subsystem tests detected fault in memory card 4	Replace memory card Location: U1.x-P1-M4.
406x 00B0	Possible problem with bus controller or service processor firmware	1. Check for system firmware updates. 2. Processor subsystem backplane Location: U1.x-P1. 3. Call service support.

Error Code Groups (4063, 4064, 4065, 4066, 4067, 4068, 4069, 406A, 406B, 406C, 406D, 406E, 406F)		
Error Code	**Description**	**Action/ Possible Failing FRU**
406x 00B1	Possible problem with bus controller	1. Check for system firmware updates. 2. Processor subsystem backplane Location: U1.x-P1. 3. Call service support.
406x 00B3	MCM/VPD problem controller	1. Check for system firmware updates. 2. MCM and VPD card Location: U1.x-P1-C2 and U1.x-P1-X1.1. 3. Call service support.
406x 00B7	Insufficient hardware resources detected to continue IPL after processor subsystem testing and initialization completed	Go to "MAP 1540: Problem Isolation Procedures" on page 267.
406x 0A03	Reboot message (run-time array gard failure) for processor 0	Reboot the system in slow mode. Run diagnostics, then go to MAP 0235 in the @server *pSeries Diagnostic Information for Multiple Bus Systems* order number SA38-0509.
406x 0B00	Processor subsystem tests detected fault on RIO port 0	Replace the processor subassembly backplane Location: U1.x-P1.
406x 0B01	Processor subsystem tests detected fault on RIO port 1	Replace the processor subassembly backplane Location: U1.x-P1.
406x 0BF0	Processor subsystem tests detected fault in I/O hub chip 0 (port x)	1. Check the cabling on the following RIO ports: U1.x-P1/Q1 U1.x-P1/Q2. 2. Replace processor subsystem backplane Location: U1.x-P1.
406x 0CA5	Processor subsystem tests detected invalid processor subsystem configuration	Verify that MCM, memory cards, and L3 modules are correctly installed in a valid configuration.
406x 0CA6	Processor subsystem tests detected no usable main storage	Reboot the system in slow mode to isolate the failure.
406x 0CA9	Processor subsystem tests detected config error with proc memory	Reboot the system in slow mode to isolate the failure.
406x 0CAA	There is more memory installed than allowed, or less memory installed than the minimum for this system	Verify that MCM, memory cards, and L3 modules are correctly installed in a valid configuration.

Error Code Groups (4063, 4064, 4065, 4066, 4067, 4068, 4069, 406A, 406B, 406C, 406D, 406E, 406F)		
Error Code	**Description**	**Action/ Possible Failing FRU**
406x 0D00	Processor subsystem tests detected fault in L3 cache module 0	L3 cache module 0 Location: U1.x-P1-C5.
406x 0D01	Processor subsystem tests detected fault in L3 cache module 1	L3 cache module 1 Location: U1.x-P1-C3.
406x 0D02	Processor subsystem tests detected fault in L3 cache module 2	L3 cache module 2 Location: U1.x-P1-C1.
406x 0D03	Processor subsystem tests detected fault in L3 cache module 3	L3 cache module 3 Location: U1.x-P1-C4.
406x 0EA0	Processor subsystem tests detected fault in MOPS service processor code	1. Check for system firmware updates. 2. Call service support.
406x 0EA1	Processor subsystem tests detected fault in processor subsystem code on main processor	1. Check for operating system updates. 2. Call service support.
406x 0EA2	Processor subsystem tests detected fault in PRD code on service processor	1. Check for system firmware updates. 2. Call service support.
406x 0EA4	Contact next level of support	1. Check for system firmware updates. 2. Call service support.
406x 0EAF	Processor subsystem tests detected unknown service processor code type	1. Check for system firmware updates. 2. Call service support.
406x 0EB0	Processor subsystem tests detected JTAG problem	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB1	Attention line 0 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB2	Attention line 1 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB3	Attention line 2 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB4	Attention line 3 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB5	Attention line 4 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB6	Attention line 5 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB7	Attention line 6 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.

Error Code Groups (4063, 4064, 4065, 4066, 4067, 4068, 4069, 406A, 406B, 406C, 406D, 406E, 406F)		
Error Code	**Description**	**Action/ Possible Failing FRU**
406x 0EB8	Attention line 7 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EB9	Attention line 8 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EBA	Attention line 9 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EBB	Attention line 10 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EBC	Attention line 11 stuck fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
406x 0EE1	Processor subsystem tests detected fault in service processor code (invalid MRU to mapping)	1. Check for system firmware updates. 2. Call service support.
406x 0EE2	Processor subsystem tests detected fault in service processor firmware	1. Check for system firmware updates. 2. Call service support.
406x 0EE5	Processor subsystem tests detected firmware error; no callout available	1. Check for system firmware updates. 2. Call service support.

The following table lists error codes in the 450x, 460x, and 4B2x prefix sequence. These error codes begin with 4503 (with an accompanying CCIN number) and repeat through 450F (with an accompanying CCIN number.)

Error Code Groups (450x, 4060x, and 4B2x)		
Error Code	**Description**	**Action/ Possible Failing FRU**
450x 25EE	Memory subsystem fault	1. Replace the processor subsystem backplane, Location: U1.x-P1. 2. Replace the memory cards one at a time until the failure is isolated.
450x 25F7	L3 cache module fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
450x 306D	4 GB memory card fault	1. Replace the memory card specified by the location. 2. Replace the processor subsystem backplane, Location: U1.x-P1.

Error Code Groups (450x, 4060x, and 4B2x)		
Error Code	**Description**	**Action/ Possible Failing FRU**
450x 306E	8 GB memory card fault	1. Replace the memory card specified by the location. 2. Replace the processor subsystem backplane, Location: U1.x-P1.
460x 25E2	Service processor fault	Replace the service processor Location: U1.x-P1-X1.
460x 25EE	Processor subsystem backplane fault	Replace the processor subsystem backplane Location: U1.x-P1.
4B2x 25F5	4–way processor MCM fault	1. Replace the processor MCM, Location: U1.x-P1-C2 and VPD card Location: U1.x-P1-X1.1. 2. Replace the processor subsystem backplane Location: U1.x-P1.
4B2x 25F6	8-way processor MCM fault	1. Replace the processor MCM, Location: U1.x-P1-C2 and VPD card Location: U1.x-P1-X1.1. 2. Replace the processor subsystem backplane Location: U1.x-P1.
4B2x 25F7	L3 cache module fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.

System Firmware Update Messages

Error Code	Description	Action/ Possible Failing FRU
A1FD 0000	Firmware update recovery mode entered	Informational message
A1FD 0001	Service processor flash recovery	Insert Diskette #1
A1FD 0002	Service processor flash recovery	Insert Diskette #2
A1FD 0003	Service processor flash recovery	Insert Diskette #3
A1FD 0004	Service processor flash recovery	Insert Diskette #4
A1FD 000n	Service processor flash recovery	Insert Diskette #n

Capacity Upgrade on Demand (CUoD) Messages

Error Code	Description	Action/ Possible Failing FRU
A100 C2AC	Waiting for user to accept CUoD license agreement	User must click to accept license agreement. If the user declines, the IPL will be halted.

Scan Dump Messages

Error Code	Description	Action/ Possible Failing FRU
A100 3000	Successful completion of scan dump	Informational message; may or may not be seen during a scan log dump.
A1FF 3000	Scan dump has been disabled	Informational message; may or may not be seen during a scan log dump.

Common Firmware Error Codes

Attention: Follow the procedure defined in "Checkpoints and Error Codes Index" on page 349. If you replace FRUs or perform an action on an I/O subsystem and the problem is still not corrected, go to "MAP 1542: I/O Problem Isolation" on page 274 unless you were already directed to any MAP 154*x* by the error code. Otherwise call support if the action(s) for an error code do not resolve the problem.

Attention: If the error code that brought you to this chapter originated in the AIX error log, please be aware that an error may require an additional 15 minutes to be propagated to the AIX error log.

If you replace FRUs and the problem is corrected, go to ″MAP 0410: Repair Checkout″ in the *@server pSeries Diagnostic Information for Multiple Bus Systems*.

Error Code	Description	Action/ Possible Failing FRU
B006 1403	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B006 1404	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B006 1405	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B006 1406	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B006 1407	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B006 1408	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B006 1409	CSP Firmware	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B10F 1000	CSP DRAM failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1002	CSP 403 failure	Replace the service processor card Location: U1.x-P1-X1.

Error Code	Description	Action/ Possible Failing FRU
B10F 1005	CSP Titan failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1007	CSP Winbond failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1008	CSP Super I/O failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 100E	CSP boot flash corrupted	Replace the service processor card Location: U1.x-P1-X1.
B10F 100F	CSP boot flash corrupted	Replace the service processor card Location: U1.x-P1-X1.
B10F 1300	CSP H/W failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1370	CSP flash update failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1380	CSP program failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1381	CSP flash error (reinstall firmware)	Replace the service processor card Location: U1.x-P1-X1.
B10F 1384	CSP bus error exception	Replace the service processor card Location: U1.x-P1-X1.
B10F 1387	CSP resource allocation failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1400	CSP interrupt failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1401	CSP interrupt failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1670	CSP falsh update error (reinstall firmware)	Replace the service processor card Location: U1.x-P1-X1.
B10F 1672	CSP invalid LID table	Call service support.
B10F 1675	CSP memory failure	Replace the service processor card Location: U1.x-P1-X1.
B10F 1681	CSP invalid LID directory	Call service support.
B10F 1682	CSP missing LID	Call service support.
B10F 1683	CSP invalid load	Call service support.
B1xx 4600	Service processor failure	Replace the service processor card Location: U1.x-P1-X1.
B1xx 4602	RIO failure	Check RIO cabling. Check seating of RIO adapters and cards.

Error Code	Description	Action/ Possible Failing FRU
B1xx 4603	Service processor firmware corrupted	1. Reflash the system firmware updates; apply an update if it is available. 2. Replace the service processor card Location: U1.x-P1-X1. 3. Replace the processor subsystem backplane Location: U1.x-P1.
B1xx 4606	Service processor code failure	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 4608	Service processor early termination (reset/reload firmware)	1. Reset the service processor by removing, then reapplying power to the processor subsystem using the HMC. 2. Reflash system firmware. 3. Replace the service processor card Location: U1.x-P1-X1.
B1xx 460A	Time-of-day clock has been reset	1. Set time-of-day clock 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 460B	NVRAM/Time-of-day battery	Replace battery Location: U1.x-P1-X1-V2.
B1xx 4611	Service processor failure	1. Reboot the system in slow mode to isolate the problem with the service processor. 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 4612	Service processor failure	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 4613	Service processor failure	Replace the service processor card Location: U1.x-P1-X1.
B1xx 4614	Service processor failure related to processor subsystem	Reboot the system in slow mode to isolate the problem with the service processor.
B1xx 4622	Service processor failure	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 4633	System power control network (SPCN) failure	Replace the service processor card Location: U1.x-P1-X1.

Error Code	Description	Action/ Possible Failing FRU
B1xx 4634	SPCN loop fault	Replace the service processor card Location: U1.x-P1-X1.
B1xx 4635	AC input was removed, then restored.	Informational message. Look at the service processor error log for additional error codes relating to loss of ac power to the system.
B1xx 4636	System is running on battery back-up power	Informational message.
B1xx 4643	LED 12C fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
B1xx 4644	Processor VPD system fault	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 4645	I2C (non-processor) VPD system fault	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
B1xx 4646	General VPD system fault	1. Check for system firmware updates. Apply if available. 2. Replace the service processor card Location: U1.x-P1-X1.
B1xx 4647	Machine type and model fields missing or invalid in system VPD	The machine type and model fields must be rewritten. Call service support.
B1xx 4648	Processor subsystem backplane VPD or power source problem	Go to “MAP 1540: Problem Isolation Procedures” on page 267.
B1xx 4650	System processor failure (all processors reset).	Reboot the system in slow mode to isolate the failure.
B1xx 4651	CPU GARD VPD on MCM 0	MCM at location: U1.x-P1-C2 and VPD card at location U1.x-P1-X1.1.
B1xx 4660	Memory subsystem failure (can’t isolate)	Reboot the system in slow mode to isolate the failure, then check the service processor error log for failing FRUs associated with this error code.
B1xx 4661	Memory card VPD failure (Should be caught elsewhere with details)	Reboot the system in slow mode to isolate the failure, then check the service processor error log for failing FRUs associated with this error code.
B1xx 4662	Memory card VPD failure (Should be caught elsewhere with details)	Reboot the system in slow mode to isolate the failure, then check the service processor error log for failing FRUs associated with this error code.
B1xx 4681	JTAG scan system (cabling)	Replace the processor subsystem backplane Location: U1.x-P1.

Error Code	Description	Action/ Possible Failing FRU
B1xx 4682	Problem with system VPD	1. Replace the processor subsystem backplane Location: U1.x-P1. 2. Call service support.
B1xx 4690	Operating system surveillance time out (AIX to service processor interface failure)	1. This error code indicates that the operating system terminated early (which usually implies an operating system crash). This error code may appear in the service processor error log by itself. However, in the AIX error log, there should be another error that points to the cause of the operating system crash. Use the other error as the starting point for your service action. 2. The other possibility is that the operating system was not found during a prior boot attempt. To determine if this occurred, do the following: Look at the AIX error log entry containing B1xx4690. This will be a ″SCAN_ERROR_CHRP″ error with an identifier of BFEC0425. In the detail data, find the string ″B1xx4690″ (If present, it will be at byte 60 of the detail data.) Then go forward 8 bytes after the ″B1″ to byte 68 and look at bytes 68 and 69. If the values of bytes 68 and 69 are A2B0, this indicates that the firmware was unable to find a bootable device in the boot list that is set in the SMS menus. If the system is up, the boot list problem has been corrected and the B1xx 4690 can be treated as an informational message with no actions required. 3. Call service support.

Error Code	Description	Action/ Possible Failing FRU
B1xx 4691	System firmware surveillance interval exceeded (system firmware to service processor interface failure)	1. Check for system firmware updates. 2. If accessible, go to the service processor main menu and select **System Information Menu.** Then, select **Read Progress Indicators From Last System Boot**. Begin your repair action with the error code (use Chapter 5) or checkpoint (use Chapter 4) immediately preceeding B1xx 4691. If a location code appears with the error code or checkpoint, replace the part at that location. If no location code is specified, follow the repair actions for the error code or checkpoint. If a location code appears with the error code or checkpoint, replace the part at that location. If no location code is specified, follow the repair actions for the error code or checkpoint 3. If the service processor menus are not accessible, reboot the system and watch the operator panel value on the HMC. Record the last 4-digit checkpoint before any 8-digit error code. Use this checkpoint and go to "Checkpoints and Error Codes Index" on page 349 and follow the instructions. 4. If the problem is not solved, call the second level of support.
B1xx 4692	Service processor firmware fault	1. Check for system firmware updates. 2. Call service support.
B1xx 4693	Service processor firmware fault	1. Check for system firmware updates. 2. Call service support.
B1xx 4694	Service processor firmware fault	1. Check for system firmware updates. 2. Replace the processor subassembly backplane Location: U1.x-P1.

Error Code	Description	Action/ Possible Failing FRU
B1xx 4695	System power control network to service processor interface failure	1. Check for system firmware updates. 2. Replace the processor subassembly backplane Location: U1.x-P1.
B1xx 4696	Service processor/system firmware/AIX interface fault	Check the error logs.
B1xx 4698	Service processor firmware error This is usually an indication that the interposer plug count has not been set after an MES upgrade or FRU replacement of an MCM or L3 cache module. It can also indicate that the plug count values were not revalidated ater the service processor card was replaced. In both cases, it is only an informational message. If the managed server is down, go to the service processor error log and find the error log entry containing B1xx 4698. Look at the first two bytes of word 13 of the detailed entry information. If the managed server is running, look at the AIX error log entry containing B1xx 4698. This will be the ″SCAN_ERROR_CHRP″ error with an identifier of BFE4C025. In the detail data, find the string ″B1xx 4698.″ (If present, it will be at byte 60 of the detail data.) Then go forward 8 bytes after the ″B1″ to byte 68 and look at bytes 68 and 69. If the value is E10B or E10C, do the following: 1. If the service processor card was just replaced, go to the service processor menus and select **System Information Menu**. Then, select **MCM/L3 Interposer Plug Count Menu**. At the `0>`, enter `50` to commit the values and write them to the VPD. Exit the menu completely before powering on the system. 2. If an MCM or L3 cache module was just added or replaced, go to the service processor menus and select **System Information Menu**. Find the index number that corresponds to the module that was just added or replaced and enter the new plug count that was included in the FRU or MES kit. If the plug count is not included with the FRU, enter **7** as the new plug count (to account for the number of times the module was plugged during the manufacturing process). Exit the menu completely before powering on the system. For all other values of bytes 68 and 69, or the first two bytes of word 13, do the following; 1. Check for system firmware updates. 2. Use the HMC to reset the service processor. 3. Call service support.	

Error Code	Description	Action/ Possible Failing FRU
B1xx 4699	Service processor firmware failure This is usually an indication of a problem in the communication path between the HMC and the service processor. It may only be an informational message. If the managed server is down, go to the service processor error log and find the error log entry containing B1xx 4699. Look at the first two bytes of word 13 of the detailed entry information. If the managed server is running, look at the AIX error log entry containing B1xx 4699. This is a ″SCAN_ERROR_CHRP″ error with an identifier of BFE4C025. In the detail data, find the string ″B1xx 4699″. (If present, it will be at byte 60 of the detail data.) Then go forward 8 bytes after the ″B1″ to byte 68 and look at bytes 68 and 69. Perform the following actions based on the values of bytes 68 and 69 listed below from the AIX error log entry, or on the first two bytes of word 13 from the service processor error log entry: **A205:** Machine type and model fields are not valid in the VPD module. Obtain a service processor card. Do not swap the old VPD module onto the new service processor card. Call service support for instructions on how to write the machine type and model into the new VPD module. **A20B:** Error requesting trace buffer for service processor. **Actions:** 1. Reset the service processor, if possible. 2. Check for system firmware updates. Apply the updates if they are available. **A218:** Unknown return code detected. **Actions:** Check for system firmware updates. Apply the updates if they are available. **A21A:** Error allocating an internal service processor. **Actions:** 1. Reset the service processor, if possible. 2. Check for system firmware updates. Apply the updates if they are available. **A800:** This indicates an HMC/service processor initialization failure. **Actions:** 1. Check for system firmware updates. 2. Replace the service processor, location: U1.x-P1-X1. **A801:** This indicates an HMC wrap failure. **Actions:** Replace the service processor, location: U1.x-P1-X1.	

<table>
<tr><th>Error Code</th><th>Description</th><th>Action/
Possible Failing FRU</th></tr>
<tr><td>B1xx 4699 (Continued)</td><td colspan="2">A806: This indicates a loss of the surveillance heartbeat between the HMC and the service processor.
Actions:
1. Make sure that the HMC is booted and operational.
2. Check the serial cables that go from the HMC to the service processor, location: U1.x-P1-X1.

If there are no other error codes or indications of a problem, the A806 (loss of surveillance heartbeat) was a temporary condition and has been resolved; the B1xx 4699 code is then an informational message only.

If the problem persists:
1. Check the serial cables connecting the HMC to the service processor, location: U1.x-P1-X1.
2. Run diagnostics on the serial port on the HMC.
3. Run diagnostics on the serial ports on the service processor in the managed server.

Values of A009 and A719 of bytes 68 and 69 in the AIX error log entry or the first two bytes of word 13 in the service processor error log entry as also informational entries:
A009: The system received a power-off request at run time from the HMC.
A719: Primary power failed; the system switched to battery backup power.

For all other values of bytes 68 and 69, or the first two bytes of word 13, do the following:
1. Check for system firmware updates.
2. Reset the service processor using the HMC.
3. Call service support.</td></tr>
<tr><td>B1xx 469A</td><td>Service processor firmware failure</td><td>1. Check for system firmware updates.
2. Call service support.</td></tr>
<tr><td>B1xx 469B</td><td>Firmware to I/O interface failure</td><td>1. Check for system firmware updates.
2. Replace the service processor Location: U1.x-P1-X1.</td></tr>
<tr><td>B1xx 469C</td><td>Firmware to I/O interface failure</td><td>1. Check for system firmware updates.
2. Replace the service processor Location: U1.x-P1-X1.</td></tr>
</table>

Error Code	Description	Action/ Possible Failing FRU
B1xx 469D	Service processor firmware failure	1. Check for system firmware updates. 2. Reboot the system in slow mode to isolate the problem in the processor subassembly. 3. Replace the service processor Location: U1.x-P1-X1.
B1xx 469E	Service processor firmware failure	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1.
B1xx 469F	Service processor firmware	1. Check for system firmware updates. 2. Replace the service processor Location: U1.x-P1-X1.
B1xx 8FF0	Informational message	No action required

Problem Determination-Generated Error Codes

Table 1. Problem Determination-Generated Error Codes

Error Code	Description	Action/ Possible Failing FRU
M0BT 0000	The system hung during speaker POST. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Go to “MAP 1542: I/O Problem Isolation” on page 274.
M0BT 0001	The system hung during “Starting Software.”. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Go to “MAP 1542: I/O Problem Isolation” on page 274.
M0KB D000	The system hung during keyboard POST. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Keyboard.
M0KB D001	The system did not respond to a keyboard entry. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Type 101 keyboard.
M0KB D002	The system did not respond to a keyboard entry. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Type 102 keyboard.
M0KB D003	The system did not respond to a keyboard entry. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Kanji-type keyboard.
M0ME M002	The system hung during memory POST. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Go to “MAP 1542: I/O Problem Isolation” on page 274.
M0NE T000	The system hung during network POST. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Go to “MAP 1542: I/O Problem Isolation” on page 274.
M0PS 0000	Power failure. This error code is generated by the customer performing “Problem Determination” in the @server *pSeries 655 User’s Guide*.	Go to “MAP 1520: Power” on page 173.

Table 1. Problem Determination-Generated Error Codes (continued)

Error Code	Description	Action/ Possible Failing FRU
M0SC SI00	Unable to load diagnostics. This error code is generated by the customer performing "Problem Determination" in the @server *pSeries 655 User's Guide*.	Go to "MAP 1542: I/O Problem Isolation" on page 274.
M0SC SI01	Unable to load diagnostics. This error code is generated by the customer performing "Problem Determination" in the @server *pSeries 655 User's Guide*.	Go to "MAP 1542: I/O Problem Isolation" on page 274.

Hypervisor Dump Retrieval Procedure

This procedure defines the requirements and methods for retrieving a hypervisor (LPAR) dump file following a system crash. This procedure is only applicable if the managed system had been running as a partitioned system before it crashed.

This procedure requires the managed system to be rebooted as a partitioned system. Retrieval must then take place from an AIX partition.

Hypervisor Dump Indications

If the system is displaying error code 20D00997, 20D00998, or 20D00999 on the HMC virtual operator panel, this indicates that a system crash within the run time firmware has occurred.

If error code 20D00997, 20D00998, or 20D00999 is in the service processor error log, this indicates that a system crash within the run-time firmware has occurred. The following is an example of a detailed service processor error log entry with error code 20D00999:

```
05/29/2001 21:06:12     Operating System Terminated with Error String
Error code: 20D00999
Detail:     A2C1


SRC
--------------------------------------------------------------
word11: B1194690    word12: 04A0005D    word13: A2C1C0FA
word14: 00000000    word15: 00007701    word16: 00000008
word17: 00000000    word18: 00000000    word19: 00000000

20D00999
```

After a system crash has occurred, verify that a hypervisor dump has been collected, as described in the following steps.

Retrieving the Hypervisor Dump file

After it has been determined that the managed system has crashed and a hypervisor dump exists, or the user wants the test for an existing dump file, the managed system must be rebooted as a partitioned system. A partition or partitions running AIX must then be activated. After it is rebooted, any partition running AIX can be used to retrieve the dump file.

1. Install the **devices.chrp_lpar.base.ras** fileset.

   The fileset must be installed and committed. To determine if the package has been previously installed, enter the following command on the AIX command line:

   ```
   lslpp -l | grep devices.chrp_lpar.base.ras
   ```

   If the output on the AIX console is similar to the following:

   ```
   devices.chrp_lpar.base.ras      5.X.X.X   COMMITTED    CHRP LPAR RAS Support
   ```

   the **devices.chrp_lpar.base.ras** fileset is already installed and no further action for step 1 is necessary. If no output is returned, you must install the **devices.chrp_lpar.base** LPP from the AIX installation media. This task must be done by the customer or system administrator.

   After the fileset is installed, the dump file is ready to be retrieved.

2. Enter `fetchdbg -k` at the command prompt.

   This produces the following output:

   ```
   Retrieving Dump File ............Dump read successful
   ```

   This will result in a file being written into the **/tmp** directory named dumpMMDDYY where MM is the current month, DD is the current day, and YY is the current year. The **/tmp/dumpMMDDYY** file should be forwarded to service support.

   If the following text displays on the AIX console:

   ```
   Retrieving Dump File
   Error performing dump read
   ```

   Note the error and report it to service support.

Chapter 6. Using the Online and Standalone Diagnostics

Running diagnostics verifies system hardware operation. The diagnostics consist of online diagnostics and standalone diagnostics.

Note: The diagnostic procedures described in this chapter must be run for each processor subsystem installed in a rack.

Attention: The AIX operating system must be installed in a partition in order to run online diagnostics on that partition. If the AIX operating system is not installed, use the standalone diagnostic procedures.

Online diagnostics, when they are installed, reside with AIX in the file system. They can be booted:

- In single user mode (referred to as *service mode*)
- To run in maintenance mode (referred to as *maintenance mode*)
- To run concurrently with other applications (referred to as *concurrent mode*)

Standalone diagnostics must be booted before they can be run. If booted, the diagnostics have no access to the AIX error log or the AIX configuration data.

Online and Standalone Diagnostics Operating Considerations

Note: When possible, run online diagnostics in service mode. Online diagnostics perform additional functions compared to standalone diagnostics. Running online diagnostics in service mode ensures that the error state of the system that has been captured in NVRAM is available for your use in analyzing the problem. The AIX error log and certain SMIT functions are only available when diagnostics are run from the disk drive.

Consider the following items before using the diagnostics:

- Standalone diagnostics can run on systems configured for either a full (or single) system partition or a multiple partitioned system. When running in a partitioned system, the device from which you are booting standalone diagnostics must be made available to the partition dedicated to running standalone diagnostics. This may require moving the device from the partition that currently contains the boot device (for example, the network adapter connected to the Network Installation Management (NIM) server that has a standalone diagnostic image) to the partition used to run standalone diagnostics. If you move devices, reboot both partitions. For more information, see “Standalone Diagnostic Operation” on page 430.
- When diagnostics are installed, the device support for some devices might not get installed. If this is the case, that device does not display in the diagnostic test list when running disk-based diagnostics.
- When running diagnostics in a partitioned system, diagnostics function only with the resources that were assigned to that partition. You must run diagnostics in the partition containing the resource that you want to test.

Identifying the Terminal Type to the Diagnostics

When you run diagnostics, you must identify which type of terminal you are using. If the terminal type is not known when the Function Selection Menu is displayed, the diagnostics do not allow you to continue until a terminal is selected from the Define Terminal Option Menu. Choose the `vt320` selection when running diagnostics from an HMC.

Undefined Terminal Types

If you specify an undefined terminal type from the Define Terminal Option Menu, the menu prompts the user to enter a valid terminal type. The menu redisplays until either a valid type is entered or you exit the Define Terminal option.

Resetting the Terminal

If you enter a terminal type that is valid (according to the Define Terminal Option Menu) but is not the correct type for the HMC virtual terminal window being used, you may be unable to read the screen, use the function keys, or use the Enter key. Bypass these difficulties by pressing Ctrl-C to reset the terminal. The screen display that results from this reset depends on the mode in which the system is being run:

- Online Normal or Maintenance Mode - The command prompt displays.
- Standalone Mode or Online Service Mode - The terminal type is reset to `dumb`, the Diagnostic Operating Instruction panel displays, and you are required to go through the Define Terminal process again.

Running Online Diagnostics

Consider the following when you run the online diagnostics from a server or a disk:

- The diagnostics cannot be loaded and run from a disk until the AIX operating system has been installed and configured.
- The diagnostics cannot be loaded on a system (client) from a server if that system is not set up to boot from a server over a network. When the system is set up to boot from a server, the diagnostics are run in the same manner as they are from disk.
- On full system partitions, if the diagnostics are loaded from disk or a server, you must shut down the AIX operating system before turning off the system unit to prevent possible damage to disk data. Do this in either of the following ways:
  - If the diagnostics were loaded in standalone mode, press the F3 key until `DIAGNOSTIC OPERATING INSTRUCTIONS` displays. Then press the F3 key once again to shut down the AIX operating system.
  - If the diagnostics were loaded in maintenance or concurrent mode, type the `shutdown -F` command.
- Under some conditions, the system might stop, with instructions displayed on attached displays and terminals. Follow the instructions to select a console display.

Online Diagnostics Modes of Operation

Note: When running online diagnostics on a partition in a partitioned system, diagnostics can be run only on resources that are allocated to that partition.

The online diagnostics can be run in the following modes:

- Service Mode (see "Service Mode"). Refer to "Running Online Diagnostics in Service Mode" on page 428 for instructions on how to run the diagnostics in service mode.
- Concurrent Mode (see "Concurrent Mode"). Refer to "Running the Online Diagnostics in Concurrent Mode" on page 429 for instructions on how to run the diagnostics in service mode.
- Maintenance Mode (see "Maintenance Mode" on page 428). Refer to "Running the Online Diagnostics in Maintenance Mode" on page 429 for instructions on how to run the diagnostics in service mode.

Service Mode

Service mode provides the most complete checkout of the system resources. This mode also requires that no other programs be running on the partition or system on a full system partition. All partitions or system on a full system partition resources, except the SCSI adapter and the disk drives used for paging, can be tested. However, note that the memory and processor are only tested during POST, and the results of the POST tests are reported by diagnostics.

Error-log analysis is done in service mode when you select the Problem Determination option on the Diagnostic Mode Selection Menu.

Concurrent Mode

Use concurrent mode to run online diagnostics on some of the system resources while the system is running normal activity.

Because the system is running in normal operation, the following resources cannot be tested in concurrent mode:

- SCSI adapters connected to paging devices
- Disk drive used for paging
- Some display adapters and graphics related devices
- Memory (tested during POST)
- Processor (tested during POST)

The following levels of testing exist in concurrent mode:

- The **share-test level** tests a resource while the resource is being shared by programs running in the normal operation. This testing is mostly limited to normal commands that test for the presence of a device or adapter.
- The **sub-test level** tests a portion of a resource while the remaining part of the resource is being used in normal operation. For example, this test could test one port of a multiport device while the other ports are being used in normal operation.

- The **full-test level** requires the device not be assigned to or used by any other operation. This level of testing on a disk drive might require the use of the **varyoff** command. The diagnostics display menus to allow you to vary off the needed resource.

Error-log analysis is done in concurrent mode when you select the Problem Determination option on the Diagnostic Mode Selection Menu.

To run the online diagnostics in concurrent mode, you must be logged in to the AIX operating system and have proper authority to issue the commands (if help is needed, see the system operator).

The **diag** command loads the diagnostic controller and displays the online diagnostic menus.

Maintenance Mode

Maintenance mode runs the online diagnostics using the customer's version of the AIX operating system. This mode requires that all activity on the partition running the AIX operating system be stopped so that the online diagnostics have most of the resources available to check. All of the system resources, except the SCSI adapters, memory, processor, and the disk drive used for paging, can be checked.

Error log analysis is done in maintenance mode when you select the **Problem Determination** option on the Diagnostic Mode Selection Menu.

Use the **shutdown -m** command to stop all activity on the AIX operating system and put the AIX operating system into maintenance mode. The **diag** command is then used to invoke the diagnostic controller so you can run the diagnostics. After the diagnostic controller is loaded, follow the normal diagnostic instructions.

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

Running Online Diagnostics in Service Mode

To run the online diagnostics in service mode from the boot hard disk, do the following:

1. From the HMC, select the desired managed system.
2. Right-click on the mouse and select **Open Terminal Window**.
3. From the Service Processor Menu on the VTERM, select Option 2 **System Power Control**.
4. Select option 6. Verify that the state changes to `currently disabled`. Disabling fast system boot automatically enables slow boot.
5. Select Option 98 to exit the System Power Control Menu.

6. Use the HMC to power on the managed system in a full system partition by selecting the managed system in the Contents area.
7. Right-click or select the desired system in the Contents area. Next, on the menu, choose **Selected**.
8. Select **Power On**.
9. Select the **Power on Diagnostic Stored Boot list** option (refer to “Full System Management Tasks” in the Hardware Management Console , for more information on full system partitions).
10. Enter any passwords, if requested.

    Note: If you are unable to load the diagnostics to the point when the `DIAGNOSTIC OPERATING INSTRUCTIONS` display, go to “Running Standalone Diagnostics from a Network Installation Management (NIM) Server” on page 430.

Running the Online Diagnostics in Concurrent Mode

To run online diagnostics in concurrent mode, do the following:

1. Log in to the AIX operating system as root user or use CE Login.
2. Enter the **diag** command.
3. When the DIAGNOSTIC OPERATING INSTRUCTIONS display, follow the instructions to check out the desired resources.
4. When testing is complete, use the F3 key to return to the DIAGNOSTIC OPERATING INSTRUCTIONS. Press the F3 key again to return to the AIX operating system prompt. Be sure to vary on any resource that you had varied to off.
5. Press Ctrl-D to log off from root user or CE Login.

Running the Online Diagnostics in Maintenance Mode

To run the online diagnostics in maintenance mode, do the following:

1. Stop all programs running on the partition except the AIX operating system (if help is needed, see the system operator).
2. Log in to the AIX operating system as root user or use CE Login.
3. Type the `shutdown -m` command.
4. When a message indicates the system is in maintenance mode, enter the **diag** command.

   Note: It might be necessary to set *TERM* type again.
5. When DIAGNOSTIC OPERATING INSTRUCTIONS screen displays, follow the displayed instructions to check out the desired resources.
6. When testing is complete, use the F3 key to return to DIAGNOSTIC OPERATING INSTRUCTIONS. Press the F3 key again to return to the AIX operating system prompt.
7. Press Ctrl-D to log off from root user or CE Login.

Standalone Diagnostic Operation

Use standalone diagnostics to test the system when the online diagnostics are not installed and as a method of testing the disk drives that cannot be tested by the online diagnostics.

Note: No error log analysis is done by the standalone diagnostics. The standalone diagnostics:

- Are resident on a Network Installation Management (NIM) server
- Provide a method to test the system when the online diagnostics are not installed or cannot be loaded from the disk drive
- Allow testing of the disk drives and other resources that cannot be tested by the online diagnostics
- Do not have access to the AIX configuration data
- Do not have access to the AIX error log
- Do not allow for running of error log analysis

Performing Slow Boot

To fully analyze all of the available information, perform the following steps before doing a hardware repair or replacement:

1. Record the 8-character error code (and location code if present) displayed as the operator panel value displayed on the HMC or that was reported by the customer.
2. Do a slow-mode boot in service mode. This boot can be specified using the System Power Control Menu on the Service Processor Main Menu. (A fast-mode boot skips much of the built-in diagnostic testing.) A slow-mode boot may yield a new 8-character error code displayed as an operator panel value on the HMC and new errors in the service processor error log. If a new error code is reported, use this code to continue problem analysis. See “Running Online Diagnostics in Service Mode” on page 428.

Partitioned System Considerations for Standalone Diagnostics

To run standalone diagnostics on a full system partition, you must reboot the entire system. However, for a partition in a partitioned system, you can boot standalone diagnostics either in a given partition or on the entire system (which is the same procedure as a full system partition). For a partitioned system, before running standalone diagnostics on a given partition, the user must move the device from the existing location where standalone diagnostics is booted (the network adapter connected to the NIM server, in the case of NIM boot of standalone diagnostics), to the partition that will run standalone diagnostics. Devices in a partitioned system are moved on an I/O-slot basis.

Running Standalone Diagnostics from a Network Installation Management (NIM) Server

A client system connected to a network with a NIM server can boot standalone diagnostics from the NIM server if the client-specific settings on both the NIM server and client are correct.

Notes:

1. All operations to configure the NIM server require root user authority.
2. If you replace the network adapter in the client, the network adapter hardware address settings for the client must be updated on the NIM server.
3. The **Cstate** for each standalone diagnostics client on the NIM server should be kept in the *diagnostic boot has been enabled* state.
4. On the client partition, the NIM server network adapter can be put in the bootlist after the boot disk drive. This allows the system to boot in standalone diagnostics from the NIM server if there is a problem booting from the disk drive. Another option is to use the **Select Boot Options** function in the System Management Services (SMS) menu to set up the network adapter that is connected to the NIM server for a one-time boot of standalone diagnostics.

NIM Server Configuration

Refer to the "Advanced NIM Configuration Tasks" chapter of the *AIX Installation Guide and Reference*, for information on doing the following:

- Registering a client on the NIM server
- Enabling a client to run diagnostics from the NIM server

To verify that the client system is registered on the NIM server and the diagnostic boot is enabled, run the command `lsnim -a Cstate -Z` *ClientName* from the command line on the NIM server. Refer to the following table for system responses.

Note: The *ClientName* is the name of the system on which you want to run standalone diagnostics.

System Response	Client Status
`#name:Cstate:` `ClientName:diagnostic boot has been enabled:`	The client system is registered on the NIM server and enabled to run diagnostics from the NIM server.

`#name:Cstate:`
`ClientName:ready for a NIM operation:`
 	
or
 	
`#name:Cstate:`
`ClientName:BOS installation has been enabled:`
	The client is registered on the NIM server but not enabled to run diagnostics from the NIM server.
	Note: If the client system is registered on the NIM server but Cstate has not been set, no data will be returned.

`0042-053 lsnim: there is no NIM object named "ClientName"`	The client is not registered on the NIM server.

Client Configuration and Booting Standalone Diagnostics from the NIM Server

To run standalone diagnostics on a client from the NIM server, do the following:

1. Stop all programs including the AIX operating system (get help if needed).
2. If you are running standalone diagnostics in a full system partition, verify with the system administrator and system users that the system unit can be shut down. Stop

all programs, including the AIX operating system. Refer to the AIX operating system documentation for **shutdown** command information.

Verify with the system administrator and system users using that partition that all applications on that partition must be stopped, and that the partition will be rebooted. Stop all programs on that partition, including the operating system.

3. If you are in a full system partition, power on the system unit to run standalone diagnostics. In a partitioned system, reboot the partition to run standalone diagnostics.
4. When the keyboard indicator is displayed (the word **keyboard** on an HMC virtual terminal window), press the number 1 key on the keyboard to display the SMS menu.
5. Enter any requested passwords.
6. Select **Setup Remote IPL (Initial Program Load)**.
7. Enter the client address, server address, gateway address (if applicable), and subnet mask.
8. If the NIM server is set up to allow pinging from the client system, use the **ping** utility in the RIPL utility to verify that the client system can ping the NIM server. Under the **ping** utility, choose the network adapter that provides the attachment to the NIM server to do the ping operation. If the ping returns with an `OK` prompt, the client is prepared to boot from the NIM server. If ping returns with a `FAILED` prompt, the client cannot proceed with the NIM boot.

   Note: If the ping fails, refer to the *Boot Problems* section of the *@server pSeries 655 Service Guide* and follow the steps for network boot problems.

To do a one-time boot of the network adapter attached to the NIM server network, do the following:

1. Exit to the SMS Main screen.
2. Select **Select Boot Options**.
3. Select **Install or Boot a Device**.
4. On the **Select Device Type** screen, select **Network**.
5. Set the network parameters for the adapter from which you want to boot.
6. Exit completely from SMS.

   The system starts loading packets while doing a **bootp** from the network.

Follow the instructions on the screen to select the system console.

- If `Diagnostics Operating Instructions Version x.x.x` displays, standalone diagnostics have loaded successfully.
- If the AIX login prompt displays, standalone diagnostics did not load. Check the following items:
  - The network parameters on the client may be incorrect.
  - Cstate on the NIM server may be incorrect.
  - Network problems might be preventing you from connecting to the NIM server.

Verify the settings and the status of the network. If you continue to have problems, refer to “Boot Problems” on page 341, and follow the steps for network boot problems.

Chapter 7. Using the Service Processor

Note: The information in this chapter regarding the configuring of serial ports does not apply to the serial ports, or modems attached to those serial ports, on the Hardware Management Console (HMC).

The service processor runs on its own power boundary and continually monitors hardware attributes and the environmental conditions within the system. The service processor is controlled by firmware and does not require the AIX operating system to be operational to perform its tasks.

The service processor menus allow you to configure service processor options, as well as enable and disable functions.

Service processor menus are available using an HMC virtual terminal window when `OK` is displayed on the virtual operator panel or when the service processor has detected a server problem (such as a surveillance failure).

Service Processor Menus

The service processor menus are divided into the following groups:

- General user menu - the user must know the general-access password.
- Privileged user menus - the user must know the privileged-access password.

If the server is powered off, the service processor menus can be accessed on the HMC.

Accessing the Service Processor Menus

Service processor menus are accessed by opening a virtual terminal window on the HMC. After `OK` displays in the virtual operator panel on the HMC, press any key on the keyboard to signal the service processor.

When you gain access, the service processor prompts you for a password (if one is set), and when verified, displays the service processor menus.

The service processor menu prompt, represented by `0>` on the HMC, indicates the serial port to which the terminal is connected.

Saving and Restoring Service Processor Settings

All the settings that you make (except language) from the service processor menus can be backed up either for recovering from a fault that may corrupt these settings, or for replicating these settings to other servers that include a service processor.

The service aid, Save or Restore Hardware Management Policies, can be used to save your settings after initial setup or whenever the settings must be changed for system operation purposes.

It is strongly recommended that you use this service aid for backing up service processor settings to protect the usefulness of the service processor and the availability of the server. Refer to ″Save or Restore Hardware Management Policies,″ in the ″Introduction to Tasks and Service Aids″ section of the @server *pSeries Diagnostic Information for Multiple Bus Systems*.

Menu Inactivity

The service processor exits menu mode after ten minutes of inactivity and displays a message indicating that it has done so. Pressing any key on the virtual terminal window causes the main menu to display.

General User Menu

The menu options presented to the general user are a subset of the options available to the privileged user. The user must know the general-access password, if one is set, to access this menu.

```
        GENERAL USER MENU

 1. Power-on System

 2. Power-off System

 3. Read VPD Image from Last System Boot

 4. Read Progress Indicators from Last System Boot

 5. Read Service Processor Error Logs

 6. Read System POST Errors

99. Exit from Menus

0>
```

- **Power-on System**

  Allows the user to start the system using the current virtual operator panel on the HMC.
- **Power-off System**

  This option is not available on this system.
- **Read VPD Image from Last System Boot**

  Displays manufacturer vital product data, such as serial numbers and part numbers, that were stored from the system boot prior to the one in progress now, for the entire system.
- **Read Progress Indicators from Last System Boot**

  Displays a number of the boot progress indicators, which may include service processor checkpoints, IPL checkpoints, or AIX configuration codes, from the previous system boot. This information can be useful in diagnosing system faults.

  Note: If you are running one or more logical partitions, enter the partition ID (0-15) to display progress indicators for that partition since the last system boot. If your system is running in Full System Partition mode, this option automatically displays details from partition zero.

  The progress indicator codes are listed from top (latest) to bottom (oldest).

  This information is not stored in nonvolatile storage. If the system is powered off using the HMC, this information is retained. If the ac power is disconnected from the system, this information will be lost. For an example, refer to “LCD Progress Indicator Log” on page 468.
- **Read Service Processor Error Logs**

Displays the service processor error logs. For an example, refer to “Service Processor Error Logs” on page 467.

- **Read System POST Errors**

  Displays additional error log information (this option is only for service personnel).
- **Exit from Menus**

  Selecting this option will exit the service processor menus. You can re-enter the menus by pressing any key on the console.

Privileged User Menus

The following menus are available to privileged users only. The user must know the privileged-access password, if one is set, to access these menus.

Main Menu

A listing at the top of the main menu contains the following:

- Your system’s current firmware version
- The firmware copyright notice
- The system name given to your server during setup

You need the firmware version for reference when you either update or repair the functions of your service processor.

The system name, an optional field, is the name that your server reports in problem messages. This name helps your support team (for example, your system administrator, network administrator, or service representative) to more quickly identify the location, configuration, and history of your server. Set the system name, from the main menu, using option 6.

Note: The information under the Service Processor Firmware heading in the following Main Menu illustration is example information only.

```
        Service Processor Firmware
        VERSION: RH011007
        Copyright 2001 IBM Corporation
             SYSTEM NAME


        MAIN MENU

 1. Service Processor Setup Menu

 2. System Power Control Menu

 3. System Information Menu

 4. Language Selection Menu

 5. Call-In/Call-Out Setup Menu
         Not Supported

 6. Set System Name

99. Exit from Menus

0>
```

- **Service Processor Setup Menu**

  See "Service Processor Setup Menu" on page 440 for more information.
- **System Power Control Menu**

  See "System Power Control Menu" on page 445 for more information.
- **System Information Menu**

  See "System Information Menu" on page 448 for more information.
- **Language Selection Menu**

  See "Language Selection Menu" on page 457 for more information.
- **Call-In/Call-Out Setup Menu**

  This function is not available on this system.
- **Set System Name**

  Allows setting of the system name.

Service Processor Setup Menu

The following Service Processor Setup Menu is accessed from the Main Menu:

```
      SERVICE PROCESSOR SETUP MENU

 1. Change Privileged Access Password

 2. Change General Access Password

 3. Enable/Disable Console Mirroring:
        Not Supported

 4. Start Talk Mode
        Not Supported

 5. OS Surveillance Setup Menu

 6. Reset Service Processor

 7. Reprogram Flash EPROM Menu
        Not Supported

 8. Serial Port Snoop Setup Menu
      Not Supported

 9. Scan Log Dump Setup Menu:
 Currently As Needed

98. Return to Previous Menu

99. Exit from Menus

0>
```

Note: Unless otherwise stated in menu responses, settings become effective when a menu is exited using option 98 or 99.

Passwords

Passwords can be any combination of up to eight alphanumeric characters. You can enter longer passwords, but the entries are truncated to include only the first eight characters. The privileged access password can be set from service processor menus or from System Management Services (SMS) utilities (see Chapter 8, “Using System Management Services”, on page 473). The general access password can be set only from service processor menus.

For security purposes, the service processor counts the number of attempts to enter passwords. The results of not recognizing a password within this error threshold are different, depending on whether the attempts are being made locally (at the server) or remotely (through a modem). The error threshold is three attempts.

If the error threshold is reached by someone entering passwords at the server, the service processor commands the server to resume the initial program load (IPL). This action is taken based on the assumption that the server is in an adequately secure location with only authorized users having access. Such users must still successfully enter a login password to access AIX.

If the error threshold is reached by someone entering passwords remotely, the service processor commands the server to power off to prevent potential security attacks on the server by unauthorized remote users. The following table lists what you can access with the privileged-access password and the general-access password.

Privileged Access Password	General Access Password	Resulting Menu
None	None	Service processor MAIN MENU displays.
Set	None	Users with the password see the service processor MAIN MENU. Users without password cannot log in.
Set	Set	Users see menus associated with the entered password.

If you *forget* the password, you must remove the battery for at least 30 seconds to disable the password.

- **Change Privileged-Access Password**

  Set or change the privileged-access password. It provides the user with the capability to access all service processor functions. This password is usually used by the system administrator or root user.
- **Change General-Access Password**

  Set or change the general-access password. It provides limited access to service processor menus, and is usually available to all users who are allowed to power on the server, especially remotely.

  Note: The general-access password can only be set or changed after the privileged access password is set.
- **Enable/Disable Console Mirroring**

  This function is not available on this system.
- **Start Talk Mode**

  This function is not available on this system.
- **OS Surveillance Setup Menu**

  Note: This option is disabled in partitioned systems.

  This menu can be used to set up operating system (OS) surveillance.

  ```
        OS Surveillance Setup Menu

   1. Surveillance:
        Currently Enabled

   2. Surveillance Time Interval:
        2 minutes

   3. Surveillance Delay:
        2 minutes


  98. Return to Previous Menu

  0>
  ```

  - **Surveillance**

    Can be set to Enabled or Disabled.
  - **Surveillance Time Interval**

    Can be set to any number from 2 through 255.
  - **Surveillance Delay**

    Can be set to any number from 0 through 255.

  Refer to "Service Processor System Monitoring - Surveillance" on page 465 for more information about surveillance.
- **Reset Service Processor**

  If this option is selected, entering `Y` causes the service processor to reboot.

- **Reprogram Flash EPROM Menu**

  This function is not available on this system.

- **Serial Port Snoop Setup Menu**

  This function is not available on this system.

- **Scan Log Dump Policy**

  A scan dump is the collection of chip data that the service processor gathers after a system malfunction, such as a checkstop or hang. The scan dump data may contain chip scan rings, chip trace arrays, and SCOM contents.

  The scan dump data are stored in the system control store. The size of the scan dump area is approximately 4 MB.

  During the scan log dump, A8xx (in the range A810 to A8FF) displays in the operator panel value on the HMC. The xx characters will change as the scan log dump progresses. If the xx characters do not change after five minutes, the service processor is hung and must be reset.

  When the scan log dump is complete, depending on how the reboot policy is set, the system will either:

  – Go to the standby state (and the service processor menus will be available), indicated by OK or STBY in the virtual operator panel on the HMC.

  OR

  – Attempt to reboot.

```
Scan Log Dump Setup Menu

      1.  Scan Log Dump Policy:
            Currently As Needed

      2.  Scan Log Dump Content:
            Currently As Requested

      3.  Immediate Dump

     98.  Return to Previous Menu
```

```
    Select from the following options:
    (As Needed=2, Always=3)

    Enter New Option:

0>
```

  The scan log dump policy can be set to the following:

  2 = As Needed
  : The processor run-time diagnostics record the dump data based on the error type. This is the default value.

  3 = Always
  : Selecting this option allows the service processor to record a scan log dump for all error types.

The scan log dump policy can also be set from the Tasks menu in the AIX service aids.

Option 2 displays the following screens:

```
              Scan Log Dump Setup Menu

    1.  Scan Log Dump Policy:
          Currently As Needed

    2.  Scan Log Dump Content:
          Currently As Requested

    3.  Immediate Dump

   98.  Return to Previous Menu
```

```
    Select from the following options:
    (As Requested=1, Optimum=2, Complete=3, Minimum=4)

    Enter New Option:
0>
```

The scan log dump content can be set to the following:

1 = As Requested
: The processor run-time diagnostics will select the contents of the dump file based on the type of error that occurs. This is the default.

2 = Optimum
: The dump will include the smallest amount of information to diagnose a hardware error.

3 = Complete
: The dump will include as much information as possible to allow the complete analysis of hardware and software errors.

4 = Minimum
: The dump will include the smallest amount of information possible (a minimum number of hardware scan log rings).

The complete dump will take the longest time to finish; it may take as long as 1.5 hours on a fully configured system.

The scan log dump content can also be set from the Tasks menu in the AIX diagnostic service aids.

If a valid dump file already exists, the dump control code will stop because the contents of the prior dump must be protected.

Option 3, **Immediate Dump**, can only be used when the system is in the standby state with power on. It is used to dump the system data after a checkstop or machine check occurs when the system firmware is running, or when the operating system is booting or running.

System Power Control Menu

This menu is used to set power control options. Other menus that control boot options are available from this menu.

```
      SYSTEM POWER CONTROL MENU

 1. Enable/Disable Unattended Start Mode:
        Currently Enabled

 2. Ring Indicate Power-On Menu

 3. Reboot/Restart Policy Setup Menu

 4. Power-On System

 5. Power-Off System

 6. Enable/Disable Fast System Boot
        Currently Fast Boot

 7. Boot Mode Menu

98. Return to Previous Menu

99. Exit from Menus

0>
```

- **Enable/Disable Unattended Start Mode**

  Use this option to instruct the service processor to restore the power state of the server after a temporary power failure. Unattended start mode can also be set through the SMS menus. This option is intended to be used on servers that require automatic power-on after a power failure.
- **Ring Indicate Power-On Menu**

  This function is not available on this system.
- **Reboot/Restart Policy Setup Menu**

  The following menu controls the Reboot/Restart Policy:

```
      Reboot/Restart Policy Setup Menu

 1. Number of reboot attempts:
      Currently 1

 2. Use OS-Defined restart policy?
      Currently No

 3. Enable supplemental restart policy?
      Currently Yes

 4. Call-Out before restart:
      Currently Disabled

98. Return to Previous Menu

0>
```

Reboot is the process of bringing up the system hardware; for example, from a system reset or power on. *Restart* is activating the operating system after the system hardware is reinitialized. Restart must follow a successful reboot.

- **Number of reboot attempts** - If the server fails to successfully complete the boot process, it attempts to reboot the number of times specified. Entry values equal to or greater than 0 are valid. Only successive failed reboot/restart attempts are counted.
- **Use OS-Defined restart policy** - In a full system partition, this allows the service processor to react in the same way that the operating system does to major system faults by reading the setting of the operating system parameter **Automatically Restart/Reboot After a System Crash**. This parameter might already be defined, depending on the operating system or its version or level. If the operating system automatic restart setting is defined, it can be set to respond to a major fault by restarting or by not restarting. See your operating system documentation for details on setting up operating system automatic restarts. The default value is No.

  On a partitioned system, this setting is ignored.
- **Enable supplemental restart policy** - The default setting is Yes. When set to Yes in a full system partition, the service processor restarts the system when the system loses control as detected by service processor surveillance, and either:

  The **Use OS-Defined restart policy** is set to No.

  OR

  The **Use OS-Defined restart policy** is set to Yes, and the operating system has no automatic restart policy.

  If set to Yes in a partitioned system, the service processor restarts the system when the system loses control and it is detected by service processor surveillance.
- **Call-Out before restart (Enabled/Disabled)** - If a restart is necessary due to a system fault, and you are running a full system partition, you can enable the service processor to call out and report the event. This option can be valuable if the number of these events becomes excessive, which might signal a bigger problem.

  This setting is ignored on a partitioned system.

- **Power-On System**

  Allows immediate power-on of the system.
- **Power-Off System**

  This option is not available on this system.
- **Enable/Disable Fast System Boot**

  Allows the user to select the IPL type, mode, and speed of the system boot.

  Attention: Selecting the fast IPL results in several diagnostic tests being skipped and a shorter memory test being run.

- **Boot Mode Menu**

  The Boot Mode Menu allows you to select a boot mode.

```
      Boot Mode Menu

 1. Boot to SMS Menu:
      Currently Disabled

 2. Service Mode Boot from Saved List:
      Currently Disabled

 3. Service Mode Boot from Default List:
      Currently Disabled

 4. Boot to Open Firmware Prompt:
      Currently Disabled

98. Return to Previous Menu

0>
```

  To select a boot mode, select a number and press Enter. The item corresponding to the selected number toggles between Disabled to Enabled. If a boot mode is Enabled, the boot mode selected is performed, and the Disabled/Enabled selection is reset to Disabled. The following describes each boot mode:

  – **Boot to SMS Menu**

    When this selection is enabled, the system boots to the SMS Menu.

  – **Service Mode Boot from Saved List**

    This selection causes the system to perform a service mode boot using the service mode boot list saved in NVRAM. If the system boots AIX from the disk drive and AIX diagnostics are loaded on the disk drive, AIX boots to the diagnostics menu.

    Using this option to boot the system is the preferred way to run online diagnostics.

  – **Service Mode Boot from Default List**

    This selection is similar to *Service Mode Boot from Saved List*, except the system boots using the default boot list that is stored in the system firmware. This is normally used to try to boot customer diagnostics from the CD-ROM drive or NIM server.

    Using this option to boot the system is the preferred way to run standalone diagnostics from CD-ROM.

  – **Boot to Open Firmware**

    This option should only be used by service personnel to obtain additional debug information. When this selection is enabled, the system boots to the open firmware prompt.

System Information Menu

This menu provides access to system configuration information, error logs, system resources, and processor configuration.

```
       SYSTEM INFORMATION MENU

 1. Read VPD Image from Last System Boot

 2. Read Progress Indicators from Last System Boot

 3. Read Service Processor Error Logs

 4. Read System POST Errors

 5. Read NVRAM

 6. Read Service Processor Configuration

 7. Processor Configuration/Deconfiguration Menu

 8. Memory Configuration/Deconfiguration Menu

 9. Power Control Network Utilities Menu

10. LED Control Menu

11. MCM/L3 Interposer Plug Count Menu

12. Performance Mode Setup Menu

13. L3 Mode Menu

98. Return to Previous Menu

99. Exit from Menus

0>
```

- **Read VPD Image from Last System Boot**

  Displays manufacturer's vital product data (VPD), such as serial numbers, part numbers, and so on, that was stored from the system boot prior to the one in progress now. VPD from all devices in the system is displayed.

- **Read Progress Indicators from Last System Boot**

  Displays a number of the boot progress indicators, which may include Service Processor checkpoints, IPL checkpoints, or AIX configuration codes, from the previous system boot. This information can be useful in diagnosing system faults.

  The progress indicator codes are listed from top (latest) to bottom (oldest).

  This information is not stored in nonvolatile storage. If the system is powered off using the HMC, this information is retained. If the ac power is disconnected from the system, this information will be lost. For an example, refer to "LCD Progress Indicator Log" on page 468.

- **Read Service Processor Error Logs**

  Displays error conditions detected by the service processor. Refer to "Service Processor Error Logs" on page 467 for an example of this error log.

- **Read System POST Errors**

This option should only be used by service personnel to obtain additional debug information.

- **Read NVRAM**

  Displays Non Volatile Random Access Memory (NVRAM) content.

- **Read Service Processor Configuration**

  Displays current service processor configuration.

- **Processor Configuration/Deconfiguration Menu**

Enable/Disable CPU Repeat Gard

CPU repeat gard will automatically deconfigure a CPU during a system boot if a processor has failed BIST (power-on self-test), caused a machine check or check stop, or has reached a threshold of recoverable errors. The processor will remain deconfigured until repeat gard is disabled or the processor is replaced.

The default is enabled.

For more information, see "Configuring and Deconfiguring Processors or Memory" on page 465.

Enable/Disable Processor Hot Sparing

This function is not available on this system.

This menu allows the user to change the system processor configuration. If it is necessary to take one of the processors offline, use this menu to deconfigure a processor, and then reconfigure the processor at a later time. An example of this menu follows:

```
          PROCESSOR CONFIGURATION/DECONFIGURATION MENU

   77. Enable/Disable CPU Repeat Gard: Currently Enabled
   78. Enable/Disable Processor Hot Sparing (if available): Currently Enabled

    1.  0   3.0  (00)  Configured by system     2.  1   3.1  (00)  Deconfigured by system
    3.  2   3.2  (00)  Configured by system     4.  3   3.3  (00)  Configured by system



   98. Return to Previous Menu

   0>
```

Note: This table is built from vital product data collected during the last boot sequence. The first time the system is powered on, or after the system's nonvolatile RAM (NVRAM) has been erased, this table may be empty. The table is rebuilt during the next boot into AIX.

The fields of the previous table represent the following:

Column 1

(1.) Menu selection index.

Column 2

(0) Logical processor device number assigned by AIX. You can display

these logical device numbers by issuing the following command on the AIX command line:
`lsdev -C | grep proc`

Column 3
(3.0) Processor address list used by the service processor.

Column 4
(00) Error status of the processors.

The error status of each processor is indicated by AB, where B indicates the number of errors and A indicates the type of error according to the following:

1. Bring-up failure
2. Run-time non-recoverable failure
3. Run-time recoverable failure
4. Group integrity failure
5. Non-repeat-gardable error. The resource may be reconfigured on the next boot.

A status of 00 indicates that the CPU has not had any errors logged against it by the service processor.

To enable or disable CPU repeat gard, use menu option 77. CPU repeat gard is enabled by default.

If CPU repeat gard is disabled, processors that are in the ″deconfigured by system″ state will be reconfigured. These reconfigured processors are then tested during the boot process, and if they pass, they remain online. If they fail the boot testing, they are deconfigured even though CPU repeat gard is disabled.

The failure history of each CPU is retained. If a processor with a history of failures is brought back online by disabling repeat gard, it remains online if it passes testing during the boot process. However, if repeat gard is enabled, the processor is taken offline again because of its history of failures.

Note: The processor numbering scheme used by the service processor is different from the numbering scheme used by AIX. Consult the AIX documentation before configuring or deconfiguring a processor to ensure that the correct processor is selected.

Note: The number of processors available to AIX can be determined by issuing the following command on the AIX command line: `bindprocessor -q`

- **Memory Configuration/Deconfiguration Menu**

Enable/Disable Memory Repeat
Memory repeat gard will automatically deconfigure a memory riser card during a system boot if a memory card has failed BIST (power-on self-test), caused a machine check or checkstop, or has reached a threshold of recoverable errors. The memory will remain deconfigured until repeat gard is disabled or the memory card is replaced.

For more information, see “Configuring and Deconfiguring Processors or Memory” on page 465.

Runtime Recoverable Error Repeat Gard

The runtime recoverable error repeat gard flag controls the deallocation of the memory if a recoverable error occurs during runtime. If a recoverable memory error occurs, and runtime recoverable error repeat gard is disabled, the system will continue running with no change in the memory configuration. If a recoverable memory error occurs, and runtime recoverable error repeat gard is enabled, the memory card on which the error occurred will be garded out (taken offline).

The default is disabled.

These menus allow the user to change the system memory configuration. If it is necessary to take one of the memory cards offline, this menu allows you to deconfigure a memory card, and then reconfigure the card at a later time.

When this option is selected, a menu displays. The following is an example of this menu:

```
          MEMORY CONFIGURATION/DECONFIGURATION MENU

   77. Enable/Disable Memory Repeat Gard: Currently Enabled

   78. Runtime Recoverable Error Repeat Gard: Currently Disabled

    1. Memory card

   98. Return to Previous Menu
```

After you select the memory card option by entering 1, a menu displays, allowing the selection of a memory card. The following is an example of this menu.

```
          MEMORY CONFIGURATION/DECONFIGURATION MENU


    1. 16.16(00, -)  Configured by system   2. 16.17(00, -) Configured by system
    3. 16.18(00, -)  Configured by system   4. 16.19(00, 1) Partially deconfigured by system




   98. Return to Previous Menu
```

Note: This table is built from vital product data collected during the last boot sequence. The first time the system is powered on, or after the system's nonvolatile RAM (NVRAM) has been erased, this table may be empty. The table is rebuilt during the next boot into AIX.

The fields in the previous table represent the following:

Column 1

1. Menu selection index/card number

Column 2
  xx.xx : Card address used by service processor

Column 3
  (00.-) Error/deconfiguration status

The error status of the each memory card is indicated by AB, where B indicates the number of errors and A indicates the type of error according to the following table:

1. Bring-up failure
2. Run-time non-recoverable failure
3. Run-time recoverable failure
4. Group integrity failure
5. Non-repeat-gardable error. The resource may be reconfigured on the next boot.

An error status of (00, -) (for example, 11.16(00, -)) indicates that the memory card has not had any errors logged against it by the service processor, and it is fully configured.

The field after the error status will be a ″-″, ″0″, or ″1″. The dash indicates that the memory card is fully configured. A zero or a one indicates that memory repeat gard has deconfigured half of the memory card. If this occurs, the status of the card in the menu is shown as ″Partially deconfigured by system.″

To change the memory configuration, select the number of the memory card. The memory card state will change from `configured` to `deconfigured` or from `deconfigured` to `configured`.

This menu only allows the deconfiguration of an entire card; it does not allow the manual deconfiguration of half a card. If half a card has been configured by the system (″Partially deconfigured″), it can be manually reconfigured using this menu.

In the previous example menu, each line shows two cards and indicates whether they are configured.

To enable or disable Memory Repeat Gard, use menu option 77 of the Memory Configuration/Deconfiguration menu.

To enable or disable runtime recoverable error repeat gard, use option 78 of the Memory Configuration/Deconfiguration menu.

The failure history of each card is retained. If a card with a history of failures is brought back online by disabling Repeat Gard, it remains online if it passes testing during the boot process. However, if Repeat Gard is enabled, the card is taken offline again because of its history of failures.

- **Power Control Network Utilities Menu**

```
       POWER CONTROL NETWORK UTILITIES MENU

 1. Lamp Test for all Operator Panels

 2. Display I/O Type

 3. Change I/O Type

98. Return to Previous Menu

0>
```

  - **Lamp Test for All Operator Panels**

    This option is not available on this system.
  - **Display I/O Type**

    This option is not available on this system.
  - **Change I/O Type**

    Use this option to change the I/O type of the service processor after a service action or configuration change if the I/O type is incorrect. If this option is chosen, you will be asked to make the following entries:

    1. For the I/O drawer address, type `1`.
    2. For the I/O type, type `A5`.

    If either value is not valid, a failure message displays on the console. Press Enter to return to the Power Control Network Utilities Menu.
- **LED Control Menu**

  This menu displays the state of the I/O subsystem disturbance/system attention LED. Use this menu to toggle the attention/fault LEDs between identify (blinking) and off. Option 1 is only available when the system is in the error state (the processor subsystem is powered on and the service processor menus are available). Option 1 is not available when the system is in standby. An example of this menu follows:

```
      LED Control Menu


   1. Set/Reset Identify LED state

   2. Clear System Attention Indicator


98. Return to Previous Menu

 0 >
```

  If option 1 is selected, a list of location codes of the I/O subsystems is shown. The screen will be similar to the following:

```
      LED Control Manu

    1. U1.9-P1
    2. U1.9-P2
    3. U1.5-P1
    4. U1.5-P2



Enter number corresponding to the location code, or
press Return to continue, or 'x" to return to the menu.

0>4
```

If one of the devices is selected using the index number, the present state of its LED will be displayed, and you will be given the option to toggle it as shown in these example screens. The final state of the LED will then be displayed whether it was changed or not.

```
     U1.5–P2 is currently in the OFF state

     Select from the following (1=IDENTIFY ON, 2=IDENTIFY OFF)

0>2
```

```
     Please wait ...

     U1.5-P2 is currently in the OFF state
     (Press Return to continue)
```

Option 2 is not available on this system.

- **MCM/L3 Interposer Plug Count Menu**

  Attention: Do not power on the system when in this menu. Fully exit from this menu before powering on the system.

  This menu tracks the number of times that the MCM and L3 cache modules have been plugged into the system backplane.

  If the MCM or L3 cache module is reseated or replugged, the plug count for that module must be incremented by 1. If the plug count exceeds the limit of 10 (reaches 11 or greater), a 450x yyyy or 4B2x yyyy error with a detail value of CFF0 that calls out an MCM or L3 cache module will be posted in the service processor error log. The FRU should be replaced during a deferred service call.

  If the MCM or L3 cache module is replaced, or installed during an MES upgrade, the plug count must be set using the interposer plug count menu. If the plug count information is not included with the new or replacement module, enter the default value of 8 (7 for the manufacturing process and 1 for the installation of the module that was just done). If the plug count is not entered, a B1xx 4699 error code, with a detailed value of E10B or E10C, will be posted in the service processor error log.

  If the service processor card is replaced, the plug counts are retained. However, the plug count menu must be accessed and option 50, **Commit the values and write to**

the VPD, must be executed, so that the plug counts are revalidated. If the counts are not revalidated, a B1xx 4699 error code, with a detail value of E10B or E10C, will be posted in the service processor error log.

A screen similar to the following will be displayed.

```
          MCM/L3 Interposer Plug Count Menu

     1. L3_0:7                          2. L3_1:9


                    3. MCM_0:8

     4. L3_3:7                          5. L3_2:7

 50. Commit the values and write to the VPD

 98. Return to the Previous Menu
```

The MCM modules and L3 cache modules are shown in the same way that they are plugged into the processor subsystem planar; the layout shown in the menu represents the physical location as seen from the front of the subsystem.

The format of the menu entries shown above is the menu index number, followed by L3_xx, followed by the plug count after the colon. The following tables correlates the information shown above with the physical location codes.

Menu Index Number	Physical Location Code
1. L3_13	U1.x-P1-C1
2. L3_1	U1.x-P1-C3
3. MCM_0	U1.x-P1-C2
4. L3_4	U1.x-P1-C4
5. L3_14	U1.x-P1-C5

Enter a menu index number to change the plug count for a particular module. For example, to change the plug count of the L3 cache module that is physically in the upper-left corner (U1.9-P1-C1), type 1, then enter the new plug count.

When all of the new plug counts have been entered, select 50, **Commit the values and write to the VPD**. This action will store the new values in NVRAM.

Performance Mode Setup Menu

If certain types of processor cards are installed in the system, this menu will remain ″not applicable.″ For other types of processor cards, this menu will be active after the first boot as noted below.

Note: The first time the system is booted after NVRAM is cleared, `Not Applicable` displays under Performance Mode Setup Menu on the screen. This may also occur if the service processor is replaced, or the processor MCM module is upgraded.

If option 12 is selected when `Not Applicable` is on the screen, the system responds with `Not Applicable` and redisplays the system information menu. The setup menu can be displayed after the performance mode is set, which happens the first time that the system is booted.

The default performance mode is set by the firmware during IPL. The default mode provides the best performance for the hardware configuration of the system. The performance mode is system wide; it cannot be set on a per-partition basis. The default setting can be overwritten using the performance mode setup menu. The performance mode setup menu will be similar to the following:

```
      Default Performance Mode:   Standard Operation

  1. Current Performance Mode:

      Standard Operation



 98. Return to Previous Menu

  0>
```

Selecting option 1 displays the three possible performance mode:

```
  Select from the following options:


  1. Large Commercial System optimization

  2. Standard Operation

  3. Turbo Database Mode


  0>
```

If you want to override the default setting, a brief description of each performance mode follows:

- Large Commercial System Optimization is the setting for systems that do not fall under the other two selections, **Standard Operation** and **Turbo Database Mode**.
- Standard Operation optimizes the system for high-memory bandwidth applications where minimal sharing of data occurs, and the likelihood of significant hardware data prefetching exists. This is the default performance mode on this system.
- Turbo Database Mode optimizes system operation for environments where there is a large amount of data-sharing among processes running concurrently on the system.

L3 Mode Menu

This menu is not supported on this system.

Language Selection Menu

The service processor menus and messages are available in various languages. This menu allows selecting languages in which the service processor and system firmware menus and messages are displayed.

```
          LANGUAGE SELECTION MENU

    1. English

    2. Francais

    3. Deutsch

    4. Italiano

    5. Espanol

   98. Return to Previous Menu

   99. Exit from Menus

   0>
```

Note: Your virtual terminal window must support the ISO-8859 character set to correctly display languages other than English.

Call-In/Call-Out Setup Menu

This menu is not supported on this system.

Service Processor Parameters in Service Mode (Full System Partition)

When the system is in service mode, the following service processor parameters are suspended:

- Unattended Start Mode
- Reboot/Restart Policy
- Surveillance

When service mode is exited, the service processor parameters revert to the customer settings.

Service Processor Reboot/Restart Recovery

Reboot describes bringing the system hardware back up; for example, from a system reset or power-on. The boot process ends when control passes to the operating system process.

Restart describes activating the operating system after the system hardware is reinitialized. Restart must follow a successful reboot.

Boot (IPL) Speed

When the server enters reboot recovery, slow IPL is automatically started, which gives the POST an opportunity to locate and report any problems that might otherwise be unreported.

Failure During Boot Process

During the boot process, either initially after system power-on or upon reboot after a system failure, the service processor monitors the boot progress. If progress stops, the service processor can reinitiate the boot process (reboot) if enabled to do so. The service processor can re-attempt this process according to the number of retries selected in the Reboot/Restart Policy Setup Menu.

Failure During Normal System Operation

When the boot process completes and control transfers to the operating system (OS), the service processor can monitor operating system activity (see the Set Surveillance Parameters option in the SERVICE PROCESSOR SETUP MENU). If OS activity stops due to a hardware- or software-induced failure, the service processor can initiate a reboot/restart process based on the settings in the Service Processor Reboot/Restart Policy Setup Menu and the OS automatic restart settings (see the operating system documentation).

If you are using the AIX operating system, the menu item under SMIT for setting the restart policy is **Automatically Reboot After Crash**. The default is false. When the setting is true, and if the service processor parameter ″Use OS-Defined Restart Policy″ is yes (the default), the service processor takes over for AIX to reboot/restart after a hardware or surveillance failure.

Service Processor Reboot/Restart Policy Controls

The operating system's automatic restart policy (see operating system documentation) indicates the operating system response to a system crash. The service processor can be instructed to refer to that policy by the Use OS-Defined Restart Policy setup menu.

If the operating system has no automatic restart policy, or if it is disabled, then the service processor-restart policy can be controlled from the service processor menus. Use the Enable Supplemental Restart Policy selection.

Use OS-Defined restart policy - The default setting is no. If set to yes on a full system partition, this causes the service processor to refer to the OS Automatic Restart Policy setting and take action (the same action the operating system would take if it could have responded to the problem causing the restart).

When this setting is no, or if the operating system did not set a policy, the service processor refers to enable supplemental restart policy for its action.

This setting is ignored on a partitioned system.

Enable supplemental restart policy - The default setting is Yes. When set to yes on a full system partition, the service processor restarts the server when the operating system loses control and either:

- The **Use OS-Defined restart policy** is set to No.

OR

- The **Use OS-Defined restart policy** is set to Yes and the operating system has no automatic restart policy.

  If set to Yes on a partitioned system, the service processor restarts the system when the system loses control and it is detected by service processor surveillance.

The following table describes the relationship among the operating system and service processor restart controls in a full system partition.

OS Automatic reboot/restart after crash setting	Service processor to use OS-Defined restart policy?	Service Processor Enable supplemental restart policy?	System response
None	No[1]	No	
None	No[1]	Yes[1]	Restarts
None	Yes	No	
None	Yes	Yes[1]	Restarts
False[2]	No[1]	No	
False[2]	No[1]	Yes[1]	Restarts
False[2]	Yes	No	
False[2]	Yes	Yes[1]	
True	No[1]	No	
True	No[1]	Yes[1]	Restarts
True	Yes	No	Restarts
True	Yes	Yes[1]	Restarts
[1] Service processor default [2] AIX default			

In a partitioned system, the service processor's supplemental restart policy is the only setting that is used, as shown in the following table:

Service Processor enable supplemental restart policy	System Response
No	
Yes (default)	Restarts

Processor Subsystem Firmware Updates

This section provides information and instructions for updating the system firmware. This procedure will normally be performed by a service representative.

To check the availability of firmware and microcode updates, go to http://techsupport.services.ibm.com/server/mdownload2.

If you cannot download from the Web, do the following:

- If the system is running, but access to the Web is not available, see "Processor Subsystem Firmware Update Using a Locally Available Image" on page 461.

To check the level of firmware that is currently on the system, see "Determining the Level of Firmware on the Processor Subsystem".

General Information on Processor Subsystem Firmware Updates

Firmware on the processor subsystem includes:

1. System firmware. System firmware includes:
   a. System power control network programming
   b. Service processor programming
   c. IPL programming
   d. Run-time abstraction services
2. Frame (Power Subsystem) firmware
3. Integrated SCSI controller microcode
4. Integrated Ethernet microcode

To obtain the firmware and microcode updates, and complete procedures for performing the updates, go to
http://techsupport.services.ibm.com/server/mdownload2.

Determining the Level of Firmware on the Processor Subsystem

Note: This information may be superseded by the information that is available on the Web site listed below. Always check the Web site for the latest images and instructions for checking the firmware level. The Web address is http://techsupport.services.ibm.com/server/mdownload2.

The firmware level is denoted by XXYYMMDD, where XX = model designation, YY = year, MM = month, and DD = day of the release.

The firmware level can be determined by either of the following methods:

- On the AIX command line, by typing:

  ```
  lscfg -vp|grep -p Platform
  ```

  A line that begins with `ROM level (alterable)..` displays the firmware level that is currently on the system.

- Looking at the top of the Service Processor Main Menu.

Processor Subsystem Firmware Update Using a Locally Available Image

To update the system firmware using a locally available image, perform the following steps:

1. Log in as root user.
2. If the **/tmp/fwupdate** directory does not exist, create it by issuing the following command:

   ```
   mkdir /tmp/fwupdate
   ```

3. The firmware update file must be downloaded or copied into the **/tmp/fwupdate** directory on the system. This can be done by using the **ftp** command to get the image from an ftp server or a NIM server, or NFS-mounting the directory on the host system. If a control workstation (CWS) is attached to the system, the **ftp** command can be used to transfer the update file to the target system from the control workstation.

   The firmware updated file can also be transferred to the target system by backing up the image onto diskettes from another server and restoring it into the **/tmp/fwupdate** directory.

   After the firmware update file has been downloaded or copied into the **/tmp/fwupdate** directory, verify its existence by entering the following command:

   ```
   ls /tmp/fwupdate/RJ*.img
   ```

   The update file will have the format RJyymmdd.img. The RJ indicates that this is an update image for your system: yy is the year, mm is the month, and dd is the day of the update file.

4. After the update file has been written to the **/tmp/fwupdate** directory, enter the following commands:

   ```
   cd /usr/lpp/diagnostics/bin

   ./update_flash -f /tmp/fwupdate/RJyymmdd.img
   ```

   Attention: Do not overlook the periods (.) in the commands shown above. AIX commands are case-sensitive. Type them exactly as shown.

You will be asked for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system will apply the new firmware, reboot, and return to the AIX prompt. This may take up to ten minutes depending on the configuration of the system.

Attention: On some systems, the message `Wait for rebooting before stopping` may display on the system console. Do not turn off the system until the system has fully rebooted to the AIX login prompt. If a shutdown is necessary at that time, log in as root user and issue the **shutdown** command.

While the update is in progress, you will see `Rebooting...` on the display for several minutes.

The firmware update is complete.

Updating System Firmware from the AIX Service Aids

Attention: This method is not recommended for partitioned systems, but if the device resources are allocated properly, the firmware update can be done using the AIX service aid.

Note: This service aid is supported only in online diagnostics.

If the firmware on a partitioned system is being updated:

- One partition running AIX must have service authority.
- All other partitions except the one with service authority must be shut down.
- The partition with service authority must own the device from which the firmware update image will be read.
- The partition with service authority must have a hard disk.

If the required devices are not in the partition with service authority, the customer or system administrator must reassign the appropriate resources to it. This requires rebooting the partition with service authority.

If the firmware on a full system partition is being updated, no special steps are required to perform the firmware update using the service aid.

Note: Because the system always reboots itself during this type of firmware update process, the update process can take from 20 to 60 minutes.

Updating System Firmware from the AIX Command Line

This task is normally performed by a service representative. Refer to the detailed instructions that are provided on CORE with the latest image.

Note: The update process can take up to 60 minutes, and the system reboots itself during the update process.

Frame (Power Subsystem) Firmware Update

The frame code (which includes the power subsystem) is updated using a task on the HMC. This task is normally performed by a service representative. A code update (also called *corrective service*) may be available at `http://techsupport.services.ibm.com/server/mdownload2`

This task downloads a corrective service for the frame onto the HMC.

Note: Because the HMC is a closed system, you cannot install additional applications on your HMC. All of the tasks you need to maintain the managed system, the underlying operating system, and the HMC application code are available by using the HMC's management applications.

To download corrective service on the HMC, do the following:

1. From the HMC interface, in the Navigation area (left side of the panel), open the Software Maintenance folder.
2. In the Contents area (right side of the panel), double-click the **Frame** icon. The Frame application opens in the Contents area.
3. In the Contents area, click **Receive Corrective Service** task.
4. Select one of the following by clicking on the circle to the left.
   - **Upload corrective service from diskette.** If you select this option, make sure the proper diskette is in the HMC diskette drive.
   - **Download the corrective service file from a remote system.** If you select this option, complete the Remote Site (hostname), Patch file (filename or remote system), User ID (for remote system), and password (for remote system).
5. Click **OK** to copy the corrective service to this HMC.

Integrated SCSI Controller Microcode Update

The SCSI controller is located on the system planar and may require microcode updates. The SCSI controller microcode is updated using a task in AIX. A code update may be available at `http://techsupport.services.ibm.com/server/mdownload2`

The updated microcode and procedures for performing the update are available at the Web site.

Integrated Ethernet Microcode Update

The Ethernet microcode may require microcode updates. The Ethernet microcode is updated using a task in AIX. A code update may be available at `http://techsupport.services.ibm.com/server/mdownload2`

The updated microcode code and procedures for performing the update are available at the Web site.

Installing Corrective Service on the Frame

This task allows you to update the level of code on the frame after you have downloaded a corrective service. This procedure should be run after any of the following components are replaced:

- Bulk Power Regulator (BPR)
- Bulk Power Controller (BPC)
- Distributed Converter Assembly (DCA)

Notes:

1. To install a corrective service on a frame, you must be a member of either the system administrator role or the service representative role. Refer to the Hardware Management Console for information on these roles.
2. *Do not* power off any of the components in the frame at any time during this installation procedure. Interruptions can leave the power subsystem, or one of the other components in the frame, in an unrecoverable state.

To install a corrective service, do the following:

1. If you have not installed the corrective fix from ftp or diskette onto this HMC, perform steps to receive frame corrective service on the HMC (as described in “Frame (Power Subsystem) Firmware Update” on page 462). Then go to Step 4.
2. From the HMC interface, in the Navigation area (left side of the panel), open the Software Maintenance folder.
3. In the Contents area (right side of the panel), double-click the **Frame** icon. The Frame application opens in the Contents area.
4. In the Contents area, click **Install Corrective Service**. The Install Corrective Service window opens.
5. Select the **Corrective Service Version**, and select the frame where the service will be applied.

   Note: Unless you are directed otherwise, select the highest version number for the most recent fix.
6. Click **Install**. The installation may take up to an hour, depending on the number of parts in the frame that require an update. When installation is complete, a window opens to indicate installation status.

   Note: If you have replaced a single frame part and are using this procedure to update it, this process normally takes only two to five minutes.
7. If the installation fails, click **Reason for Failure**.
   a. If you are able to correct the problems(s), click **Cancel** and go to Step 6.
   b. If you are given an SRC, perform the steps to service the SRC, then return to this procedure.
   c. Otherwise, contact the next level of support.
8. After the corrective service has been applied successfully, click **Cancel** to return.

Configuring and Deconfiguring Processors or Memory

All failures that crash the system with a machine check or check stop, even if intermittent, are reported as a diagnostic callout for service repair. To prevent the recurrence of intermittent problems and improve the availability of the system until a scheduled maintenance window, processors and memory cards with a failure history are marked ″bad″ to prevent their being configured on subsequent boots.

A processor or memory card is marked ″bad″ under the following circumstances:

- A processor or memory card fails built-in self-test (BIST) or power-on self-test (POST) testing during boot (as determined by the service processor).
- A processor or memory card causes a machine check or check stop during runtime, and the failure can be isolated specifically to that processor or memory card (as determined by the processor runtime diagnostics in the service processor).
- A processor or memory card reaches a threshold of recovered failures that results in a predictive callout (as determined by the processor run-time diagnostics in the service processor).

During boot time, the service processor does not configure processors or memory cards that are marked “bad.”

If a processor or memory card is deconfigured, the processor or memory card remains offline for subsequent reboots until it is replaced or repeat gard is disabled. The repeat gard function also provides the user with the option of manually deconfiguring a processor or memory card, or re-enabling a previously deconfigured processor or memory card. For information about configuring or deconfiguring a processor, see the Processor Configuration/Deconfiguration Menu on page 449. For information on configuring or deconfiguring a memory card, see the Memory Configuration/Deconfiguration Menu on page 450. Both of these menus are submenus under the System Information Menu. You can enable or disable CPU Repeat Gard or Memory Repeat Gard using the Processor Configuration/Deconfiguration Menu.

Run-Time CPU Deconfiguration (CPU Gard)

L1 instruction cache recoverable errors, L1 data cache correctable errors, and L2 cache correctable errors are monitored by the processor runtime diagnostics (PRD) code running in the service processor. When a predefined error threshold is met, an error log with warning severity and threshold exceeded status is returned to AIX. At the same time, PRD marks the CPU for deconfiguration at the next boot. AIX will attempt to migrate all resources associated with that processor to another processor and then stop the defective processor.

Service Processor System Monitoring - Surveillance

Surveillance is a function in which the service processor monitors the system, and the system monitors the service processor. This monitoring is accomplished by periodic samplings called *heartbeats*.

Surveillance is available during the following phases:

- System firmware bringup (automatic)
- Operating system runtime (optional)

System Firmware Surveillance

System firmware surveillance is automatically enabled during system power-on. It cannot be disabled by the user, and the surveillance interval and surveillance delay cannot be changed by the user.

If the service processor detects no heartbeats during system IPL (for a set period of time), it cycles the system power to attempt a reboot. The maximum number of retries is set from the service processor menus. If the fail condition persists, the service processor leaves the machine powered on, logs an error, and displays menus to the user. If Call-out is enabled, the service processor calls to report the failure and displays the operating-system surveillance failure code on the operator panel on the HMC.

Operating System Surveillance

Note: This function is not available on a partitioned system.

Operating system surveillance provides the service processor with a means to detect hang conditions, as well as hardware or software failures, while the operating system is running. It also provides the operating system with a means to detect a service processor failure caused by the lack of a return heartbeat.

Operating system surveillance is not enabled by default, allowing you to run operating systems that do not support this service processor option.

You can also use service processor menus and AIX service aids to enable or disable operating system surveillance.

For operating system surveillance to work correctly, you must set these parameters:

- Surveillance enable/disable
- Surveillance interval

  The maximum time the service processor should wait for a heartbeat from the operating system before timeout.
- Surveillance delay

  The length of time to wait from the time the operating system is started to when the first heartbeat is expected.

Surveillance does not take effect until the next time the operating system is started after the parameters have been set.

If desired, you can initiate surveillance mode immediately from service aids. In addition to the three options above, a fourth option allows you to select immediate surveillance, and rebooting of the system is not necessarily required.

If operating system surveillance is enabled (and system firmware has passed control to the operating system), and the service processor does not detect any heartbeats from the operating system, the service processor assumes the system is hung and takes action according to the reboot/restart policy settings. See “Service Processor Reboot/Restart Recovery” on page 458.

If surveillance is selected from the service processor menus which are only available at bootup, then surveillance is enabled by default as soon as the system boots. From service aids, the selection is optional.

Service Processor Error Logs

The service processor error logs, an example of which follows, contain error conditions detected by the service processor.

```
                          Error Log

1. 11/30/99    19:41:56 Service Processor Firmware Failure
   B1004999

   Enter error number for more details.
   Press Return to continue, or 'x' to return to menu.
     Press "C" to clear error log, any other key to continue. >
```

Note: The time stamp in this error log is coordinated universal time (UTC), which is also referred to as Greenwich mean time (GMT). AIX error logs have additional information available and can time stamp with local time.

Entering an error number provides nine words of system reference code (SRC) data; an example menu follows.

```
Detail:    6005

SRC
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
word11:B1004999      word12:0110005D      word13:00000000
word14:00000000      word15:00001111      word16:00000 000
word17:B1004AAA      word18:0114005D      word19:A4F1E909

B1004999

   Press Return to continue, or 'x' to return to menu.
```

If Return is pressed, the contents of NVRAM will be dumped 320 bytes at a time, starting at address 0000.

LCD Progress Indicator Log

The following is an example of the LCD progress indicator log. It shows the types of entries that can appear in the log, and is for example purposes only.

The progress indicator codes are listed from top (latest) to bottom (oldest).

```
                     LCD Progress Indicator Log
          B0FF
          0539..17
          0538..17
          0539..17
          0538..17
          0539..17
          0581
          0538..17
          0539..12
          0538..12
          0539..
          0821..01-K1-00
          0539..
          0728..01-R1-00-00
          0539..
          0664..40-60-00-1,0
          0539..
          0777..U0.1-P2-I1/E1
          0539..
          0742..U0.1-P2-I2/E1
          0539..
          0776..U0.1-P2-I3/T1
          E139
          E1FB
          E139
          E183
Press Return to continue, or 'x' to return to menu. >
          EAA1..U0.1-P1-I4
          E172..U0.1-P1
          E172..U0.1-P1-I4
          E172..U0.1-P1
          94BB
          9109
          9380
          9108
          9107
          9106
          9105
          9118
          9104
          9103
          9102
          90FD
```

Resetting the Service Processor

If required, the system is restarted by resetting the service processor. If the system is powered up, resetting the service processor will cause the system to shut down. When the service processor is reset, it goes through its power-up sequence, including self-tests. Successful completion of the reset sequence is indicated by OK on the HMC display.

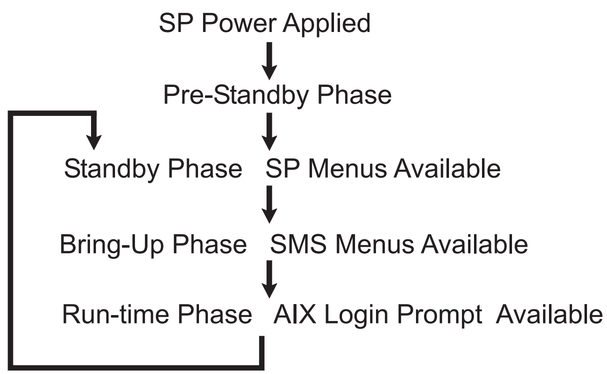
Before resetting the service processor, if the managed system is powered up and running AIX, shut down all partitions, or the full system partition. This action causes the system to shutdown and the system power is turned off.

To reset the service processor when the managed system is powered off, perform either of the following:

- If the service processor is responding to input from the HMC, select **Service Processor Setup Menu** from the main menu, then select **Reset Service Processor**. This can only be done by a privileged user.
- Remove, then reapply, power using the HMC.

Service Processor Operational Phases

This section provides a high-level flow of the phases of the service processor.



Pre-Standby Phase

This phase is entered when the server is connected to a power source. The server may or may not be fully powered on. This phase is exited when the power-on self-tests (POSTs) and configuration tasks are completed.

The pre-standby phase components are:

- Service Processor Initialization - Service processor performs any necessary hardware and software initialization.
- Service Processor POST - Service processor conducts Power-on self-tests on its various work and code areas.
- Service Processor Unattended Start Mode Checks - To assist fault recovery. If unattended start mode is set, the service processor automatically reboots the server.

The service processor does not wait for user input or power-on command, but moves through the phase and into the bring-up phase. Access the SMS menus or the service processor menus to reset the unattended start mode.

Standby Phase

The standby phase can be reached in either of the following ways:

- With the server off and power connected (the normal path), recognized by `OK` in the virtual operator panel.

  OR
- With the server on after an operating system fault, recognized by an 8-digit code in the virtual operator panel.

In the standby phase, the service processor takes care of some automatic duties and is available for menus operation. The service processor remains in the standby phase until a power-on request is detected.

The standby phase components are as follows:

- Menus

  The service processor menus are password-protected. Before you can access them, you need either the general user-password or privileged-user password.

  On HMC-managed systems, service processor menus are available on the HMC graphical user interface.

Bring-Up Phase

The bring-up phase components are as follows:

- Retry Request Check

  The service processor checks to see if the previous boot attempt failed. If the specified number of failures are detected, the service processor displays an error code.
- Dial Out

  This function is handled by the Service Agent code running on the HMC. The service processor issues an error report with the last reported IPL status indicated and any other available error information.
- Update Operator Panel (on the HMC)

  The service processor displays operator panel data on the HMC virtual terminal window if a remote connection is active.
- Environmental Monitoring

  The service processor provides expanded error recording and reporting.
- System Firmware Surveillance (Heartbeat Monitoring)

  The service processor monitors and times the interval between system firmware heartbeats.
- Responding to System Processor Commands

  The service processor responds to any command issued by the system processor.

Runtime Phase

This phase includes the tasks that the service processor performs during steady-state execution of the operating system.

- Environmental Monitoring

  The service processor monitors voltages, temperatures, and fan speeds (on some servers).

- Responding to System Processor Commands

  The service processor responds to any command issued by the system processor.

- Run-Time Surveillance

  If the device driver is installed and surveillance enabled, the service processor monitors the system heartbeat. If the heartbeat times out, the service processor places an outgoing call. This is different from the bring-up phase scenario, where the specified number of reboot attempts are made before placing an outgoing call.

- HMC surveillance

  On an HMC-managed system, the service processor monitors the communication link between the managed system and the HMC. If the service processor detects that this communication link has been broken, it will post an error to the operating system running on the managed system.

Chapter 8. Using System Management Services

Use the system management services menus to view information about your system or partition, and to perform tasks such as setting a password, changing the boot list, and setting the network parameters.

To start the text-based System Management Services, press the number **1** key on the terminal or in the virtual operator panel on the HMC after the word **keyboard** appears and before the word **speaker** appears. After the text-based System Management Services starts, the following screen displays.

```
Main Menu

 1   Select Language
 2   Change Password Options NOT availabe in LPAR mode
 3   View Error Log
 4   Setup Remote IPL (Initial Program Load)
 5   Change SCSI Settings
 6   Select Console NOT availabe in LPAR mode
 7   Select Boot Options


-------------------------------------------------------------------------------------------------
Navigation keys:

                                                              X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

On all menus except the Main Menu, there are several navigation keys:

M Return to the main menu.

ESC Return to the previous menu.

X Exit the System Management Services and start the operating system.

If X is entered, you are asked to confirm your choice to exit the SMS menus and start the operating system.

When there is more than one page of information to display, there are two additional navigation keys:

N Display the next page of the list.

P Display the next page of the list.

Note: The lowercase navigation key has the same effect as the uppercase key that is shown on the screen. For example, ″m″ or ″M″ takes you back to the main menu.

On each menu screen, you are given the option of choosing a menu item and pressing enter (if applicable), or selecting a navigation key.

Select Language

Note: Your virtual terminal must support the ISO-8859 character set to properly display languages other than English.

This option allows you to change the language used by the text-based System Management Services menus.

```
 SELECT LANGUAGE

  1.  English
  2.  Francais
  3.  Deutsch
  4.  Italiano
  5.  Espanol







-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                             X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Change Password Options

Note: This option is not available when the system is booted in LPAR mode.

The Change Password Options menu enables you to select from password utilities.

```
Password Utilities

 1 Set Privileged-Access Password
 2 Remove Privileged-Access Password



-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Set Privileged-Access Password

The priviledged-access password protects against the unauthorized starting of the system programs.

Attention: If the priviledged-access password has been enabled, you are asked for the priviledged-access password at startup every time you boot your system.

If you previously had set a priviledged-access password and want to remove it, select **Remove Privileged-Access Password**.

View Error Log

Use this option to view or clear your system's error log. A menu similar to the following displays when you select this option.

```
 Error Log

         Date       Time       Error Code      Location
 Entry 1. 01/04/96   12:13:22   25A80011        00-00
 Entry 2. no error logged

1. Clear error log




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Note: The time stamp in this error log is coordinated universal time (UTC), which is also referred to as Greenwich mean time (GMT). AIX error logs have more information available and can time stamp with your local time.

Setup Remote IPL (Initial Program Load)

This option allows you to enable and set up the remote startup capability of your system unit. You must first specify the network parameters.

```
Network Parameters

 1. IP Parameters
 2. Adapter Parameters
 3. Ping Test




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Selecting the IP (Internet Protocol) Parameters option displays the following menu.

```
IP Parameters

 1. Client IP Address    [000.000.000.000]
 2. Server IP Address    [000.000.000.000]
 3. Gateway IP Address   [000.000.000.000]
 4. Subnet Mask          [255.255.255.000]




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

To change IP parameters, type the number of the parameters for which you want to change the value.

Attention: If the client system and the server are on the same subnet, set the gateway IP address to [0.0.0.0].

Selecting the **Adapter Parameters** option allows you to view an adapter's hardware address, as well as configure network adapters that require setup. A menu similar to the following displays.

```
 Device                                 Slot             Hardware Address

 1. 10/100 Ethernet Adapter         4:U1.9-P1-I3/E1         000629aca72d
 2. 10/100 Ethernet Adapter         Integrated:U1.9-P1/E1   0020357A0530
 3. High Speed Token-Ring Adapter   1:U1.9-P1-I2/T1         000629be04e1
 4. Gigabit Ethernet PCI Adapter    3:U1.9-P1-I3/E1         0004ac7c9ec7




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Entering adapter parameters on these screens will automatically update the parameters on the ping test screen.

Selecting an adapter on this menu displays configuration menus for that adapter:

```
10/100 Ethernet TP PCI Adapter


1. Data Rate           [Auto]
2. Full Duplex         [Yes]




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Selecting the **Data Rate** option allows you the change the data rate used by the Ethernet adapter:

```
Data Rate

  1. 10 Mbps
  2. 100 Mbps
  3. Auto







-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Selecting the **Full Duplex** option allows you to change how the Ethernet adapter communicates with the network:

```
Full Duplex

  1. Yes
  2. No
  3. Auto







-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Select **Ping**, from the Network Parameters Menu, to test a connection to a remote system unit. After selecting the **Ping** option, you must choose which adapter communicates with the remote system.

```
 Adapter Parameters

 Device                                Slot             Hardware Address

 1. 10/100 Ethernet Adapter         4:U1.9-P1-I3/E1         000629aca72d
 2. 10/100 Ethernet Adapter         Integrated:U1.9-P1/E1   0020357A0530
 3. High Speed Token-Ring Adapter   1:U1.9-P1-I2/T1         000629be04e1
 4. Gigabit Ethernet PCI Adapter    3:U1.9-P1-I3/E1         0004ac7c9ec7





-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

After selecting an adapter, you will be asked to set the parameters for the adapter; a menu similar to the following will be displayed:

```

Adapter Parameters
10/100 Ethernet Adapter
  1. Data Rate     [Auto]
  2. Full Duplex    [Auto]
  3. Continue with Ping




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

After choosing which adapter to use to ping the remote system, and setting its parameters, you must provide the addresses needed to communicate with the remote system.

```
Ping Test

 1. Client IP Address    [129.132.4.20]
 2. Server IP Address    [129.132.4.10]
 3. Gateway IP Address   [129.132.4.30]
 4. Subnet Mask          [255.255.255.0]
 5. Execute Ping Test




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                          X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

If changes to the adapter parameters must be made on this screen, entering those changes will not automatically update the adapter parameters screen. You must go back to the adapter parameters menu to make changes.

Notes:

1. After the ping test is initiated, it may take up to 60 seconds to return a result.
2. If the ping test passes or fails, the firmware will stop and wait for a key to be pressed before continuing.

Change SCSI Settings

This option allow you to view and change the addresses of the SCSI controllers attached to your system.

```
SCSI Utilities

  1. Hardware Spin Up Delay
  2. Change SCSI Id




-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                          X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Select Console

Note: This function is not available on a partitioned system.

The Select Console Utility allows the user to select which console the user would like to use to display the SMS menus. This selection is only for the SMS menus and does not affect the display used by the AIX operating system.

Follow the instructions that display on the screen. The firmware will automatically return to the SMS main menu.

Select Boot Options

Use this menu to view and set various options regarding the installation devices and boot devices.

```
  1. Select Install or Boot a Device
  2. Select Boot Devices
  3. Multiboot Startup







-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Option 1
: Select Install or Boot a Device, allows you to select a device to boot from or install the operating system from. This selection is for the current boot only.

Option 2
: Select Boot Devices, allows you to set the boot list.

Option 3
: Multiboot Startup, toggles the multiboot startup flag, which controls whether the multiboot menu is invoked automatically on startup.

If option 1 is selected, the following menu displays:

```
 Select Device Type
1.  Diskette
2.  Tape
3.  CD/DVD
4.  IDE
5.  Hard Drive
6.  Network
7.  None
8.  List All Devices





-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

If a device is selected that does not reside in the system, a menu with the following message displays:

```
          .----------------------------------------------------------.
          | THE SELECTED DEVICES WERE NOT DETECTED IN THE SYSTEM !   |
          | Press any key to continue.                               |
          `----------------------------------------------------------'
```

If hard drive is selected, the following menu displays:

```
 Select Hard Drive Type
1.  SCSI
2.  SSA
3.  SAN
4.  None
5.  List All Devices





-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

If List All Devices is selected, a menu similar to the following displays, depending on the devices that are installed in the system:

```
 Select Device
Device  Current  Device
Number  Position  Name
 1.       1      SCSI 18200 MB Harddisk (loc=U1.9-P1/Z1-A8,0)
 2.       -      SCSI 18200 MB Harddisk (loc=U1.9-P1/Z2-A9,0)
 3.       -      SCSI 18200 MB Harddisk (loc=U1.9-P1/Z2-Aa,0)
 4.   None
 5.  List all devices



-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                         X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

The appropriate device can then be selected for this boot or installation.

When a device is selected for installing the operating system, or to boot from, the Select Task menu allows you to get more information about the device, or to boot from that device in normal mode or service mode. The following is an example of this menu.

```
 Select Task

SCSI 18200 MB Harddisk (loc=U1.9-P1/Z1-A8,0)

 1.  Information
 2.  Normal Mode Boot
 3.  Service Mode Boot



-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                         X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

If either Normal Mode Boot or Service Mode Boot is selected, the next screen will ask, ″Are you sure?″. If you answer yes, the device will be booted in the appropriate mode. If you answer no, the firmware will return to the Select Task menu.

Select Boot Devices

Select this option to view and change the customized boot list, which is the sequence of devices read at startup.

```
 Configure Boot Device Order
 1.  Select 1st Boot Device
 2.  Select 2nd Boot Device
 3.  Select 3rd Boot Device
 4.  Select 4th Boot Device
 5.  Select 5th Boot Device
 6.  Display Current Setting
 7.  Restore Default Setting



-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

When any of the options 1-5 is selected, the Select Device Type screen displays, which will be similar to the following.

```
 Select Device Type
 1.  Diskette
 2.  Tape
 3.  CD/DVD
 4.  IDE
 5.  Hard Drive
 6.  Network
 7.  None
 8.  List All Devices


-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                            X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

When a device type is selected, a Select Task menu displays. The following is an example of that menu for a hard disk.

```
 Select Task

SCSI 18200 MB Harddisk (loc=U1.9-P1/Z1-A8,0)

 1.  Information
 2.  Set Boot Sequence: Configure as 1st Boot Device






-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                             X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Selecting **Information** displays a menu similar to the following for a hard disk.

```
 Device Information
    /pci@3fffdf0a000/pci@2,4/scsi@1/sd@8,0
                   :  (Integrated)     (Bootable)
DEVICE             : SCSI 18200 MB Harddisk (loc=U1.9-P1/Z1-A8,0)
NAME               : sd
DEVICE-TYPE        : block






-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                             X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

The Set Boot Sequence option allows you to set the location of the device in the boot list.

Display Current Settings

This option displays the current setting of the customized boot list. An example of this menu, with one device in the boot list, follows.

```
 Current Boot Sequence
 1.  SCSI 18200 MB Harddisk (loc=U1.9-P1/Z1-A8,0)
 2.   None
 3.   None
 4.   None
 5.   None







-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                             X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Restore Default Settings

This option restores the boot list to the default boot list. The default boot list will vary depending on the devices that are installed in the system.

```
 The default boot list is:

1.  Primary diskette drive (if installed)
2.  CD-ROM drive (if installed)
3.  Tape drive (in installed)
4.  Hard disk drive (if installed)
5.  Network adapter





-------------------------------------------------------------------------------------------------
Navigation keys:
M = return to main menu
ESC key = return to previous screen                             X = eXit System Management Services
-------------------------------------------------------------------------------------------------
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Multiboot Startup

Multiboot Startup toggles the multiboot startup flag, which controls whether the multiboot menu is invoked automatically on startup.

Exiting System Management Services

After you have finished using the system management services, type **x** (for exit) to boot your system or partition.

Chapter 9. Removal and Replacement Procedures

Introduction

Before performing any of the removal or replacement procedures in this chapter, read the following notices.

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.
D05

CAUTION:
This product is equipped with a three-wire power cable and plug for the user's safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.
C01

CAUTION:
This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect two power supply cords before servicing.
C21

Handling Static-Sensitive Devices

Attention: Memory cards and PDIMMS are sensitive to static electricity discharge. These devices are shipped in antistatic containers to prevent damage caused by electrostatic discharge.

Take the following precautions:

- If you have an antistatic wrist strap available, use it while handling the device.
- Do not remove the device from the antistatic container until you are ready to install the device in the system unit.
- With the device still in its antistatic container, touch it to a metal frame of the system.
- Grasp cards and boards by the edges. Avoid touching the solder joints or pins.
- If you need to lay the device down while it is out of the antistatic container, lay it on the antistatic container. Before picking it up again, touch the antistatic container and the metal frame of the system unit at the same time.
- Handle the devices carefully in order to prevent permanent damage.

Hot-Pluggable FRUs

CAUTION:
Energy hazard, remove all jewelry before servicing.
C29

Note: You do not have to power off the system to remove a hot-pluggable FRU from the processor subsystem or from I/O subsystems.

FRUs can be considered as: not concurrently replaceable, concurrently replaceable with hot plug, and concurrently replaceable. The following table indicates which FRUs are hot-pluggable or non-hot-pluggable. Each FRU shown is identified as available for concurrent maintenance if applicable.

Processor Subsystem FRUs	Hot-Pluggable Concurrent Maintenance	Notes
Fan Assembly	No	
DCA	No	
Bulk Power Enclosure	Yes, if no BPJ is installed. No if a BPJ is installed.	If there is no BPJ installed, one Bulk Power Enclosure can be replaced with the system running, follow the appropriate removal and replacement procedures. **Note:** If you use the **Start Service** button and the ENBL LEDs on the enclosure components do not go off, do not proceed, contact the customer and schedule a time for replacement of the enclosure with power off.
Bulk Power Controller (BPC)	Yes, if no BPJ is installed. No if a BPJ is installed.	If there is no BPJ(s) installed, BPCs can be replaced with power on. Follow the appropriate removal and replacement procedures.
Bulk Power Regulator (BPR)	Yes	BPRs can be replaced with power on. Follow the appropriate removal and replacement procedures.
Bulk Power Distributor (BPD)	Yes, if no BPJ is installed. No if a BPJ is installed.	If there is no BPJ installed, BPDs can be replaced with power on. Follow the appropriate removal and replacement procedures.
UEPO Switch	Yes	The UEPO Switch can be replaced with power on. Follow the appropriate removal and replacement procedures.
BPF	Yes, if no BPJ is installed. No if a BPJ is installed.	If there is no BPJ installed, BPFs can be replaced with power on. Follow the appropriate removal and replacement procedures.

Processor Subsystem FRUs	Hot-Pluggable Concurrent Maintenance	Notes
IBF	Yes, if no BPJ is installed. No if a BPJ is installed.	If there is no BPJ installed, IBFs can be replaced with power on. Follow the appropriate removal and replacement procedures.
BPJ	No	
Processor subsystem chassis	No	
MCM	No	
Memory cards	No	
L3 cache module	No	
PCI adapters	Yes	**Note:** The customer may require additional consideration or customer preparation for replacement.

I/O Subsystem FRUs	Hot-Pluggable Concurrent Maintenance	Notes
I/O backplane and riser card	No	
DASD backplane	No	
Disk drives	Yes	**Note:** The customer may require additional consideration or customer preparation for replacement.
DCA (power supplies)	Yes	Only one DCA can be removed at a time.
I/O fan assemblies	Yes	Can be replaced only if the DASD backplane is not installed.
PCI adapters	Yes	**Note:** The customer may require additional consideration or customer preparation for replacement.

Power Subsystem

Notes:

1. All pluggable BPA FRUs are replaced concurrent with system operation when the removal and replacement instructions are followed.
2. Exceptions to this occur when multiple fails exist in the BPA. (See instruction below).
3. Removal and replacement of the entire BPA enclosure (BPE) is also concurrent with system operation, unless there are multiple BPE failures.

Attention: Be sure to check for FRU redundancy to determine if the repair can be performed concurrently. If you cannot determine redundancy, delay the repair until the system can be shut down. See "Hot-Pluggable FRUs" on page 494 for specific details.

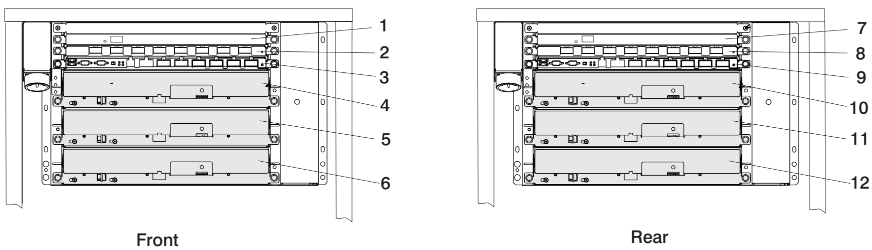
Bulk Power Assembly (BPA)

The BPA consists of the following components:

- Bulk Power Regulator (BPR)
- Bulk Power Controller (BPC)
- Bulk Power Distributor (BPD)
- Bulk Power Jumper (BPJ) (if installed)
- Bulk Power Fan (BPF)
- Bulk Power Enclosure (BPE)

Bulk Power Regulator (BPR)

The BPRs are located in the bottom positions of the BPE as shown in the following illustration.



Front of Rack		Rear of Rack	
1	Bulk Power Jumper (BPJ) (if installed)	**7**	Bulk Power Jumper (BPJ) (if installed)
2	Bulk Power Distributor (BPD)	**8**	Bulk Power Distributor (BPD)
3	Bulk Power Controller (BPC)	**9**	Bulk Power Controller (BPC)
4 - 6	Bulk Power Regulator (BPR)	**10 - 12**	Bulk Power Regulator (BPR)

Removal

1. Locate the BPR to be replaced.
2. Note the state of the BPR ENBL LED.
3. Press the green Start Service button on the UEPO switch.
4. Proceed only if the ENBL (Good) LED goes off or the repair has been scheduled (System outage - UEPO off)
5. Locate the BPR to be replaced, and manually slide its Lock/Unlock switch to unlock (power switch to the right). At this point, the ENBL LEDs turn off.
6. If the integrated battery feature (IBF) is installed, manually turn off the IBF circuit breaker attached to the BPR being repaired. Unplug the battery cable from the front face of BPR.

7. Loosen the left and right fasteners using part number 6422789 torque tool. Push up on the BPR release levers, and slide the unit out of the slot.

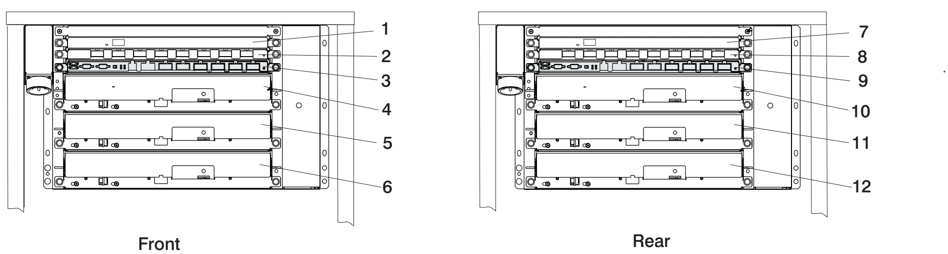
   Attention: The BPR unit weighs approximately 12.47 kg (27.5 lbs).

Replacement

1. Ensure that the BPR release levers are in the UP position. Slide the unit into slot until one inch from BPE. Using both hands on the front of the BPR, firmly and quickly seat the BPR against the backplane.
2. Tighten the left fastener four turns with torque tool followed by four turns to the right fastener. Torque the left fastener to completion followed by the right fastener. Return to left fastener and ensure it is properly torqued.
3. Move the BPR release levers to the DOWN position.
4. If the IBF is installed, reconnect the battery cable to the connector on the front face of the BPR.
5. Manually turn on the IBF circuit breaker.
6. Move the BPR Lock/Unlock switch to lock (power switch to the left).
7. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.
8. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame's Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
9. Perform the steps described in "Installing Corrective Service on the Frame" on page 463 to ensure that the new BPR contains the correct code.
10. If this repair was completed during a system outage, bring the system back up.

Bulk Power Controller (BPC)

The BPC is located immediately above the top BPR as shown in the following illustration.



Front of Rack		Rear of Rack	
1	Bulk Power Jumper (BPJ) (if installed)	**7**	Bulk Power Jumper (BPJ) (if installed)
2	Bulk Power Distributor (BPD)	**8**	Bulk Power Distributor (BPD)
3	Bulk Power Controller (BPC)	**9**	Bulk Power Controller (BPC)
4 - 6	Bulk Power Regulator (BPR)	**10 - 12**	Bulk Power Regulator (BPR)

Attention: This service procedure may produce other power error code(s) (101x xxxx) between the time the Start Service button is pushed and the Service Complete button is pushed, during concurrent repair. If the system functions normally, as described by this procedure, ignore these error codes.

Removal

1. Locate the BPC to be replaced.
2. Note the state of the BPC ENBL LED.
3. Press the green Start Service button on the UEPO switch.
4. If the BPJ is installed, remove the BPJ as described in BPJ "Removal" on page 501.
5. Proceed only under one of the following conditions:
   a. the BPC ENBL (Good) LED goes off
   b. the repair has been scheduled (System outage - EPO off)
   c. the BPJ was removed as described in the previous step
6. Manually slide all Lock/Unlock switches (power switches) on all BPRs attached to the BPA side being repaired to unlock (the right). At this point the ENBL LEDs turn off.
7. Verify that all cables are labeled for plug location, and then unplug the cables from the BPC.
8. Loosen the left and right fasteners using part number 6422789 torque tool. Slide the unit out of the slot.

   Attention: The BPC unit weighs approximately 3.18 kg (7 lbs).

Replacement

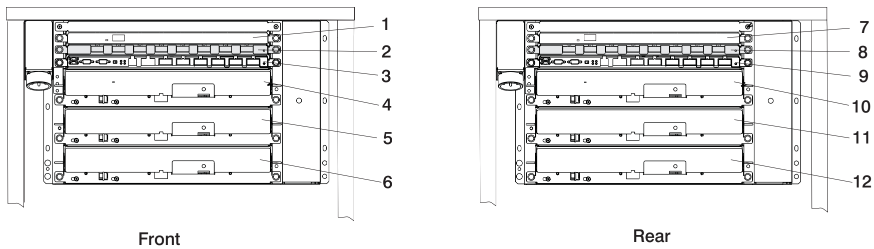
Attention: Ensure that all BPR power switches are in the OFF position on this BPA before proceeding.

Attention: Ensure that the UEPO bypass switch on the BPC front panel is in the NORMAL position.

1. Slowly slide the BPC into slot and carefully seat the BPC against the backplane.
2. Tighten the left and right fasteners with the torque tool.
3. Plug all cables to the BPC, ensuring that the plug location and the cable label agree.
4. Manually move all Lock/Unlock switches (power switches) to the lock position (the left, ON position) on all BPRs attached to the BPA side being repaired.
5. If the BPJ was removed (in Step 4, in BPC "Removal"), reinstall the BPJ as described in BPJ "Replacement" on page 501.
6. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure. The BPA automatically configures as it powers on.
7. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame's Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
8. Perform the steps described in "Installing Corrective Service on the Frame" on page 463 to ensure that the new BPC contains the correct code.

Bulk Power Distributor (BPD)

One BPD is provided per BPA. The BPD is located immediately above the BPC as shown in the following illustration.



Front of Rack		Rear of Rack	
1	Bulk Power Jumper (BPJ) (if installed)	**7**	Bulk Power Jumper (BPJ) (if installed)
2	Bulk Power Distributor (BPD)	**8**	Bulk Power Distributor (BPD)
3	Bulk Power Controller (BPC)	**9**	Bulk Power Controller (BPC)
4 - 6	Bulk Power Regulator (BPR)	**10 - 12**	Bulk Power Regulator (BPR)

The middle BPD position has an airflow blank. The top BPD position either has an air flow blank or a BPJ.

Attention: This service procedure may produce other power error code(s) (101x xxxx) between the time the Start Service button is pushed and the Service Complete button is pushed, during concurrent repair. If the system functions normally, as described by this procedure, ignore these error codes.

Removal

1. Locate the BPD to be replaced.
2. Note the state of the BPD ENBL LED.
3. Press the green Start Service button on the UEPO switch.
4. If the BPJ is installed, remove it as described in BPJ “Removal” on page 501.
5. Proceed only under one of the following conditions:
   a. the BPD ENBL (Good) LED goes off
   b. the repair has been scheduled (System outage - EPO off)
   c. the BPJ was removed
6. Manually slide all Lock/Unlock switches (power switches) on all BPRs attached to the BPA side being repaired to unlock (the right). At this point, the ENBL LEDs turn off.
7. Verify that all cables are labeled for plug location, and then unplug the cables from the BPD.
8. Loosen the left and right fasteners using part number 6422789 torque tool. Slide the unit out of the slot.

Attention: The BPD unit weighs approximately 2.27 kg (5 lbs).

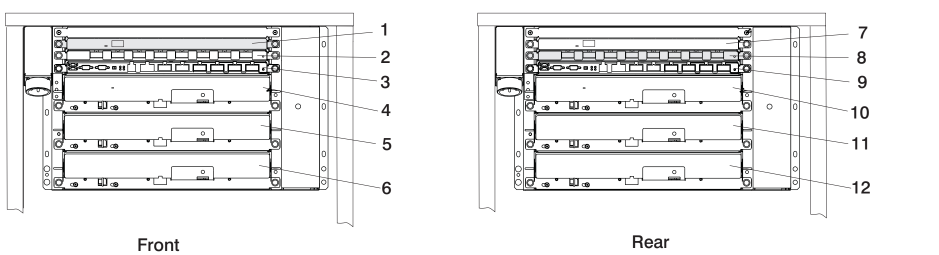
Replacement

Attention: Ensure that all BPR power switches are in the OFF position (to the right) on this BPA before proceeding.

1. Slowly slide the BPD into slot and carefully seat the BPD against the back plane.
2. Tighten the left and right fasteners with the torque tool.
3. Plug all cables to the BPD, ensuring that the plug location and the cable label agree.
4. Manually move all Lock/Unlock switches (power switches) to the lock position (the left, ON position) on all BPRs attached to the BPA side being repaired.
5. If the BPJ was removed (in Step 4 on page 498, in BPD “Removal” on page 499), reinstall the BPJ as described in BPJ “Replacement” on page 501.
6. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.
7. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame’s Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
8. Perform the steps described in “Installing Corrective Service on the Frame” on page 463 to ensure that the new BPD contains the correct code.

Bulk Power Jumper (BPJ)

The BPJ is optional depending upon the number of processor subsystems installed in the rack. The BPJ is located immediately above the BPD as shown in the following illustration.



Front of Rack	
1	Bulk Power Jumper (BPJ) (if installed)
2	Bulk Power Distributor (BPD)
3	Bulk Power Controller (BPC)
4 - 6	Bulk Power Regulator (BPR)

Rear of Rack	
7	Bulk Power Jumper (BPJ) (if installed)
8	Bulk Power Distributor (BPD)
9	Bulk Power Controller (BPC)
10 - 12	Bulk Power Regulator (BPR)

The BPJ is a fused jumper that connects the 350 V power source from side A to side B of the system BPA. Two BPJ units are cabled to connect the BPA. The BPJ is unused except when BPR faults occur, when concurrent BPR service is attempted, or when there is a power distribution fault (a BPC or BPD fails) in the case of 11 or more processor subsystems installed.

One side of the BPA is not capable of supplying sufficient power to more than 10 processor subsystems. On a system with more than 10 processor subsystems, current flows through the BPJ and allows the BPRs on the side with the failure to supply additional current to the functioning side to keep the system running.

Use the following table to determine the number of BPR and BPJ units required for various configurations. The table shows BPR/BPJ population as a function of processor subsystems and I/O subsystems.

Number of Processor Subsystem																	
No of I/O Subsystems		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
	0	2	2	2	4	4	6	6	6	6[1]	6	6[2]	6	6	6	6	6
	1	2	2	2	4	4	6	6	6	6[1]	6	6[2]	6	6	6	6	6
	2		2	4	4	6	6	6	6[1]	6	6[2]	6	6				
	3			4	4	6	6	6[1]	6	6	6[2]						
	4				6	6	6	6[1]	6								
	5					6	6[1]										

Notes:

1. Configurations at or above this limit require the line cord with a 100 A plug.
2. Configurations at or above this limit require the Bulk Power Jumper.

Removal

Attention: The BPJ is not a hot-swap unit. The system rack must be powered off before removing a BPJ.

1. Locate the BPJ at the top of the system rack.

   Note: The BPJ units are located at the two top positions in the rack.
2. If repair has been scheduled with the customer, turn off rack power.

   If repair has not been scheduled with the customer, *stop* at this step, and schedule repair with the customer.
3. Verify that all cables are labeled for plug locations, and then unplug the cables from the BPJ.
4. Loosen the fasteners on the front of the BPJ that hold it to the power subsystem enclosure.
5. Slide the BPJ out of the enclosure.

   Attention: The BPJ weights approximately 4.5 kg (10 lbs).

Replacement

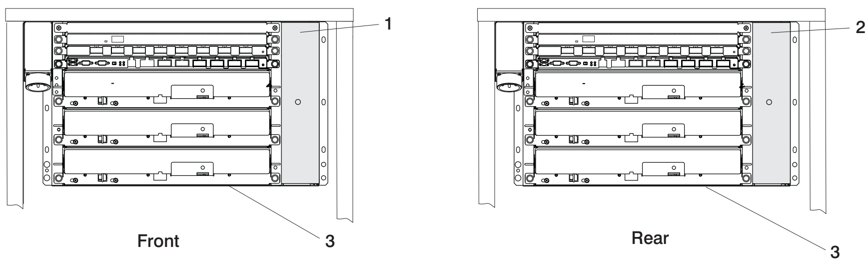
1. Position the BPJ at either of the two top unit positions in the BPE in the rack.

2. Slide the BPJ into the slot and carefully seat the mounting flanges on each side against the front of the BPE.
3. Tighten the fasteners on the front of the BPJ to securely hold it in the BPE.
4. Plug in cables from the BPJ to the BPA backplane (as previously recorded).

   Note: The cable from the front of each BPJ connects to the BPA backplane. The BPJ units are cabled together with an interconnecting cable. The BPJ does not attach to the processor subassemblies.
5. Turn on the rack power.
6. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.

Bulk Power Fan (BPF)

The BPF is located immediately to the right in the BPE and positioned vertically in the BPA as shown in the following illustration.



Front of Rack		Rear of Rack	
1	Bulk Power Fan (BPF)	**2**	Bulk Power Fan (BPF)
3	Bulk Power Enclosure (BPE)	**3**	Bulk Power Enclosure (BPE)

Removal

1. Locate the BPF to be replaced.
2. Note the state of the BPC ENBL LED on the same BPA side as the BPF to be replaced.
3. Press the green Start Service button on the UEPO switch.
4. Proceed only if the ENBL (Good) LED on the BPC goes off, or the repair has been scheduled (System outage - EPO off),
5. Verify that the BPF cable is labeled for plug location and then unplug the cable from the BPC.
6. Remove the fan cover plate and set it aside for the replacement procedure.
7. Loosen the upper and lower fasteners using part number 6422789 torque tool. Move the BPR release levers if necessary and slide the unit out of the slot.

   Attention: The BPF unit weighs approximately 3.63 kg (8 lbs).

Replacement

1. Ensure that the BPF fasteners are to the left.
2. Slowly slide the BPF into slot and carefully seat the BPF against the front of the BPE, moving the BPR release levers if necessary.
3. Tighten the upper and lower fasteners with the torque tool.
4. Return the BPR release levers to the down position, if necessary.
5. Plug the BPF cable into the BPC, ensuring that the plug location and the cable label agree.
6. Replace the fan cover.
7. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.
8. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame's Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
9. Perform the steps described in "Installing Corrective Service on the Frame" on page 463 to ensure that the new BPF contains the correct code.

Bulk Power Enclosure (BPE)

Attention: This service procedure may produce other power error code(s) (101x xxxx) between the time the Start Service button is pushed and the Service Complete button is pushed, during concurrent repair. If the system functions normally, as described by this procedure, ignore these error codes.

Removal

1. Locate the BPE to be replaced.
2. Note the state of all ENBL LEDs in the BPE.
3. Press the green Start Service button on the UEPO switch.
4. Proceed only if *all* BPR ENBL LEDs go off or the repair has been scheduled (System outage - EPO off),
5. Manually slide all Lock/Unlock switches (power switches) on all BPRs attached to the BPA side being repaired to unlock (the right). At this point the ENBL LEDs turn off.
6. Manually turn off all IBF circuit breakers attached to the BPA side being repaired.
7. Verify that all cables are labeled for plug location, and then unplug the cables from the BPA in the following order:
   a. BPC
   b. BPD
   c. BPR
   d. IBF (if installed)
   e. BPJ (if installed)
   f. ac line cord
8. Remove all pluggable FRUs from the BPE (BPRs, BPCs, BPDs, and BPF).
9. Remove the four mounting screws.

Note: Do not remove the two screws at the bottom left, as these fasten the cage rail to the rack.

10. Slide the unit out of the rack.

    Attention: The BPE unit weighs approximately 18.14 kg (40 lbs).

Replacement

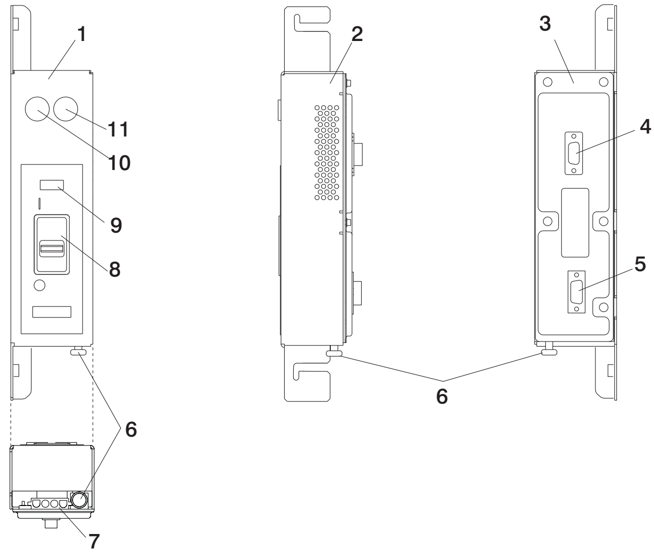
Attention: Ensure that the all BPR Lock/Unlock switches (power switches) are in the unlock (right, OFF) position on this BPA before proceeding.

Attention: Ensure that the UEPO bypass switch on the BPC front panel is in the NORMAL position.

1. Slowly slide the BPE into the rack until the side flanges contact the rack using the right side guide pins.
2. Fasten the four mounting screws.
3. Replace all pluggable FRUs to the BPE (BPR, BPC, BPDs, BPF and baffles).

   Note: Be sure to check the board connector for each FRU for any visible signs of damage (such as broken sockets) before plugging into the backplane. Replace any FRU that is damaged.
4. Plug all cables to the BPA FRUs, ensuring that the plug location and the cable label agree.
5. Plug in the ac line cord.
6. Manually turn on all IBF circuit breakers (if installed), attached to the BPA side being repaired.
7. Manually move all Lock/Unlock switches (power switches) to the lock position (the left, ON position) on all BPRs attached to the BPA.
8. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure. The BPA automatically configures as it powers on.

Unit Emergency Power Off (UEPO) Switch



1	Simplified UEPO Front Panel	**7**	J02 Connector (White)
2	Simplified UEPO Side Panel	**8**	Power Switch
3	Simplified UEPO Rear Panel	**9**	System Fault LED
4	J00 Connector (Back)	**10**	Start Service Button (Green)
5	J01 Connector (Back)	**11**	Service Complete Button (White)
6	Room EPO Bypass Interlock		

Removal

1. Locate the system with the faulty UEPO switch.
2. Press the green Start Service button on the UEPO switch.
3. Switch the UEPO bypass switches on both BPCs to the ″Bypass″ position (to the right).
4. Ensure that the red switch on the EPO panel is in the ON position.
5. Verify that all cables are labeled for plug location and then unplug the cables from the UEPO switch assembly.
6. Loosen, but do not remove, the two 8-mm M5 mounting screws. Slide the assembly forward and away from the rack.

Replacement

1. Place the assembly over the two 8-mm M5 screws, slide the assembly downward and tighten the screws.
2. Plug all cables to the UEPO switch assembly, ensuring that the plug location and the cable label agree.

3. Install the external cable, if required, to connector J2.
    a. If the external EPO connection is installed, the internal toggle switch is mechanically forced into the ROOM EPO ACTV position (to the right).
    b. If there is no external EPO cable, manually set the internal toggle switch to the ROOM EPO BYPASS position. To set this switch, pull the knob down, to the ROOM EPO BYPASS position, and release the knob (to the left).
4. Ensure that red UEPO switch is on (up position).
5. Switch the UEPO BYPASS switches on both BPC's back to ″NORMAL″ mode.
6. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.

Integrated Battery Feature (IBF)

Attention: This procedure requires:

- The use of a lift tool (part number 09P2481) and lift plate assembly tool (part number 11P4369).
- The lift tool wheels must be chocked to prevent it from moving during the operation. The rack must not be on its casters, and the leveling pads must be engaged to prevent the rack from moving during the operation.

Removal

1. Unpack the lift tool, and follow assembly instructions included with the tool. Inspect the tool for damage (do not perform the removal procedure with a damaged lift tool). Read all safety instructions before performing this operation. Replace the blue lift plate with the orange lift plate (part number 11P4369). Orient two round holes in the lift plate to the side of the lift tool that will be closest to the rack. Install the wheel chocks and engage the brake.
2. Locate the IBF to be replaced.
3. Press the green Start Service button on the UEPO switch.
4. Turn off the IBF circuit breaker (to the right).
5. Remove the battery cable from the front of the IBF and remove the 7-mm M5 screw (closest to the connector) that is holding the cable to the rack. This action allows the cable to move so that the IBF can be removed.
6. Remove the two mounting bolts from the top and bottom guide rails and retain them for reuse.
7. Raise the lift plate so that it is level with the IBF being removed, and so the edge of the lift plate is adjacent to the bottom edge of the IBF.

    Note: Do not use the lift tool extender arms when servicing this system.
8. Install the wheel chocks, and engage the brake on the lift tool.
9. Gently pull and guide the IBF onto the lift plate on the lift tool. The IBF must be removed far enough to clear the face of the rack.
10. Carefully move the lift tool with the IBF away from the rack.
11. Lower the lift plate on the lift tool.
12. Remove the IBF from the lift plate.

Replacement

1. Position the lift tool so the replacement IBF can be moved onto the lift plate.
2. Install the wheel chocks, and engage the brake on the lift tool.
3. Move the replacement IBF onto the lift plate of the lift tool.
4. Use tie-down straps to secure the IBF to the lift plate.
5. Remove the wheel chocks, and disengage the brake on the lift tool.
6. Move the lift tool as close as possible to the rack, with the rear of the IBF facing the rack.

   Note: Do not use the lift tool extender arms when servicing this system.
7. Install the wheel chocks, and engage the brake on the lift tool.
8. Raise the lift plate so that the lift plate is level with the drawer location where the IBF is being installed. Ensure that the edge of the lift plate is adjacent to the bottom edge of the drawer.
9. Gently push the IBF into the rack.
10. Lower the lift plate.
11. Remove the wheel chocks, and disengage the brake on the lift tool.
12. Move the lift tool away from the rack.
13. Fasten the IBF to the mounting rails using two mounting bolts.
14. Ensure the circuit breaker is in the off (right) position if it is not already off.
15. Plug the battery cable into the IBF. Fasten the cable-retaining clamp (closest to the cable's connector) to the rack using a 7-mm M5 screw.
16. Reinstall all components removed during the removal process.
17. Set the circuit breaker is set to the on (left) position.
18. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.
19. Repackage the lift tool.

Air Filters

There are three air filters located in the front cover (door) of the rack. The air filters are located at the top, center, and bottom interior of the cover.

Attention: To maintain proper airflow in the system rack, the air filters must be inspected and replaced as necessary to keep them in a clean condition. It is not necessary to remove power to the system rack, or to any of the fan assemblies in the rack to remove and replace the air filters.

Removal

1. Open the front cover of the rack, and locate the air filters on the inside of the cover.
2. Grasp the finger tabs on the top air filter, and pull it up and out of its holder.

Replacement

Attention: All three air filters must be installed in the front cover to maintain proper airflow in the system, and to maintain a clean, dust-free airflow.

1. Slide the air filter into its holder slot on the front cover. The filter is keyed to ensure correct orientation in the holder.
2. Close the front cover of the rack.

Frame Cage

The frame cage holds two processor subsystems (nodes).

Removal

1. Remove the processor subsystems from the frame cage. See Processor Subsystem “Processor Subsystem Removal Using the Lift Tool” on page 515.

   Note: If the frame cage contains two processor subsystems, both must be removed.
2. Loosen the mounting screws on each side of the cage.
3. Slide the frame cage from the rack, with the cage resting on the rails, until the cage can be lifted off the rails and out of the rack.

Replacement

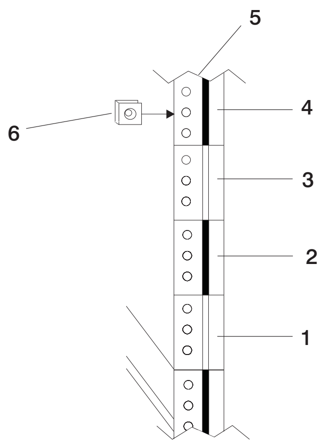
To install the frame cage, do the following:

1. If the rails are already installed in the frame, go to Step 2 on page 511.

   If the rails are not installed in the frame, do the following to install the rails in the frame:

   a. Determine the EIA locations for the drawer rails.

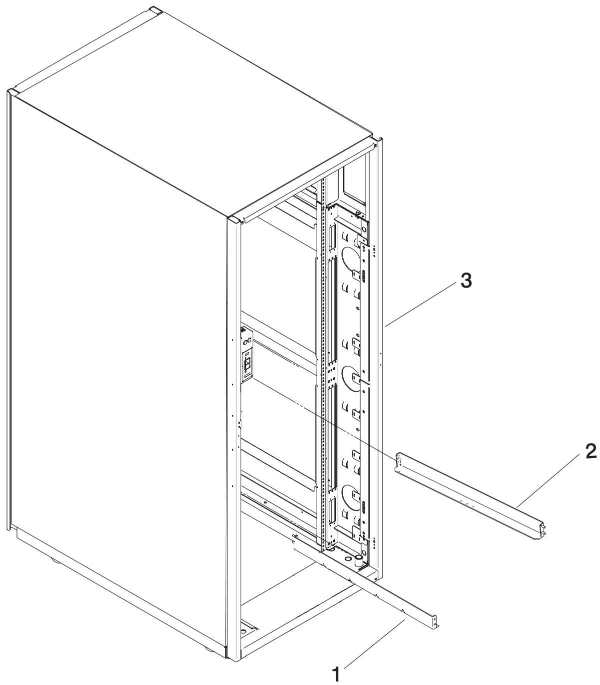
   b. Install the rail nut clip in the middle of the fourth EIA unit above where you installed the drawer rails, as shown in the following illustration.



1 1st EIA Location (future location for bottom of cage rail)
2 2nd EIA Location
3 3rd EIA Location
4 4th EIA Location
5 Frame Vertical Rail
6 Clip Nut

c. While facing the front of the rack, position one rail so the two protruding pins (on the rail-mounting flange) are at the left rack vertical rail. Insert the pins into the holes in the vertical rail. See the following illustration.

Note: The left and right rail are identical. One end of the rail has two protruding pins that fit into the holes in the rack vertical rail. The other end has holes for mounting screws.



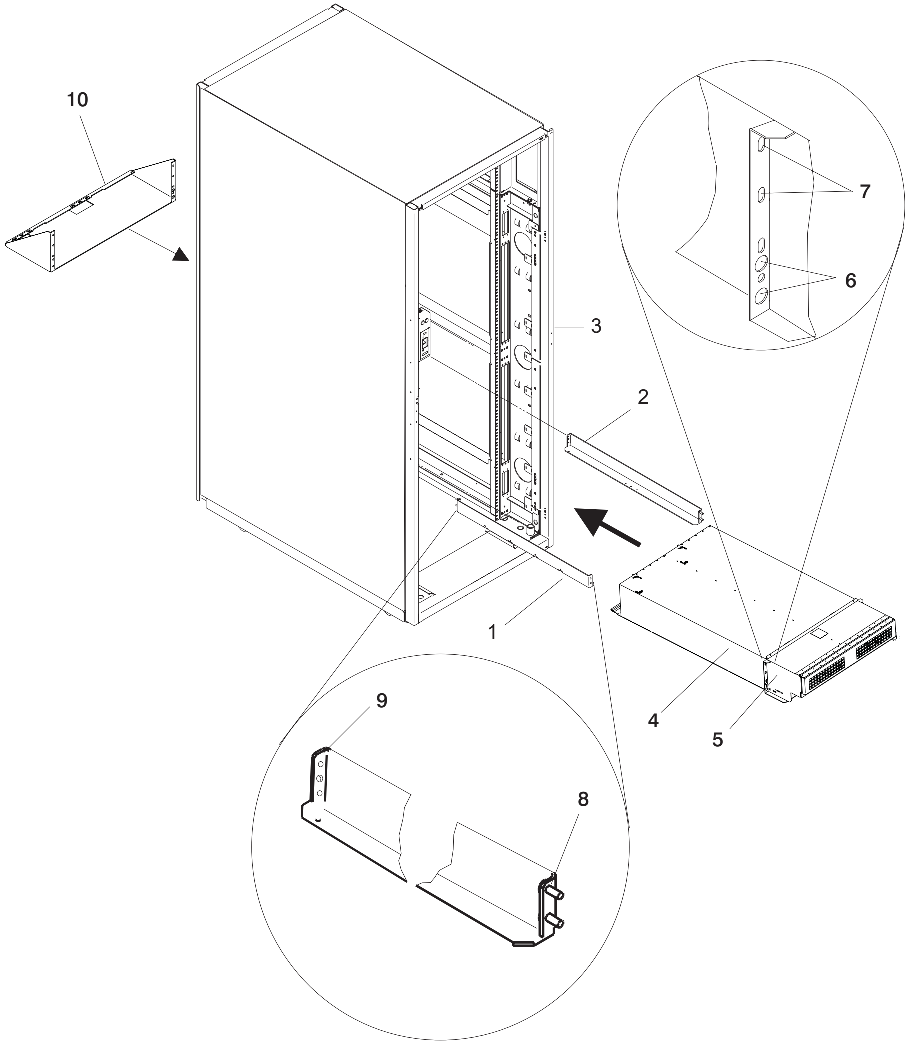
1 Left Rail (Pin end at front)
2 Right Rail (Pin end at rear)
3 Rack

d. Secure the rear rail mounting-flange to the left rear vertical rail with the screws provided.

e. Position the other rail on the right side of the rack with the two protruding pins (on the rail mounting-flange) at the right rear vertical rail. Insert the pins into the holes in the vertical rail.

f. Secure the rear rail mounting-flange to the right rear vertical rail with the screws provided.

2. Position the frame cage at the location of the installed rails. Orient the cage as shown in the following illustration.



1 Left Rail	**6** Rail/Pin Holes in Flange (Pin holes for right rail Screw holes for right rail)
2 Right Rail	**7** Cage Mounting Screw Holes
3 Rack	**8** Rail End with Screw Holes
4 Frame Cage	**9** Rail End with Pins
5 Cage Mounting Flange	**10** Shelf

3. Slide the frame cage into the rack, with the cage resting on the rails, until the mounting brackets on the cage are against the vertical rails of the rack.

4. Mark the locations on each vertical rail where clip nuts are needed for the cage mounting screws.
5. Partially slide the frame cage out from the rack, and install clip nuts (2) on each vertical rail.
6. Slide the frame cage into the rack until the mounting brackets on the cage are against the vertical rail.
7. Insert and tighten the mounting screws on each side of the cage.
8. Attach the shelf at the rear of the rack at the location of the frame cage being installed. Use the screws provided to secure the shelf to the rack on each vertical rail on the rack.

Processor Subsystem

Service on the processor subsystem must be performed using the service tool (see "Service Tool"). The only service functions that can be performed with the processor subsystem mounted in the rack are the removal and replacement of:

- PCI adapters (see "PCI Adapters" on page 571)
- DCA units (see "Processor Subsystem DCA (Distributed Converter Assembly)" on page 562.
- DASD drives (see "DASD Drive" on page 565)
- DASD cage assembly (see "DASD Cage Assembly" on page 566)
- Cables on the processor subsystem

Removal of the processor subsystem from the rack must be performed using the lift tool (see "Processor Subsystem Removal Using the Lift Tool" on page 515.

Note: If a processor subsystem is removed from its location in the rack (from the frame cage) and not being replaced, a cage filler must be inserted into the vacated location of the processor subsystem to ensure proper airflow in the rack.

Service Position for the Processor Subsystem

The service position for the processor subsystem is on a service tray provided with the service tool.

Service Tool

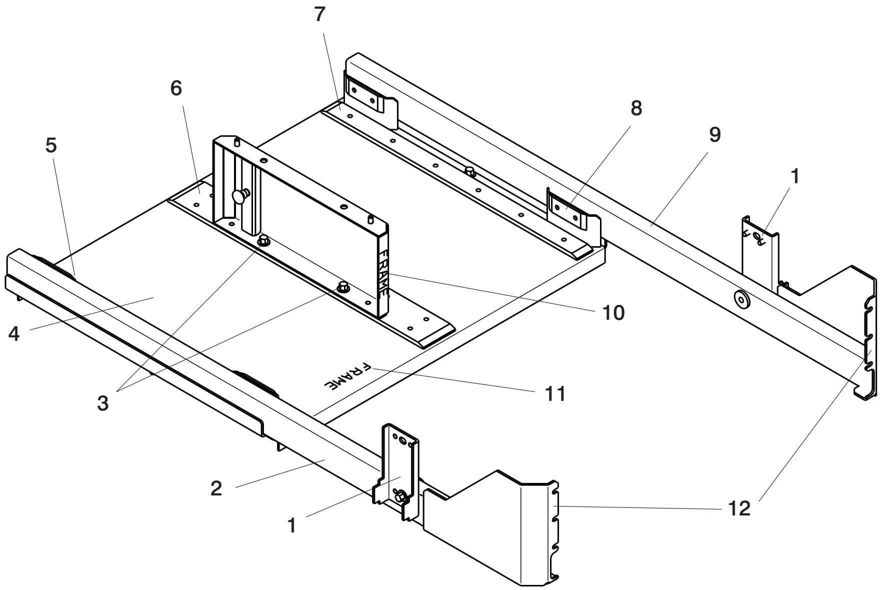
The service tool is used for servicing processor subsystems in the rack. Use of the service tool enables a service representative to partially remove the processor subsystem from the rack so internal components can be serviced easily.

Mounting the Service Tool to the Rack: To mount the service tool to the rack, do the following:

1. Ensure that the service tool is disassembled before beginning the mounting procedure. Components of the service tool include:
   - Left support arm
   - Right support arm
   - Service shelf

- Locating bracket
- Screws (4)

Refer to the following illustration.



1 Support Bracket	**9** Left Support Arm
2 Right Support Arm	**10** Locating Bracket
3 Locating Bracket Screws (2)	**11** ″Frame″ end of Service Shelf
4 Service Shelf	**12** Open Slots on Support Arm
5 - 8 Wear Plate (small, narrow)	

2. Locate the processor subsystem that is being serviced.
3. Loosen the mounting screws holding the frame cage to the rack vertical rails.

   Note: Do not remove the three mounting screws on each side of the frame cage.
4. Loosen the screw holding the support bracket to the support arms on the right and left support arms.
5. Align the open slots on the left support arm under the loosened screws on the frame cage.
6. Tighten the three frame-cage-mounting screws on the left support arm.
7. Position the support bracket to align it with a notch on the inside of the corner frame member (vertical rail).

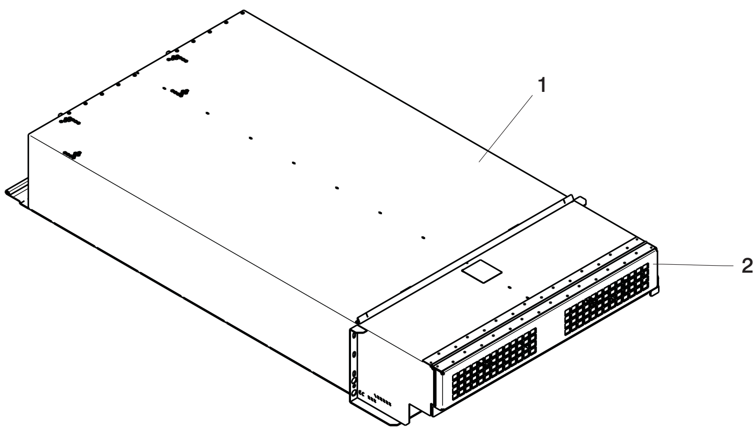
   Note: If necessary, a slight adjustment front to rear can be made to properly align the support bracket.

8. While pulling the support bracket to align it inside of the notch on the rack vertical rail, tighten the screw holding the support bracket onto the support arm.

   Note: If the support bracket does not properly align with the notch on the rack vertical rail, the bracket can be raised or lowered by removing the screw and repositioning the bracket up or down.
9. Repeat Steps 4 on page 513 through 8 for the right support arm.
10. Position the service shelf between the support arms, with the word `FRAME` facing the rack, and the alignment pins on the underside of the self aligned with the holes in the support arms.
11. Secure the service shelf in place on the support arms with two screws.
12. Position the locating bracket in the center of the service shelf, with the word `FRAME` facing the rack. The end of the locating bracket with the spring plunger should face away from the rack.

Placing the Processor Subsystem on the Service Shelf: After the service tool is mounted to the frame, place the processor subsystem onto the service shelf as follows:

1. At the rear of the rack, unscrew the two captive screws that hold the processor subsystem to the frame cage.
2. At the front of the rack, lift the front cover on the frame cage. Ensure that the cover support is engaged to hold the cover in the up position.



1 Frame Cage
2 Front Cover

3. Slide the processor subsystem out of the frame cage and onto the shelf. The processor subsystem will ride on the service shelf wear plates as you push it onto the service shelf. You may need to lift the processor subsystem slightly at the front to slide it onto the shelf. Only slide the subsystem until a point is reached to enable access to the specific components that you are servicing.

   Note: There are points along the travel of the processor subsystem that a spring plunger engages on the processor subsystem chassis (vertical edges or slots) that prevent the subsystem from traveling further until the spring plunger is disengaged. Do not push the subsystem beyond the last position.

4. Perform service on the processor subsystem.
5. Return the processor subsystem to the frame by carefully sliding it into the rack.

   Note: The spring plunger must be disengaged from one or more holding points on the processor subsystem to allow travel into the rack.
6. Disengage the cover support on the front of the rack, and return the cover to the down position.
7. Tighten the two captive screws holding the processor subsystem to the frame cage.

Dismounting the Service Tool from the Rack: To dismount the service tool from the rack, do the following:

1. Remove the locating bracket from the service tool by loosening and removing the two screws holding the locating bracket to the service shelf.
2. Remove the service shelf from the support arms by loosening and removing the screws holding the service shelf to the support arms.
3. Loosen the screw on each support bracket, and remove the support brackets on each support arm from the support arms.
4. Loosen the three screws holding the right support arm to the frame cage and rack vertical rail.
5. Remove the right support arm by sliding the flange-end of the arm out from the three screws on the frame cage.
6. Tighten the three screws holding the frame cage to the rack vertical rail.
7. Repeat Steps 4 through 5 for the left support arm.
8. Tighten the three screws on each side of frame cage to hold it securely in the rack.

Processor Subsystem Removal Using the Lift Tool

CAUTION:
This unit weighs more than 55 kg (121.2 pounds). Material handling systems such as levers, slings, or lifts are required to safely move it. When this is not possible, specially trained persons or services (such as riggers or movers) must be used.
C06

Attention: Removing a processor subsystem for the rack requires the use of a lift tool. This process requires:

- The use of a lift tool (part number 09P2481) and lift-plate assembly tool (part number 11P4369).
- The lift tool wheels must be chocked to prevent it from moving during the operation. The rack must not be on its casters. The leveling pads must be engaged to prevent the rack from moving during the operation.

To remove the processor subsystem from the rack, do the following:

1. Ensure that power to the system is turned off.

2. Open the front and rear doors of the rack.
3. Prepare the lift tool for use as follows:
   a. Unpack the lift tool, and follow the assembly instructions included with the tool.
   b. Inspect the tool for damage (do not perform the removal procedure with a damaged lift tool).
   c. Read all safety instructions before performing this operation.
   d. Replace the blue lift plate with the orange lift plate (part number 11P4369).
   e. Orient the two round holes in the lift plate to the side of the lift tool that will be closest to the rack.
4. Label all cables and components, and record their locations at the front and the rear of the rack.
5. Disconnect all cables on the processor subsystem. These may include:
   - Power cables to the DCAs on the front of the subsystem
   - RIO cables at the rear of the subsystem
   - PCI adapter cables at the rear of the subsystem
   - Serial cables at the rear of the subsystem
   - Ethernet cables at the rear of the subsystem
6. At the rear of the rack, loosen the two knurled captive screws, at the bottom of the chassis, holding the processor subsystem to the frame cage.

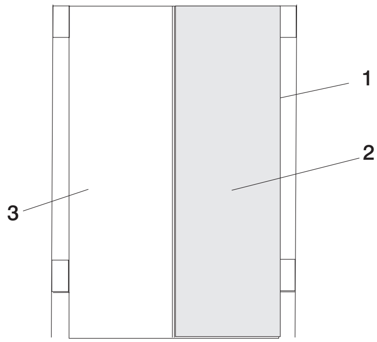
   Note: The nuts are on captive screws and are not removed from the chassis when removing the processor subsystem.
7. At the front of the rack, lift the front cover on the frame cage and lock it into the open position.
8. To remove the processor subsystem from the rack, use the lift tool, and do the following:
   a. Position the lift tool at the front of the rack, about 7 inches from the front of the rack.

      Note: The lift-tool extension arms are not attached to the rack for this system.
   b. Raise and align the lift plate so that it is level with the bottom of the processor subsystem. Ensure that the edge of the lift plate is approximately 7 inches from the front of the rack, and with the L-shaped edge of the lift plate aligned with the side of the processor subsystem.

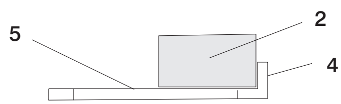
      Note: The L-shaped edge of the lift plate must be maintained flush against the side of the processor subsystem as the processor subsystem is pushed onto the lift plate. If you are removing a processor subsystem located on the left side of the rack (as you face the front of the rack), the lift tool must be positioned in front of the rack and to the left so that the L-shaped edge of the lift plate will align with the right side of the processor subsystem that is being removed.

      The following illustration shows the position of the lift tool for removing a processor subsystem on the right side of the rack (facing the rack).

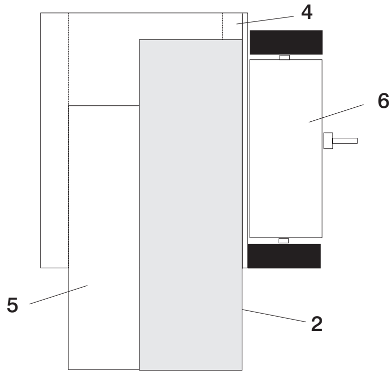
Top View of Frame
with Processor Subsystem
in the Frame Cage



Front View of Lift Tool Lift Plate



Top View of Lift Tool
with Processor Subsystem
Pushed onto the Lift Plate



1	Frame Cage (right side)	**4**	L-shaped Edge of Lift Plate
2	Processor Subsystem	**5**	Sliding Portion of the Lift Plate
3	Frame Cage	**6**	Back of the Lift Tool

c. Install wheel chocks on the lift tool casters, and engage the lift-tool brake.

d. Adjust the sliding part of the lift plate so that it can move forward and away from the rack.

Note: The sliding part of the lift plate can be positioned to move in two directions.

e. Pull the release buttons on the lift plate, and slide the lift-plate tray to the maximum distance away from the rack.
f. Carefully slide the processor subsystem out of the frame cage until the front of the processor subsystem is aligned with the edge of the lift-plate tray the is farthest from the rack.
g. Check to ensure that the rear of the processor subsystem and the PCI adapter release handles are clear of the rack and frame cage.
h. Tie the processor subsystem to the lift plate with tie-down straps.
i. Check to ensure that you can safely lower the lift plate. If the processor subsystem will clear the frame cage and rack, lower the lift plate and release the lift-tool brake.

   If you cannot safely lower the lift plate, do the following:
   1) Remove the wheel chocks on the lift-tool casters, and disengage the lift-tool brake.
   2) Move the lift tool away from the rack until you can safely lower the lift plate.
   3) Install the wheel chocks, and engage the brake on the lift tool.
   4) Lower the lift plate and release the lift-tool brake.
j. Remove the processor subsystem from the lift-tool lift plate.

9. If other processor subsystems are not being removed from the rack, repackage the lift tool.

Processor Subsystem Replacement Using the Lift Tool

CAUTION:
This unit weighs more than 55 kg (121.2 pounds). Material handling systems such as levers, slings, or lifts are required to safely move it. When this is not possible, specially trained persons or services (such as riggers or movers) must be used.
C06

Attention: Installing a processor subsystem requires the use of a lift tool. This process requires:

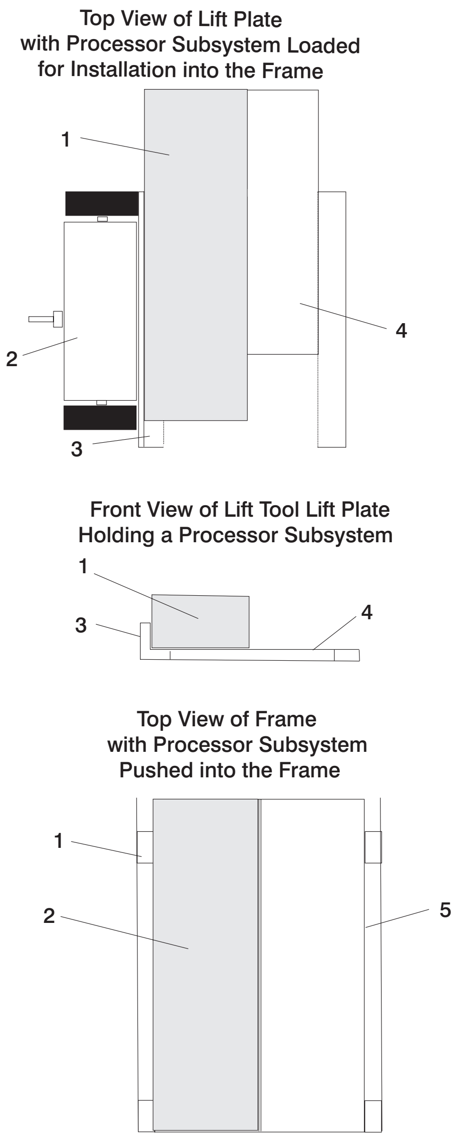
- The use of a lift tool (part number 09P2481) and lift-plate assembly tool (part number 11P4369).
- The lift tool wheels must be chocked to prevent it from moving during the operation. The rack must not be on its casters. The leveling pads must be engaged to prevent the rack from moving during the operation.

To replace the processor subsystem into the rack, do the following:

1. Position the lift tool near the processor subsystem so it can be lifted onto the lift plate.
2. Install the wheel chocks, and engage the brake on the lift tool.
3. Adjust the sliding part of the lift plate so that it can be moved toward the rack when the lift tool is positioned in front of the rack.

   Note: The sliding part of the lift plate can be positioned to move in two directions.

4. Pull the release buttons on the lift plate, and slide the lift-plate tray to the maximum distance away from the rack.
5. Position the processor subsystem onto the lift plate with the back edge of the processor subsystem at the edge of the lift plate.
6. Tie the processor subsystem to the lift plate with tie-down straps.
7. At the front of the rack, ensure that the cover on the frame cage is lifted and locked in the open position.
8. Move the lift tool into position in front of the rack with the edge of the lift plate approximately 7 inches from the front of the rack. See the following illustration.



1 Processor subsystem
2 Back of Lift Tool
3 L-shaped Edge of Lift Plate
4 Sliding Portion of Lift Plate
5 Frame Cage

Note: The lift-tool extension arms are not attached to the rack for this system.

9. Raise the lift plate to the frame cage in which the processor subsystem is being installed.

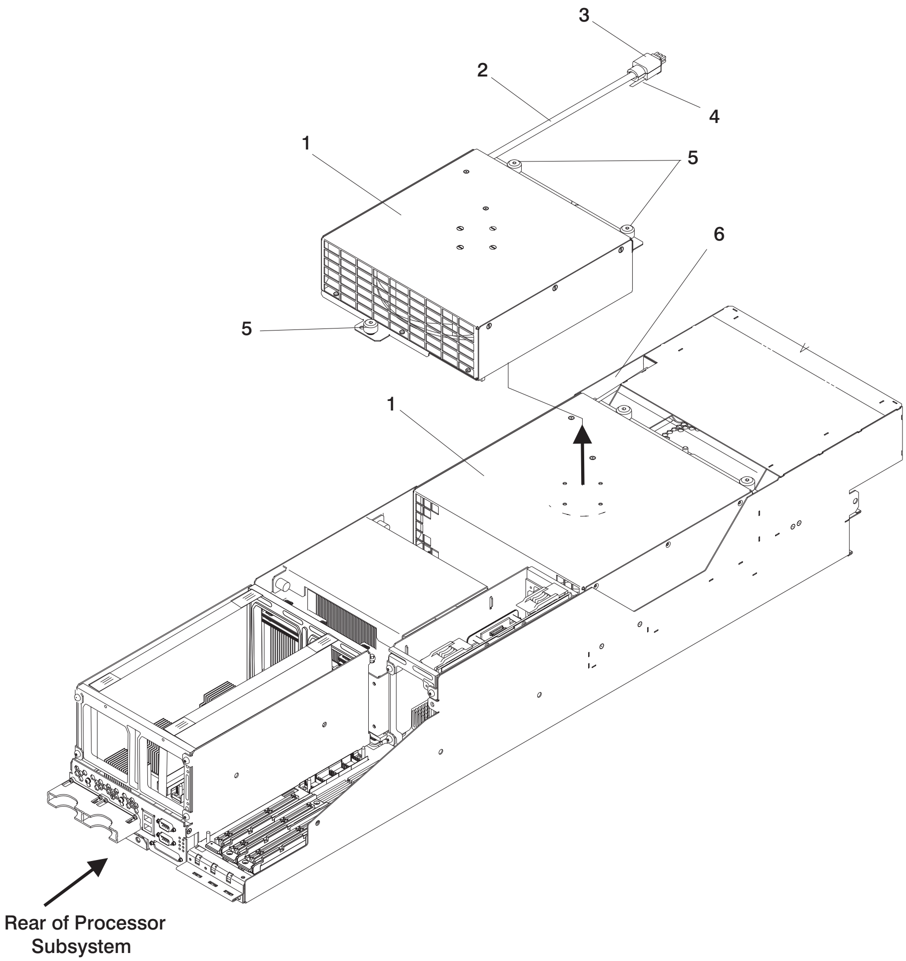
Note: The edge of the lift plate must be level with the edge of the frame cage.

10. Ensure that the front cover on the frame cage is raised and locked into the open position.
11. Remove the tie-down straps, and slide the processor subsystem into the frame cage.
12. Remove the wheel chocks on the lift-tool casters, and disengage the lift-tool brake.
13. Move the lift tool from the front of the rack and lower the lift plate.
14. At the front of the rack, ensure that the front cover on the frame cage is lowered into closed position.
15. At the rear of the rack, tighten the two knurled captive screws at the bottom of the chassis, to hold the processor subsystem to the frame cage.
16. Route and connect all cables previously removed from the processor subsystem. These may include:
    - Power cables to the DCA units on the front of the subsystem
    - RIO cables at the rear of the subsystem
    - PCI adapter cables at the rear of the subsystem
    - Serial cables at the rear of the subsystem
    - Ethernet cables at the rear of the subsystem
17. Turn power on as described in "Powering the System On" on page 139.
18. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame's Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
19. Perform the steps described in "Installing Corrective Service on the Frame" on page 463 to ensure that the processor subsystem contains the latest code.
20. If additional service is not being performed, close the rack doors.
21. Repackage the lift tool.

Fan Assembly

Removal

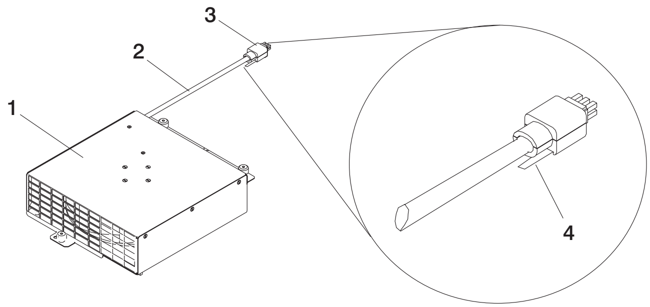
1. Turn off power as described in “Powering the System Off” on page 140.
2. Place the processor subsystem in the service position as described in “Service Position for the Processor Subsystem” on page 512.
3. Locate the fan assembly at the top center of the processor subsystem chassis. See the following illustration.



1	Fan Assembly	**4**	Plug Retainer
2	Power Cord	**5**	Knurled Captive Screws (3)
3	Power Cord Plug (connected to DCA)	**6**	Channel in Chassis (for fan power cord)

4. Loosen the three knurled-captive screws at the top of the fan assembly.

5. At the front bottom of the processor subsystem chassis, unplug the fan power cord by squeezing the plug retainer open on the power cord. Carefully unplug the cord from its connector on the DCA.



1 Fan Assembly	**3** Power Cord Plug (connected to DCA)
2 Power Cord	**4** Plug Retainer

6. Thread the fan power cord and plug through the channel in the side of the chassis by sliding the cord and plug toward the fan assembly. Hold the plug up against the top of the channel in the chassis while threading the cord and plug out.

   Note: It may be easier to thread the fan power cord out of the chassis by removing the DASD cage as described in DASD Cage "Removal" on page 566.
7. Lift the fan assembly up and out of the opening in the processor subsystem chassis.

Replacement

1. Position the fan assembly over the opening in the processor subsystem chassis. See the illustration in Fan Assembly "Removal" on page 522.
2. Lower the fan assembly into the enclosure, and tighten the three captive screws at the top of the assembly to hold it in the processor subsystem chassis.
3. Thread the fan power cord and plug through the channel in the side of the chassis by sliding the cord and plug toward the front of the processor subsystem.

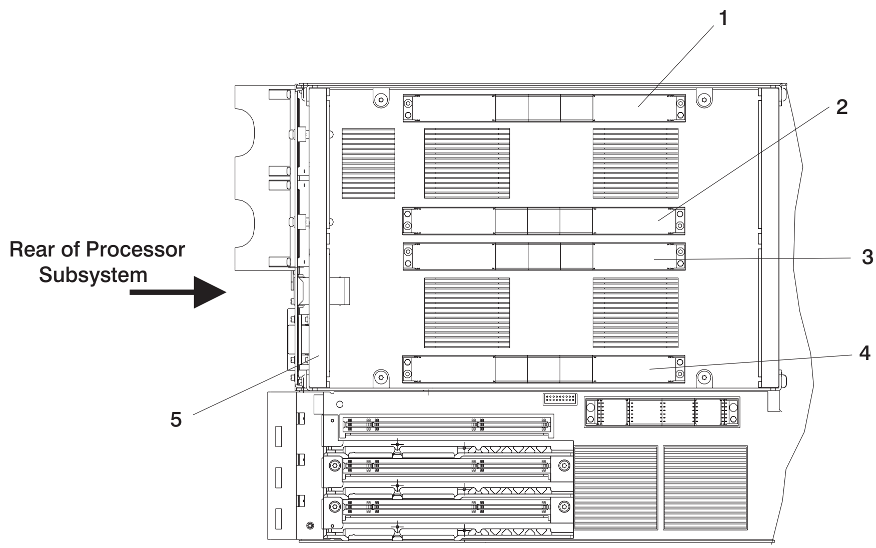
   Note: Hold the plug up against the top of the channel in the chassis while threading the cord and plug in.
4. If the DASD cage was previously removed, replace the cage as described in DASD Cage "Replacement" on page 567.
5. At the front bottom of the processor subsystem chassis, plug the fan power cord into its connector by squeezing the plug retainer open on the power cord, and pushing the plug into its connector on the DCA.
6. Replace the processor subsystem in its cage in the rack as described in Processor Subsystem "Processor Subsystem Replacement Using the Lift Tool" on page 518.
7. Dismount the service tool from the rack as described in "Dismounting the Service Tool from the Rack" on page 515.
8. Turn on power as described in "Powering the System On" on page 139.

Memory Cards

The removal and replacement procedures described are used for memory cards or memory blanks. The entire memory card assembly is a FRU. The PDIMMs are not removable.

Removal

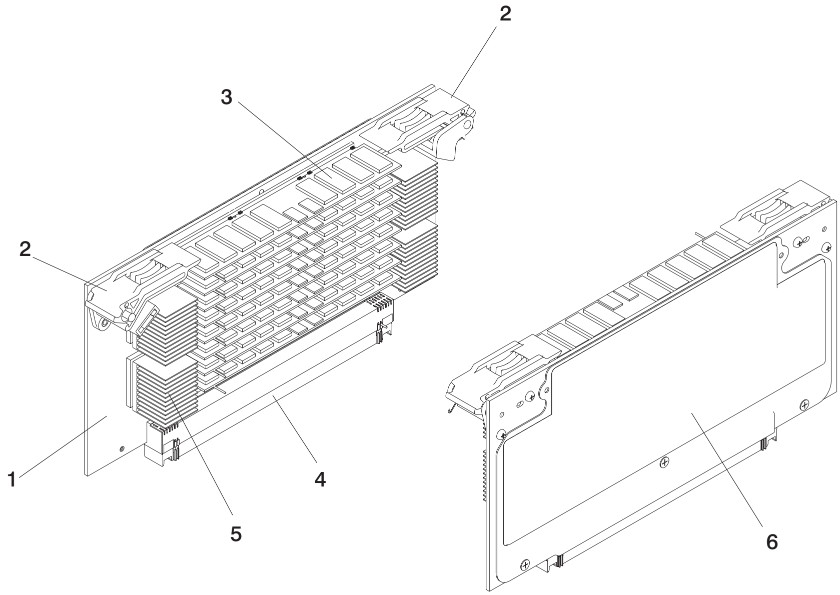
1. Turn off power as described in “Powering the System Off” on page 140.
2. Place the processor subsystem in the service position as described in “Service Position for the Processor Subsystem” on page 512.
3. Locate the memory card (or blank) to be removed. See the following illustration.



1 Memory Card 1 Connector (M1)
2 Memory Card 2 Connector (M2)
3 Memory Card 3 Connector (M3)
4 Memory Card 4 Connector (M4)
5 Memory Card Cage

4. Using one hand on each memory card (or blank) blue retaining latch, press in on the latch releases in the center of the latch and pull the latches up to a full upright

(vertical) position.



1 Memory Card	**4** PDIMMs (not removable)
2 Retaining Latch (blue)	**5** Memory Card Connector
3 Press Point (to release latch)	**6** Memory Controller Module (not removable)

5. Pull the memory card (or blank) up, disconnecting it from its connector on the system planar, and out of the memory card cage.

   Note: Memory cards fit tightly into their connectors, so it may be necessary to rock the card back and forth to loosen it from the connector.
6. Place the memory card on an ESD mat or in an antistatic envelope.
7. If the memory card is not being replaced, a memory card filler must be installed in the slot. Go to "Replacement" on page 526 to install the memory card filler using the same steps as if replacing a memory card.

Replacement

The following table lists the rules for populating memory slots in the processor subsystem. The configurations shown in the table are the only supported configurations. Memory cards, containing 4 GB or 8 GB of memory, must be populated in memory card slots as shown in the table.

Note: If a memory card was removed and is not being replaced with another memory card, a memory card filler must be installed in the slot.

Total Memory	Slot 1	Slot 2	Slot 3	Slot 4
4 GB	4 GB			
8 GB	4 GB		4 GB	
16 GB	4 GB	4 GB	4 GB	4 GB
16 GB	8 GB		8 GB	
32 GB	8 GB	8 GB	8 GB	8 GB

1. Remove the memory card from the antistatic envelope.
2. Locate the memory card connectors and determine the connector in which a replacement (installation) is needed. See the illustration in Memory Cards “Removal” on page 524.
3. Position the memory card (or blank) in the memory card cage above the selected connector, and push it down to seat it in the connector.

   Note: Memory cards fit tightly into their connectors, so it may be necessary to rock the card back and forth to seat it in its connector.
4. Using one hand on each memory card (or blank) blue retaining latch, press down on the end of the latches until they snap into place. See the illustration in Memory Cards “Removal” on page 524.

   Note: The retaining latches are parallel to the top of the memory card when they are in the latched position.
5. Replace the processor subsystem in its cage in the rack as described in Processor Subsystem “Processor Subsystem Replacement Using the Lift Tool” on page 518.
6. Dismount the service tool from the rack as described in “Dismounting the Service Tool from the Rack” on page 515.
7. Turn on power as described in “Powering the System On” on page 139.

Service Processor/MCM VPD Card Assembly

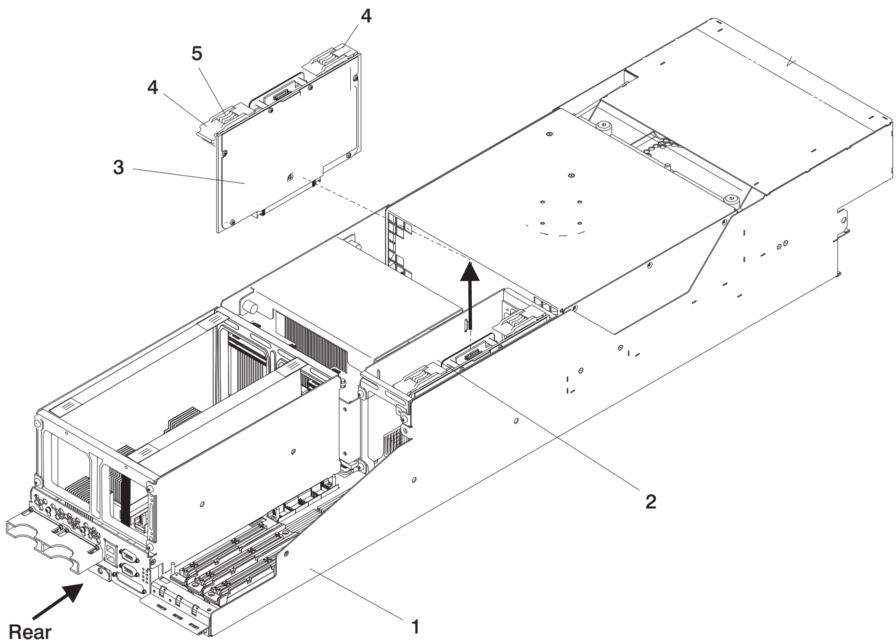
The service processor card and MCM VPD card are packaged as an assembly. The service processor card and the MCM VPD card can each be removed from the assembly and replaced.

Attention: If you are replacing the service processor card only, the MCM VPD card linked to the existing MCM module must be reinstalled on the new service processor card. You must also install the old system VPD module onto the new service processor card.

Removal

Note: If you are removing the service processor/MCM VPD card assembly, follow Steps 1 through 5 on page 528. If you are also detaching the MCM VPD card from the service processor/MCM VPD card assembly, follow all of the steps in this procedure.

1. Turn off power as described in "Powering the System Off" on page 140.
2. Place the processor subsystem in the service position as described in "Service Position for the Processor Subsystem" on page 512.
3. Locate the service processor/MCM VPD card assembly in the chassis. See the following illustration.



1 Processor Subsystem

2 Card Cage

3 Service Processor/MCM VPD Card Assembly

4 Retaining Latch (blue)

5 Press Point (to release latch)

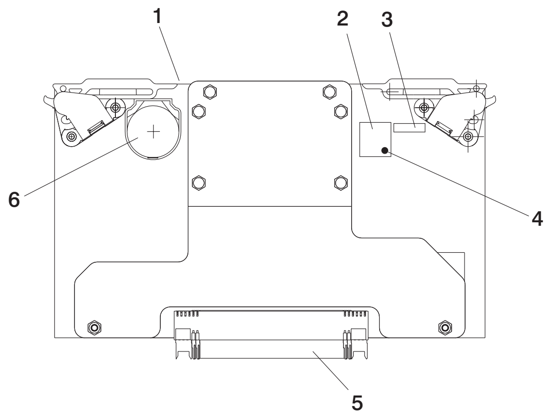
4. Using one hand on each blue retaining latch on the assembly, press in on the latch release in the center of each latch and pull the latch up to a full upright (vertical) position.
5. Pull the service processor/MCM VPD card assembly up, disconnecting it from its connector on the system planar, and out of the service processor/MCM VPD card assembly cage.

   Note: The assembly may fit tightly into its connector, so it may be necessary to rock the assembly back and forth to loosen it from the connector.
6. Loosen and remove the four Torx screws (T10) from the back side of the service processor/MCM VPD card assembly.
7. With one hand firmly holding the service processor/MCM VPD card assembly, pull the MCM VPD card up and away from the assembly.

   Note: The MCM VPD card has one 20-pin connector connecting it to the service processor card. To prevent damage to the connector, take care in pulling the MCM VPD card from the assembly to prevent damage to the connector.
8. If you are replacing the MCM/VPD card perform Steps 9 on page 529 and 10 on page 529.

9. With the MCM VPD card facing upward, remove the four Torx screws (T10) attaching it to the MCM VPD card holding bracket.
10. Remove the MCM VPD card from the holding bracket.
11. If you are replacing the service processor card, carefully remove the system VPD module from its socket on the service processor card. See the following illustration for the location and orientation of the system VPD module.

    The old system VPD module will be used on the replacement service processor card.



1	Service Processor/MCM VPD Card Assembly	**4**	Pin 1 on VPD Module
2	VPD Module Socket	**5**	Card Edge Connector
3	Label	**6**	Battery

Replacement

Note: If you are attaching a new MCM VPD card to the service processor/MCM VPD card assembly, follow Steps 2 through 12 on page 530 in this procedure. If you are replacing the service processor card, follow all of the steps in this replacement procedure.

Attention: If you are replacing the service processor card, you must reinstall the MCM VPD card linked to the existing MCM module, and reinstall the previously removed system VPD module. If you have replaced the MCM, you must install a new MCM VPD card that is linked to the new MCM module.

1. Observing the location and orientation of the system VPD module, carefully insert the module into the system VPD module socket on the replacement service processor card. See the illustration in the previous Step 11 for location and orientation of the system VPD module.
2. If you are replacing the MCM VPD card perform Steps 3 on page 530 and 4 on page 530.

3. Position the MCM VPD card on the MCM VPD card holding bracket, aligning the screw holes.
4. Install and tighten the four Torx (T10) screws to attach the MCM VPD card to the holding bracket.
5. Position the MCM VPD card, with the attached bracket, on the service processor/MCM VPD card assembly aligning the connector on the MCM VPD card to the connector pins on the service processor card.

   Note: The MCM VPD card has one 20-pin connector connecting it to the service processor card. To prevent damage to the connector or cards, take care in aligning and pressing the MCM VPD card in place on the service processor card.
6. Insert and tighten the four Torx screws (T10) on the back side of the service processor/MCM VPD card assembly to attach the MCM VPD card.
7. Position the service processor/MCM VPD card assembly in the card cage, lining up the card pins with the connector on the system planar.
8. Press the service processor/MCM VPD card assembly firmly into its connector.

   Note: The assembly may fit tightly into its connector, so it may be necessary to rock the assembly back and forth to seat it in the connector.
9. Using one hand on each blue retaining latch on the assembly, press down on the end of each latch to lock them in place.

   Note: The retaining latches are parallel to the top of the service processor/MCM VPD card assembly when they are in the latched position.
10. Replace the processor subsystem in its cage in the rack as described in Processor Subsystem “Processor Subsystem Replacement Using the Lift Tool” on page 518.
11. Dismount the service tool from the rack as described in “Dismounting the Service Tool from the Rack” on page 515.
12. Turn on power as described in “Powering the System On” on page 139.
13. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame’s Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide* to allow the new service processor/VPD card to be associated with the system being serviced.

Internal Battery

CAUTION:
A lithium battery can cause fire, explosion, or a severe burn. Do not recharge, disassemble, heat above 100 degrees C (212 degrees F), solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace only with the part number specified for your system. Use of another battery may represent a risk of fire or explosion.

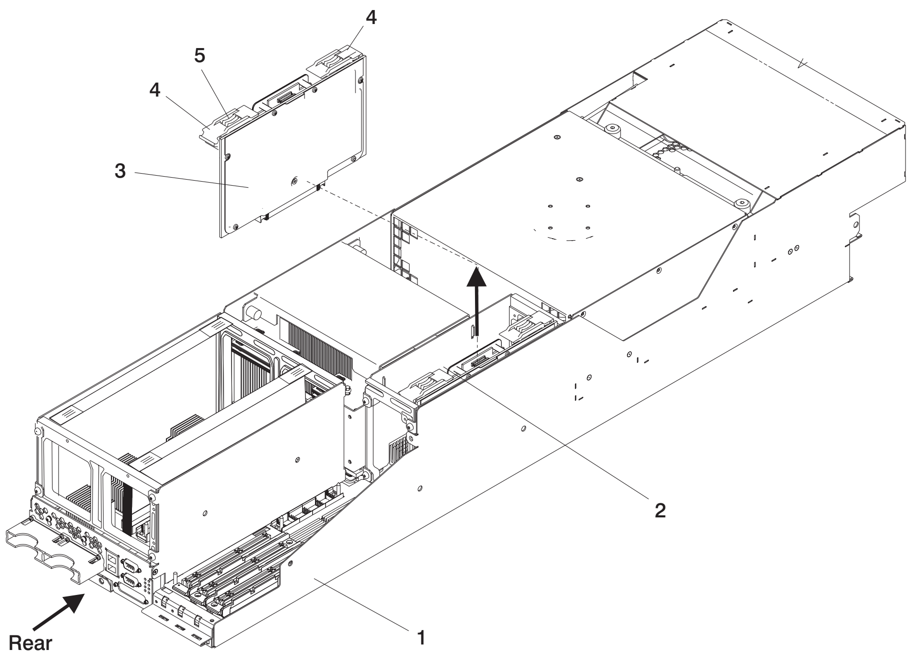
The battery connector is polarized; do not attempt to reverse the polarity.

Dispose of the battery according to local regulations.
C9

The internal battery is located on the service processor/MCM VPD card assembly.

Removal

1. Turn off power as described in "Powering the System Off" on page 140.
2. Place the processor subsystem in the service position as described in "Service Position for the Processor Subsystem" on page 512.
3. Locate the service processor/MCM VPD card assembly in the chassis. See the following illustration.



1 Processor Subsystem

2 Card Cage

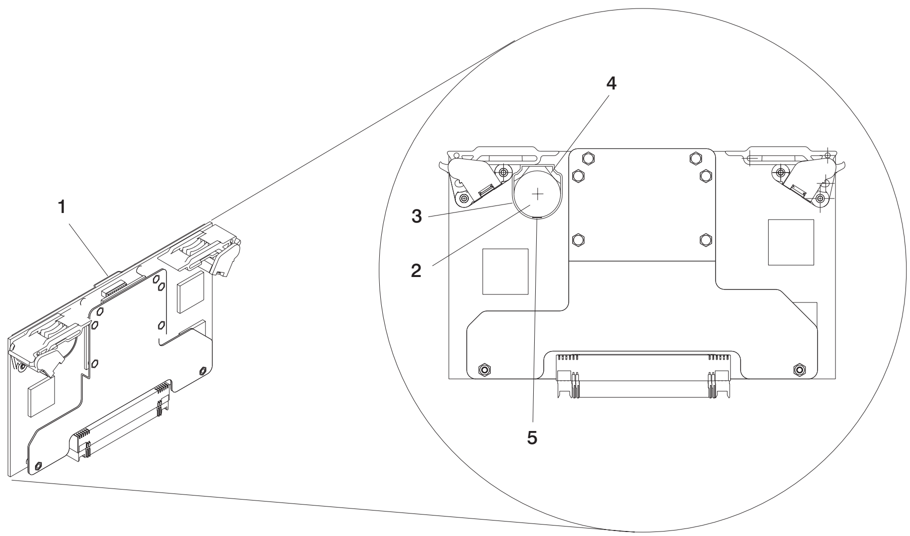
4 Retaining Latch (blue)

5 Press Point (to release latch)

3 Service Processor/MCM VPD Card Assembly

4. Using one hand on each blue retaining latch on the assembly, press in on the latch release in the center of each latch, and pull the latch up to a full upright (vertical) position.
5. Pull the service processor/MCM VPD card assembly up, disconnecting it from its connector on the system planar. Lift the service processor/MCM VPD card assembly out of the card cage.

   Note: The assembly may fit tightly into its connector, so it may be necessary to rock the assembly back and forth to loosen it from the connector.
6. Locate the battery on the card. See the following illustration.



1 Service Processor/MCM VPD Card Assembly

2 Battery

3 Battery Holder

4 Holding Clips

5 Tab and Slot

7. On a solid work surface, position the service processor/MCM VPD card assembly with the battery facing upward.
8. Using a fingernail or small screwdriver, wedged in the slot at the edge of the battery holder opposite the metal holding clips, slide the battery toward the holding clips while lifting the edge of the battery upward and out of the holder.

Replacement

1. Insert the battery in the battery holder and slide it into position so the holding clips are holding the battery at that end of the holder. See the above illustration in Internal Battery “Removal” on page 531.

   Note: Ensure that the battery polarity is correct; place the battery in the socket with the positive side facing down in the holder.
2. Push down firmly on the battery to snap it into the holder.

   Note: When the battery properly installed, it will be held into the holder by the holding clips at one side of the holder and retained under the small plastic tabs at the other end of the holder.
3. Position the service processor/MCM VPD card assembly in the card cage, lining up the card pins with the connector on the system planar.
4. Press the service processor/MCM VPD card assembly firmly into its connector.

   Note: The assembly may fit tightly into its connector, so it may be necessary to rock the assembly back and forth to seat it in the connector.
5. Using one hand on each blue retaining latch on the assembly, press down on the end of each latch to lock them in place.

   Note: The retaining latches are parallel to the top of the service processor/MCM VPD card assembly when they are in the latched position.

   .
6. Replace the processor subsystem in its frame cage in the rack as described in Processor Subsystem “Processor Subsystem Replacement Using the Lift Tool” on page 518.
7. Dismount the service tool from the rack as described in “Dismounting the Service Tool from the Rack” on page 515.
8. Turn on power as described in “Powering the System On” on page 139.
9. Using the HMC, reset the service processor settings. For information about restoring the service processor settings, see “Saving and Restoring Service Processor Settings” on page 435.
10. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame’s Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide* to allow the service processor/VPD card to be associated with the system being serviced.

MCM Module (Processor)

Handling Static-Sensitive Modules

Attention: MCM modules are sensitive to static electricity discharge. These devices are shipped in antistatic containers to prevent damage caused by electrostatic discharge.

Take the following precautions:

- Use an antistatic wrist strap while handling the device.
- Do not remove the device from the antistatic container until you are ready to install the device in the system unit.
- With the device still in its antistatic container, touch it to a metal rack of the system.
- Grasp modules by the heatsink. Avoid touching the interposer buttons.
- If you need to lay the device down while it is out of the antistatic container, lay the MCMs with the posts down on the antistatic mat.

  Before picking it up again, touch the antistatic container and the metal rack of the system unit at the same time.
- Handle the devices carefully to prevent permanent damage.

Attention: Before you remove or replace any MCM, stop, read, and understand this entire procedure.

Attention: The MCM module in this system can be inserted into its connector and secured to the backplane a maximum of three times. Check the *MCM/L3 Label Map* to confirm the number of times the target module has been unplugged. The *MCM/L3 Label Map* is located on the MCM/L3 cage cover. If three times, order a new module. If an MCM module is removed for a fourth time, it must be replaced with a new MCM module. If a new *MCM/L3 Label Map* is needed, see “Tools” on page 616 for replacement label part number.

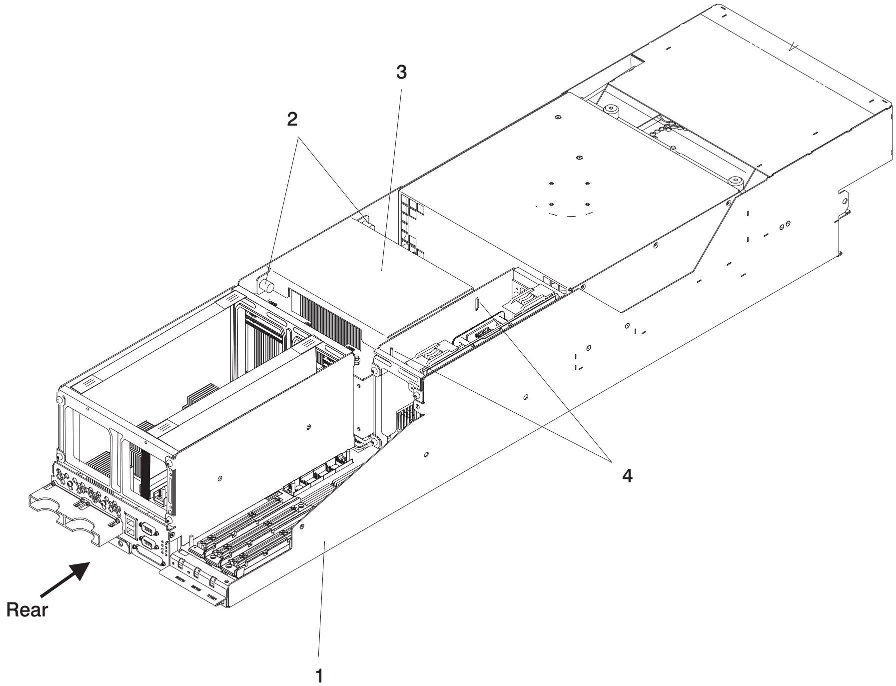
Removal

Note: This procedure is to be performed only by trained service personnel.

1. Turn off the power as described in “Powering the System Off” on page 140.
2. Place the processor subsystem in the service position as described in “Service Position for the Processor Subsystem” on page 512.
3. Perform a general cleaning operation, using a sash brush, (*not* the one included with the FRU kit) and vacuum cleaner, (see “Tools” on page 616 for the tool part numbers), to remove any accumulated dust and debris that has settled in the processor subsystem. Hold the vacuum hose near the brush to remove any debris the brush generates.
4. Note on the *MCM/L3 Label Map* (attached to the system) to confirm the number of times the target module has been unplugged. If the module has been unplugged three times, order a new module.

   Note: If this is the first removal/reseat for the module, record the serial number of the module and the date of the action.

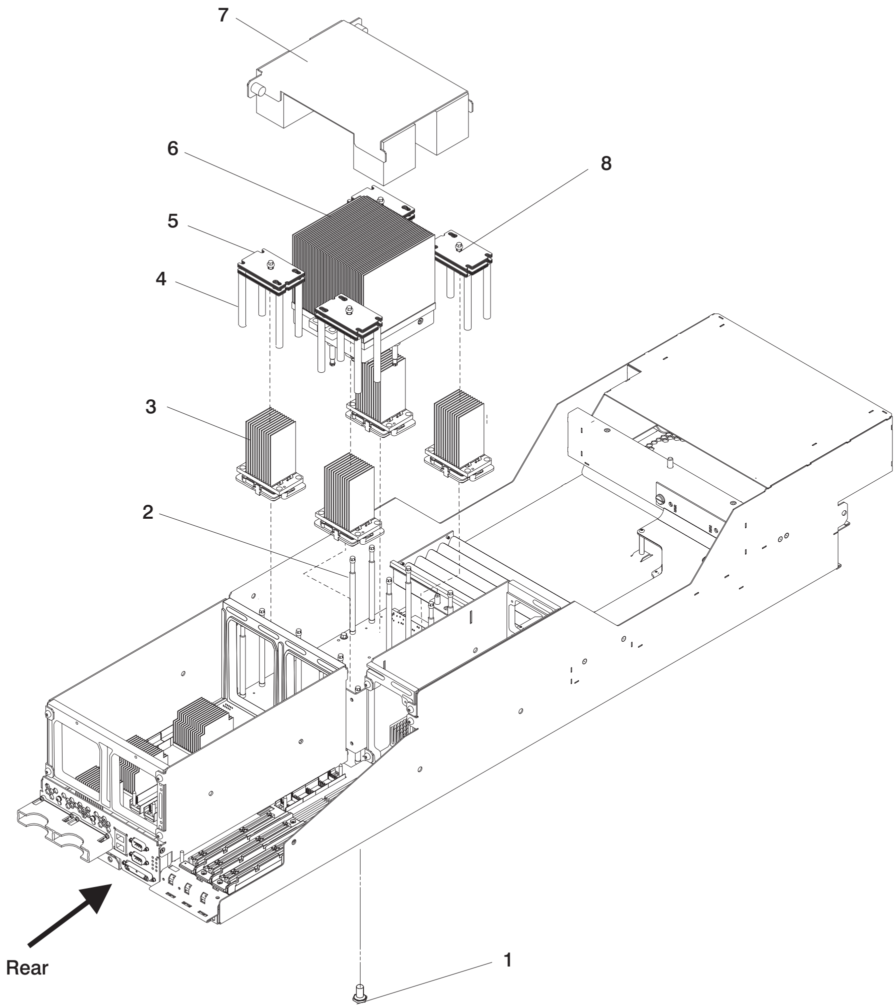
5. Locate the MCM/L3 cage in the center of the processor subsystem (viewing from the top of the processor subsystem). See the following illustration.



1 Processor Subsystem
2 Latch Pins
3 Cage Cover
4 Cage Tabs

6. Grasp each of the two spring-loaded latch pins on the MCM/L3 cage cover and pull the pins to the outward position.

   Note: The pins retract from the holes in the processor subsystem chassis.
7. While holding the latch pins, lift up on the MCM/L3 cage cover, and rotate the cover upward slightly to allow the cage tabs at the other side of the cage to clear their slots in the processor subsystem chassis.
8. Position the processor subsystem on the service tray so that the MCM actuation bolt, located on the bottom of the chassis, is easily accessible.
9. Using an 8-mm socket wrench or driver, loosen the MCM actuation bolt on the bottom of the chassis. See the following illustration for the location of the actuation bolt.

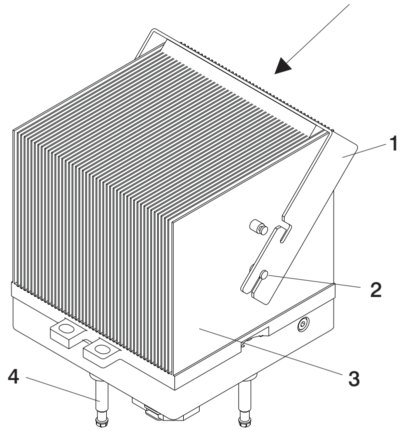


1 Actuation Bolt (8-mm)
2 Post (4 per module)
3 L3 Cache Module
4 Sleeve (4 per module)
5 Spring Plate
6 MCM Module (with heatsink)
7 Cage Cover
8 Set Screw (1 per module)

10. Screw out the actuation bolt until the bolt can be moved from front to rear, allowing the mounting plate in the chassis to detach from its holding pins.
11. Retighten the actuation bolt enough to prevent the mounting plate from sliding back in the locked position.
12. Mount the MCM handle, supplied in the processor subsystem service tool kit, on the MCM module.

Note: The slots on the MCM handle slide over the short posts protruding from the MCM heatsink.

Insert the MCM handle at an angle onto the bottom post of the heat sink, ensuring that the notches in the handle engage the posts on the MCM heatsink. See the following illustration.

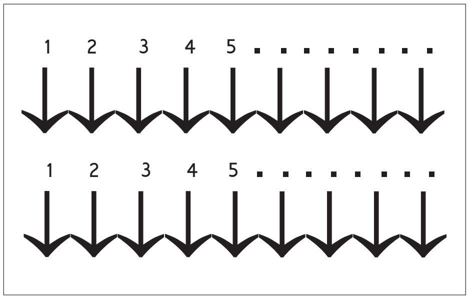


1 MCM Handle (with foam on inside of handle)
2 Bottom Post on MCM Heatsink
3 Heatsink
4 MCM Module Posts

13. Using the MCM handle, gently lift the MCM up and out of the processor subsystem chassis and place it, posts-down, on an ESD mat.
14. Using the new brush supplied with the new module, use the following procedures to clean the LGA site on the system backplane. The LGA site is the position from which you removed the MCM module.

    Note: Before you remove the brush from its protective bag, loosen the bristles by pressing them on the ESD mat until they are 90° from the handle.

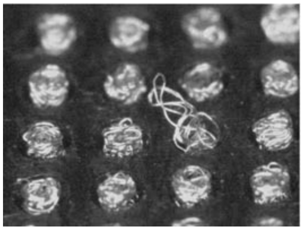
Attention: Each time an MCM module is removed from system backplane, the LGA site where the module connects *must* be cleaned. With the brush supplied with the replacement kit, use only downward strokes, starting in the topmost location. Using firm pressure, brush left to right using overlapping strokes.

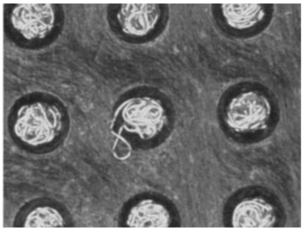


The brush must be discarded after cleaning only one LGA site.

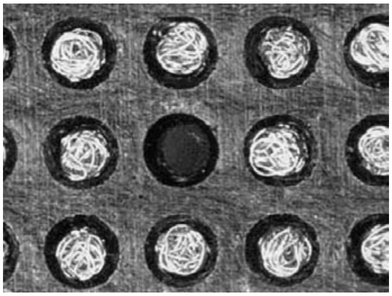
15. Each time an MCM module is installed, the associated interposer *must* be inspected. Inspect the MCM interposer, using a magnifying glass, For the tool part number, see "Tools" on page 616. If the following conditions occur, the interposer is not acceptable, and the module must be returned:

Shorts
If the button, a loop of the button wire, or an individual button wire lead extends more than three times the width of the wire outside of a connector hole chamfer (top side) or counter bore pin indent (bottom side).





Missing buttons



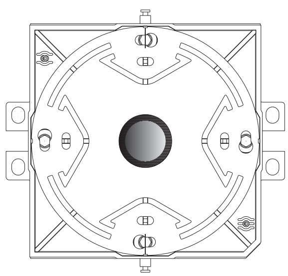
16. On the *MCM/L3 Label Map* attached to the outside of the frame cage in which the system is installed, record the date that this MCM was removed.
17. Remove the service processor/MCM VPD card as described in “Service Processor/MCM VPD Card Assembly” on page 527.

    Note: Ensure that all steps are performed and that detaching the MCM VPD card from the service processor card is accomplished.

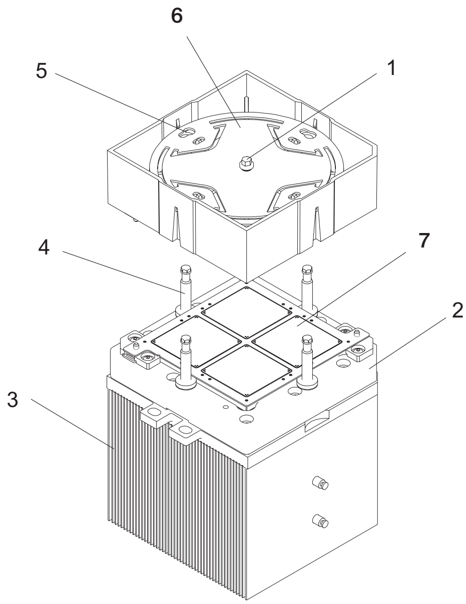
Replacement

Note: This procedure is to be performed only by trained service personnel.

1. Go to “Testing the MCM Module for a Short Circuit” on page 543. If you install an MCM and encounter a short circuit, the MCM you installed must be replaced.
2. If installing a new MCM, remove the old actuation bolt from the mounting plate in the chassis, and insert the new actuation bolt supplied with the new MCM module and move the actuation bolt and spring assembly to the up position and hand-tighten to hold the assembly in the up position and perform a general cleaning operation, using a sash brush, (*not* the one included with the FRU kit) and vacuum cleaner (for the part numbers, see “Tools” on page 616), to remove any accumulated dust and debris that has settled in the processor subsystem. Hold the vacuum hose near the brush to remove any debris the brush generates.
3. Place the MCM on an ESD mat with the protective cover facing upward as shown in the following illustration.

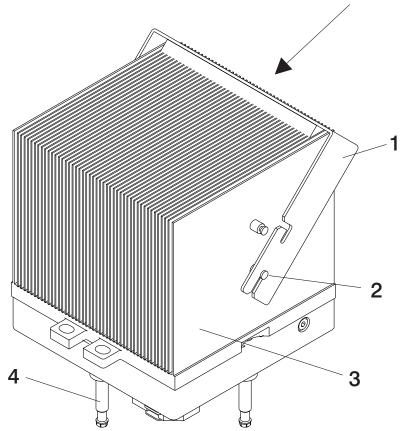


4. Using a 5-mm hex-head driver, loosen the actuation screw in the center of the protective cover on the MCM. Loosen the screw until all load is removed and the spring plate is free to rotate.
5. Rotate the spring plate counterclockwise to align the four large keyhole openings with the four posts on the MCM module. See the following illustration.
6. Carefully remove the protective cover from the MCM module to expose the LGA interposer.



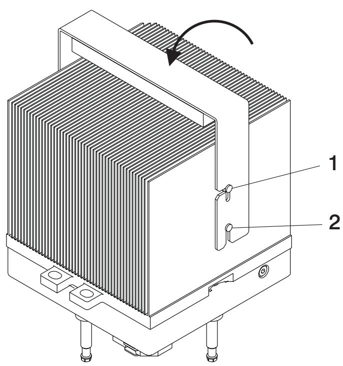
1 Actuation Screw (in Spring Plate)
2 Base of MCM Module
3 Heatsink
4 MCM Module Posts
5 Keyhole Openings (4)
6 Spring Plate
7 Interposer

7. Attach the MCM handle to the MCM. The MCM handle slots slide onto the short posts on each side of the MCM heatsink. Insert the handle at an angle onto the bottom post of the heatsink, ensuring that the handle engages in the notches in the handle. See the following illustration.



1 MCM Handle
2 Bottom Post on MCM Heatsink
3 Heatsink
4 MCM Module Posts

8. Rotate the handle to the vertical position, ensuring that each side of the handle engages the top and bottom posts on the MCM heatsink as shown in the following illustration.



1 Top Post on MCM Heatsink
2 Bottom Post on MCM Heatsink

9. Using the MCM handle, lift the MCM module, ensuring that the the top post on the MCM heatsink slides into the knotch on the handle. Orient the MCM module over its connector on the system planar.

   Attention: Align the corner chamfer (flat corner) on the MCM module to match the outline on the system board. Ensure that the four posts on the MCM module align with the four mounting holes on the system planar.

10. Carefully push the MCM module into its mounting connector.

11. Position the processor subsystem so the MCM actuation bolt hole, located on the bottom of the chassis, can be easily accessed.
12. Insert the actuation bolt through the hole in the bottom chassis into the MCM mounting plate.
13. Thread the actuation bolt into the mounting plate enough so that it remains in place.
14. Move the actuation bolt front to rear to engage the mounting plate pins in the chassis.
15. Using the torque wrench supplied in the processor subsystem service toolkit, tighten the MCM actuation bolt.
16. Test the MCM as described in “Testing the MCM Module for a Short Circuit” on page 543 to determine that a short circuit was not created when the MCM was installed. If a short circuit is not detected, go to the next step.

    If a short circuit is detected, remove the MCM and install a new MCM.
17. Position the MCM/L3 cage cover over the MCM, aligning the tabs on one side with the tab slots in the MCM/L3 cage.
18. Insert the tabs in the slots in the cage, and lower the other end of the cover while pulling the two spring-loaded latch pins open to allow them to align and snap into place in their holes in the chassis. Ensure that the MCM/L3 cage cover foam does not block airflow through the MCM heatsink.

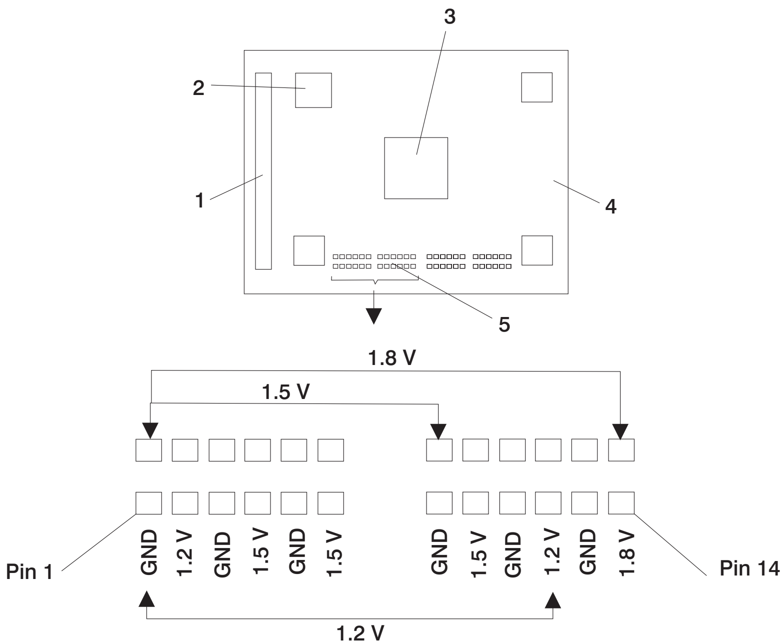
    Note: The pins extend fully into the holes in the processor subsystem chassis when the cover is properly installed.
19. On the *MCM/L3 Label Map* attached to the MCM/L3 cage cover, record the date that this MCM was removed.
20. Replace the processor subsystem in its cage in the rack as described in Processor Subsystem “Processor Subsystem Replacement Using the Lift Tool” on page 518.
21. Dismount the service tool from the rack as described in “Dismounting the Service Tool from the Rack” on page 515.
22. Using the service processor, go to the MCM/L3 Interposer Plug Count Menu and update the plug count for the module.
23. Turn on power as described in “Powering the System On” on page 139.
24. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame’s Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

Testing the MCM Module for a Short Circuit

Performing this test ensures that a short circuit was not created when installing an MCM. Follow this procedure to test for short circuits in MCM modules. Use only the meters and tools listed in “Qualified Service Meters and Fail Criteria for Short Circuit Testing” on page 560 for performing testing.

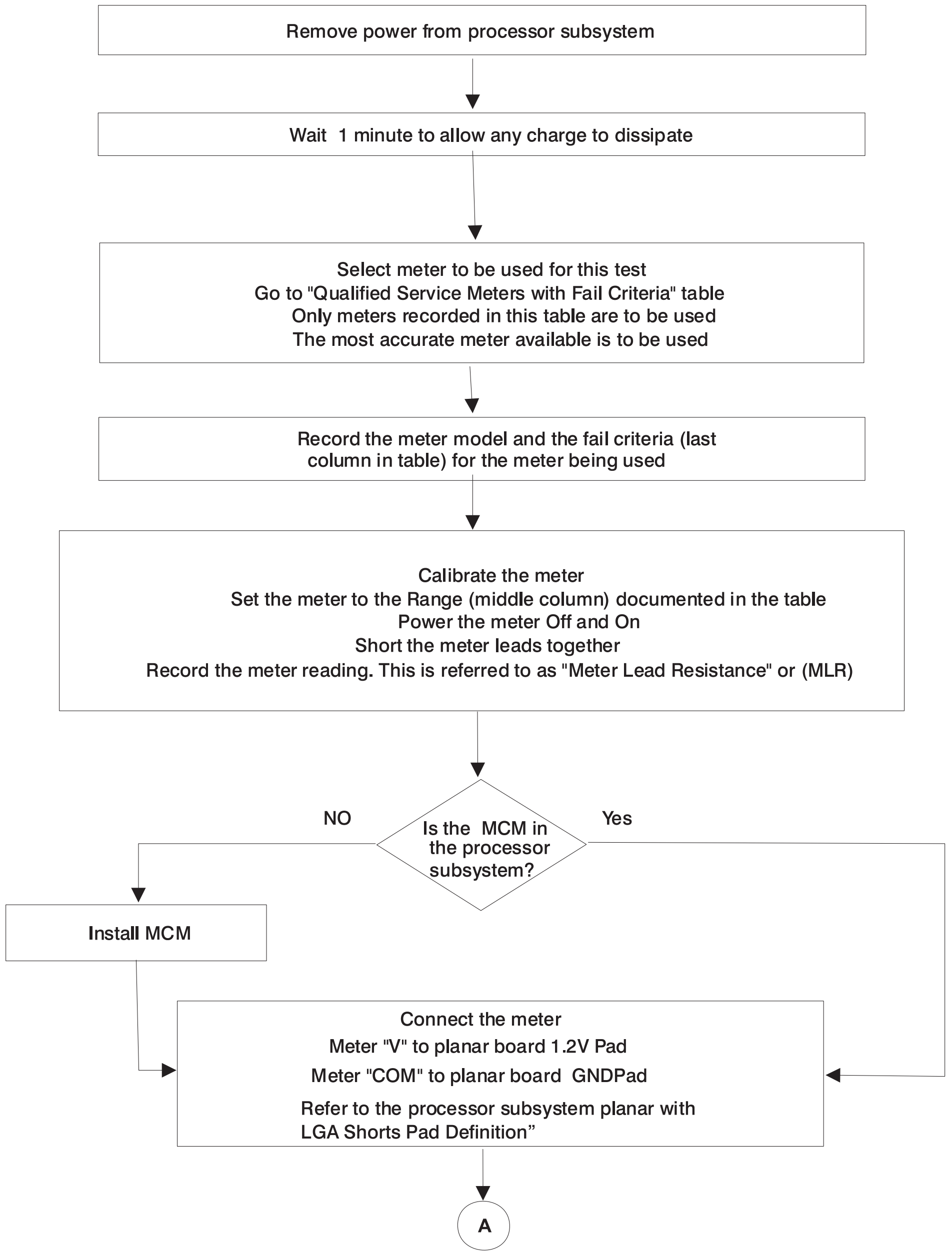
Note: This procedure is to be carried out by trained personnel only. Ensure that the processor subsystem is removed from the rack.

Short Pads Definitions: While performing testing steps, refer to the following illustration for short pads definitions on the system planar.



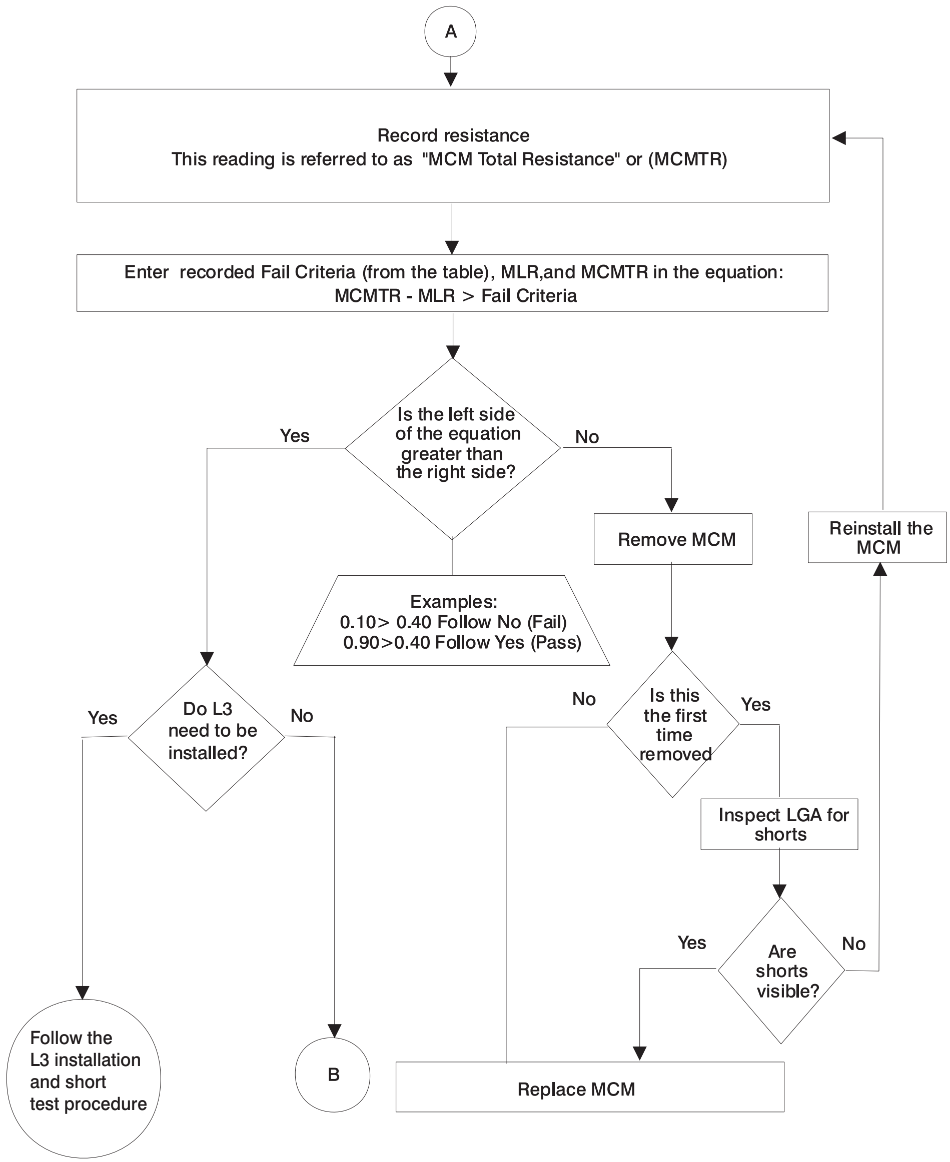
1 DCA Connector Pins
2 L3 Cache Modules (4)
3 MCM Module
4 System Planar
5 Short Pads

MCM Installation Shorts Test, Step 1:



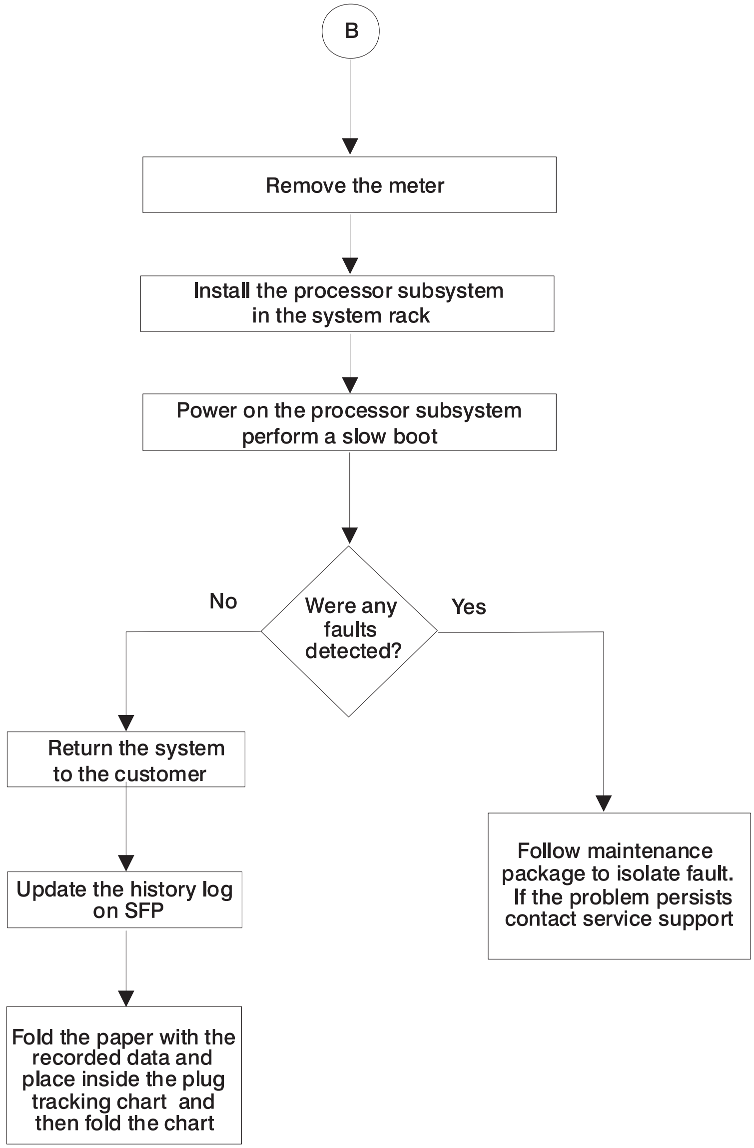
* See “Qualified Service Meters and Fail Criteria for Short Circuit Testing” on page 560.

MCM Installation Shorts Test, Step 2:



* See the Fail Criteria value in "Qualified Service Meters and Fail Criteria for Short Circuit Testing" on page 560.

MCM Installation Shorts Test, Step 3:



* See "L3 Cache Modules" on page 547.

L3 Cache Modules

Handling Static-Sensitive Modules

Attention: MCM and L3 modules are sensitive to static electricity discharge. These devices are shipped in antistatic containers to prevent damage caused by electrostatic discharge.

Take the following precautions:

- Use an antistatic wrist strap while handling the device.
- Do not remove the device from the antistatic container until you are ready to install the device in the system unit.
- With the device still in its antistatic container, touch it to a metal frame of the system.
- Grasp modules by the heatsink. Avoid touching the interposer buttons.
- If you need to lay the device down while it is out of the antistatic container:
  - Lay the MCMs with the posts down on the antistatic mat.
  - Lay the L3s with the LGA connector down in the antistatic tray.

  Before picking it up again, touch the antistatic container and the metal frame of the system unit at the same time.
- Handle the devices carefully in order to prevent permanent damage.

Attention: Before you remove or replace any L3 cache module, STOP, read and understand this entire procedure.

Attention: The L3 cache modules in this system can be inserted into their individual connectors and secured to the backplane a maximum of three times. If an L3 cache module is removed for a fourth time, it must be replaced with a new L3 cache module. Check the *MCM/L3 Label Map* to determine how many times the module has previously been removed. If a new *MCM/L3 Label Map* is needed, see “Tools” on page 616 for replacement label part number.

Removal

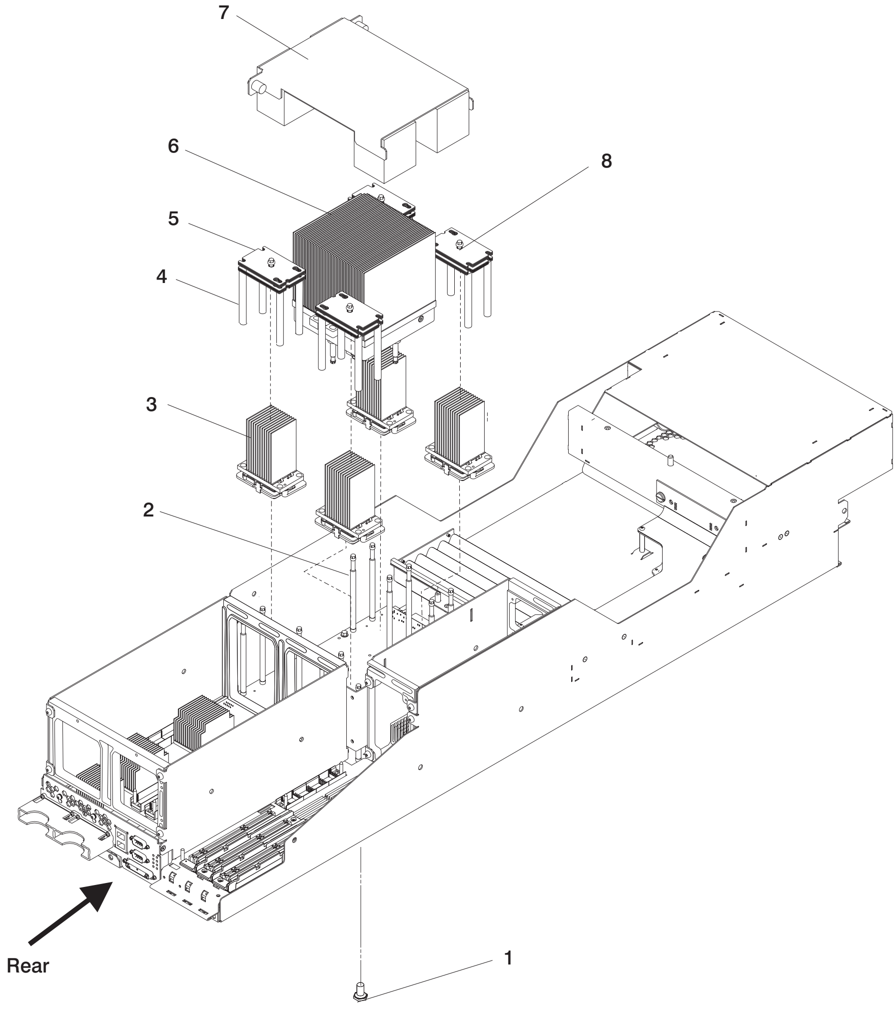
1. Turn off the power as described in “Powering the System Off” on page 140.
2. Place the processor subsystem in the service position as described in “Service Position for the Processor Subsystem” on page 512.
3. Perform a general cleaning operation using a sash brush, (*not* the one included with the FRU kit) and vacuum cleaner (for tool part numbers, see “Tools” on page 616) to remove any accumulated dust and debris that has settled in the processor subsystem. Hold the vacuum hose near the brush to remove any debris the brush generates.
4. Grasp each of the two spring-loaded latch pins on the MCM/L3 cage cover, and pull the pins to the outward position.

   Note: The pins retract from the holes in the processor subsystem chassis.

5. While holding the latch pins, lift up on the MCM/L3 cage cover, and rotate the cover upward slightly to allow the cage tabs at the other side of the cage to clear their slots in the processor subsystem chassis.
6. Arrange the four 4-position trays on an ESD mat in a pattern that corresponds to the locations of the L3 cache modules on the system backplane.

   Attention: Each L3 cache module that is being reused *must* be returned to the location from which it was removed.
7. Note the location of the module being removed. Check the *MCM/L3 Label Map* sheet (attached to the system) to confirm the number of times the target module has been unplugged. If the module has been unplugged three times, order a new module. If this is the first removal/reseat for the module, record the serial number of the module and the date of the action.
8. Using a 5 mm hex-head driver, partially loosen the set screw located in the center of the L3 cache module spring plates.

Note: After loosening the set screw, unscrew the screw approximately 3/4 of its length.



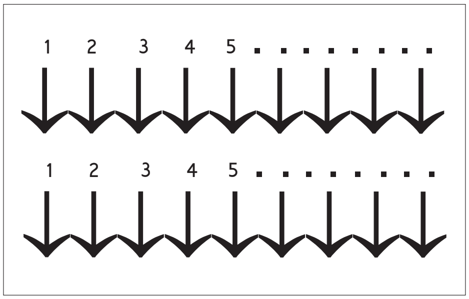
1	Actuation Bolt (8 mm)	**5**	Spring Plate
2	Post (4 per module)	**6**	MCM Module (with heatsink)
3	L3 Cache Module	**7**	Cage Cover
4	Sleeve (4 per module)	**8**	Set Screw (1 per module)

9. Slide the top of spring plate with the set screw until it can be pulled up and off of the L3 cache module, then remove the bottom spring plate.
10. Remove the four sleeves from the posts by sliding them up and off the module posts.

    Note: There are four sleeves on each L3 cache module.

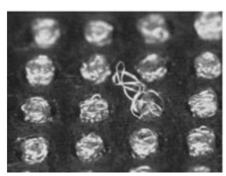
11. Pull the L3 cache module straight up and off the posts, and place it with the interposer facing down in the four position tray from the tool kit.
12. Using a new brush supplied with the new L3 cache module, perform the steps to clean the LGA site on the system planar, and inspect the LGA site (Step 13 and Step 14). The LGA site is the position from which you removed the L3 cache module.
13. Before you remove the brush from its protective bag, loosen the bristles by pressing them on the ESD mat until they are 90° from the handle.

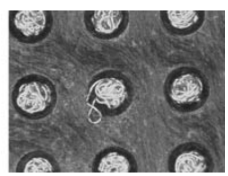
    Attention: Each time an L3 cache module is removed from the system backplane, the LGA site where the module connects *must* be cleaned. With the brush supplied with the replacement kit, use only downward strokes, starting in the upper-left corner. Move left to right, top to bottom, using overlapping strokes.

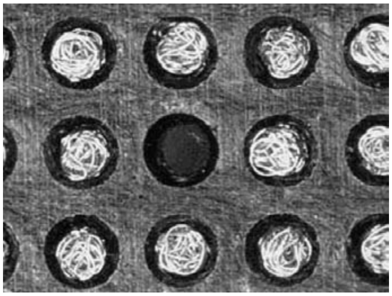
    The brush must be discarded after cleaning four L3 cache module sites.
14. Each time an L3 cache module is installed, inspect the interposer before installation. The associated interposer *must* be inspected, using a magnifying glass. The interposer is not acceptable and the module must be returned if the following conditions occur:

    Shorts
    If the button, a loop of the button wire, or an individual button wire lead extends more than three times the width of the wire outside of a connector hole chamfer (top side) or counter bore pin indent (bottom side).

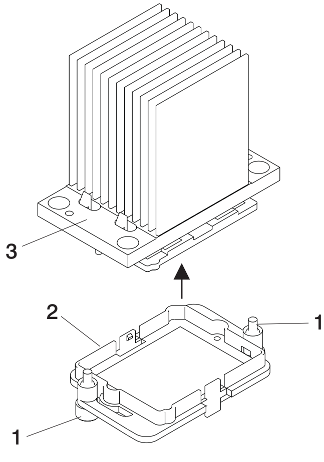
Missing buttons



15. On the log sheet attached to the system, record the date that this L3 cache module was removed.

Replacement

1. Go to “Testing L3 Cache Modules for a Short Circuit” on page 553. If you install an L3 cache module and encounter a short circuit, the L3 cache you installed must be replaced.
2. If installing a new L3 cache module, perform a general cleaning operation, using a sash brush, part number 450732, (*not* the one included with the FRU kit) and vacuum cleaner to remove any accumulated dust and debris that has settled in the processor subsystem. Hold the vacuum hose near the brush to remove any debris the brush generates then remove the L3 filler from the site where the new L3 cache module is to be located.
3. Loosen the captive thumbscrews on the protective cover, and remove the cover from the new L3 cache module.



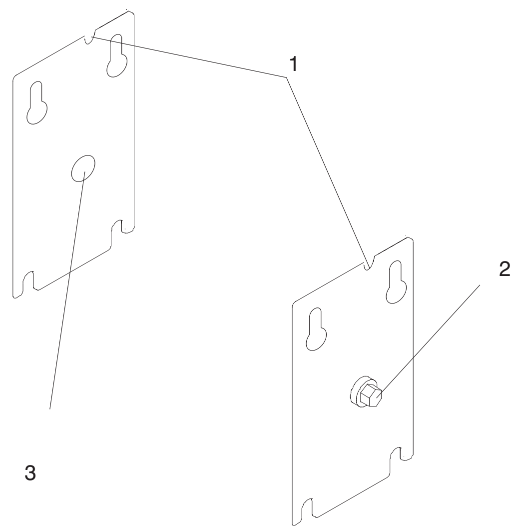
1 Captive Thumbscrews

2 Protective Cover

3 L3 Cache Module (with heatsink)

4. Carefully slide the L3 cache module straight onto the posts until it meets the system backplane.

   Attention: Align the flat corner on the L3 cache module to match the outline on the system planar.
5. If you are installing a new L3 cache module, replace the sleeves that you removed earlier with the new sleeves provided with the L3 cache module kit. If you are reseating an existing module, use a lint-free cloth to wipe any dust off the sleeves that you removed earlier.
6. **Attention:** Be sure to align the notches at the top right of each spring plate. Replace the spring plates that you removed earlier with the new spring plates provided with the L3 cache module kit.



1 Notch on Upper Right Corner

2 Set Screw (5 mm)

3 Reinforced Center

7. Using a 5-mm hex-head driver, tighten the set screw in the center of the L3 cache module spring plates until it is seated.
8. Repeat the Step 3 on page 551 through Step 7 for each L3 cache module being replaced.
9. Check each L3 cache module installed to ensure that a short circuit was not created when the L3 cache module was installed. Refer to the procedure described in "Testing L3 Cache Modules for a Short Circuit" on page 553.
10. Position the MCM/L3 cage cover over the opening in the chassis, aligning the tabs on one side with the tab slots in the MCM/L3 cage.
11. Insert the tabs in their slots, and lower the other end of the cover while pulling the two spring-loaded latch pins open to allow them to align and snap into place in their holes in the chassis.

Note: When the cover is properly installed, the pins extend fully into the holes in the processor subsystem chassis.

Ensure that the MCM/L3 cage cover foam does not block airflow through the MCM heatsink.

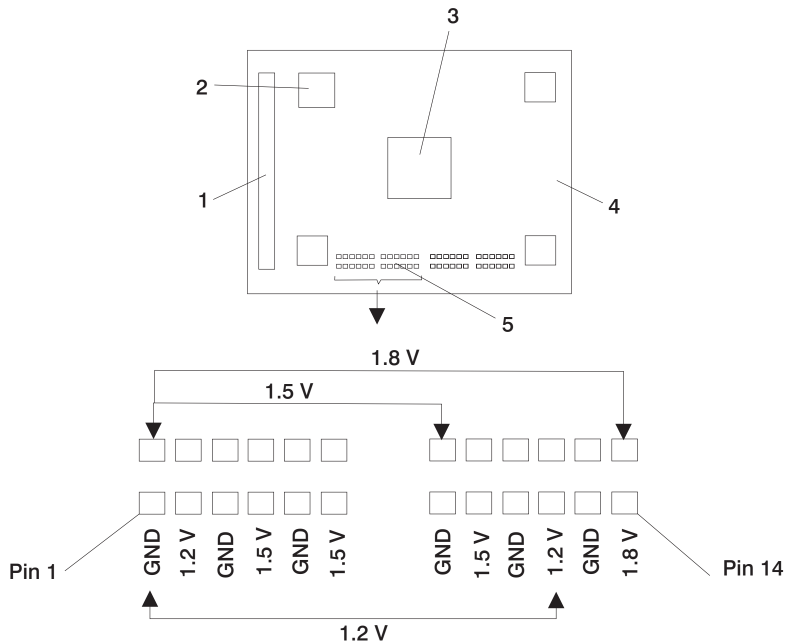
12. Replace the processor subsystem in its cage in the rack, as described in Processor Subsystem “Processor Subsystem Replacement Using the Lift Tool” on page 518.
13. At the HMC, dump the L3 extended error data to the diskette supplied with the new L3 cache module. Return the diskette and the old L3 cache module for failure analysis.
14. For the access number to the hidden menu to reset the L3 repeat gard records, call service support.
15. At the HMC, access the service processor main menu for a privileged user.
16. Enter the access number at the `0>` prompt. The main menu is displayed.
17. At the main menu, select **Option 4**, L3 Repeat Gard Menu.
18. At the L3 Repeat Gard Menu, select **Option 2**, Reset all L3 records.
19. Turn on power as described in “Powering the System On” on page 139.
20. Initialize the managed systems in the frame by performing the procedure described in Initializing a Frame’s Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.
21. Dismount the service tool from the rack as described in “Dismounting the Service Tool from the Rack” on page 515.

Testing L3 Cache Modules for a Short Circuit

Performing this test ensures that a short circuit was not created when an L3-cache module is installed. Use only the meters and tools listed in “Qualified Service Meters and Fail Criteria for Short Circuit Testing” on page 560 for performing this testing.

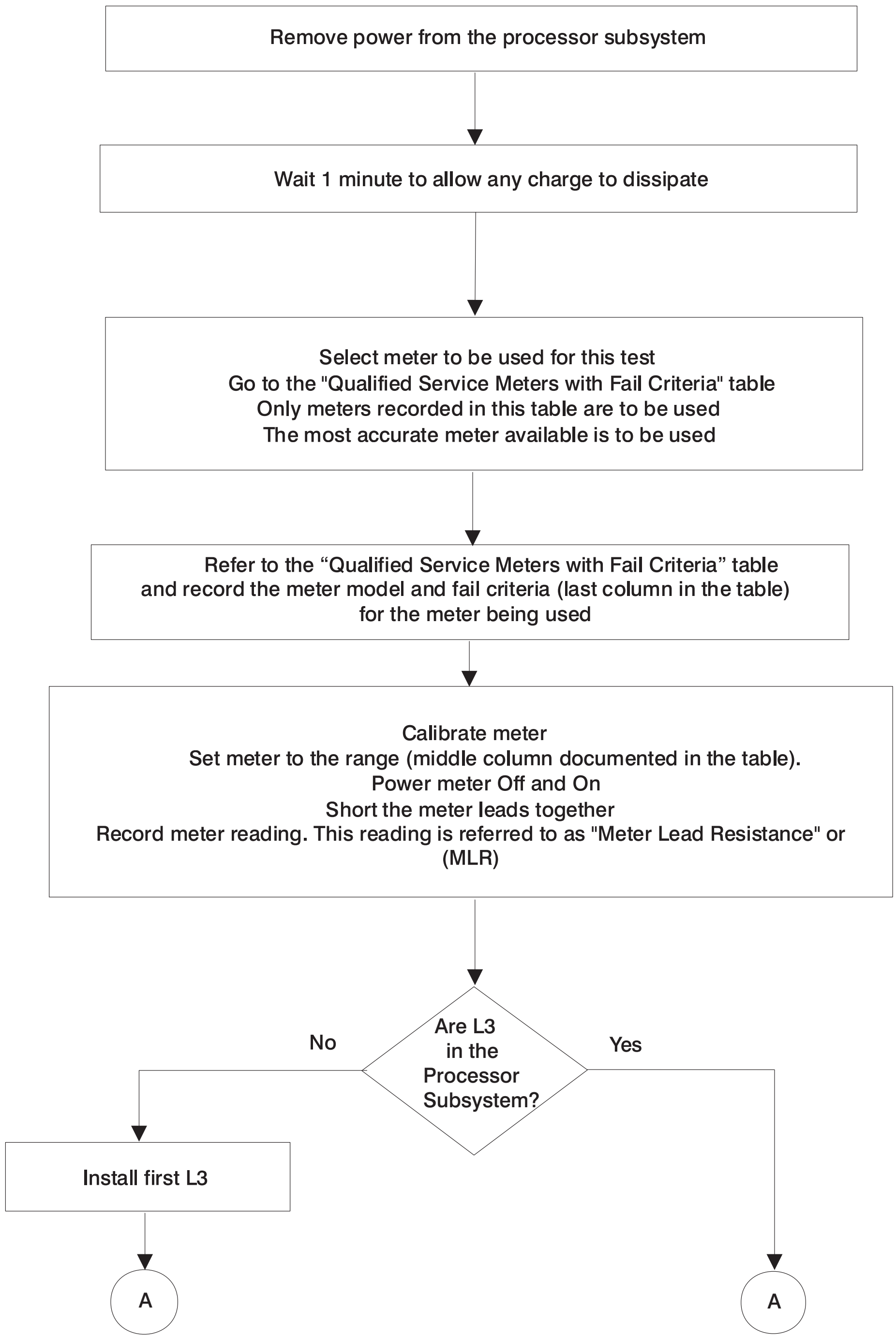
Note: This procedure is to be carried out by trained personnel only. Ensure that the processor subsystem is removed from the rack.

Short Pads Definition: While performing testing steps, refer to the following illustration for short pads definitions on the system planar.



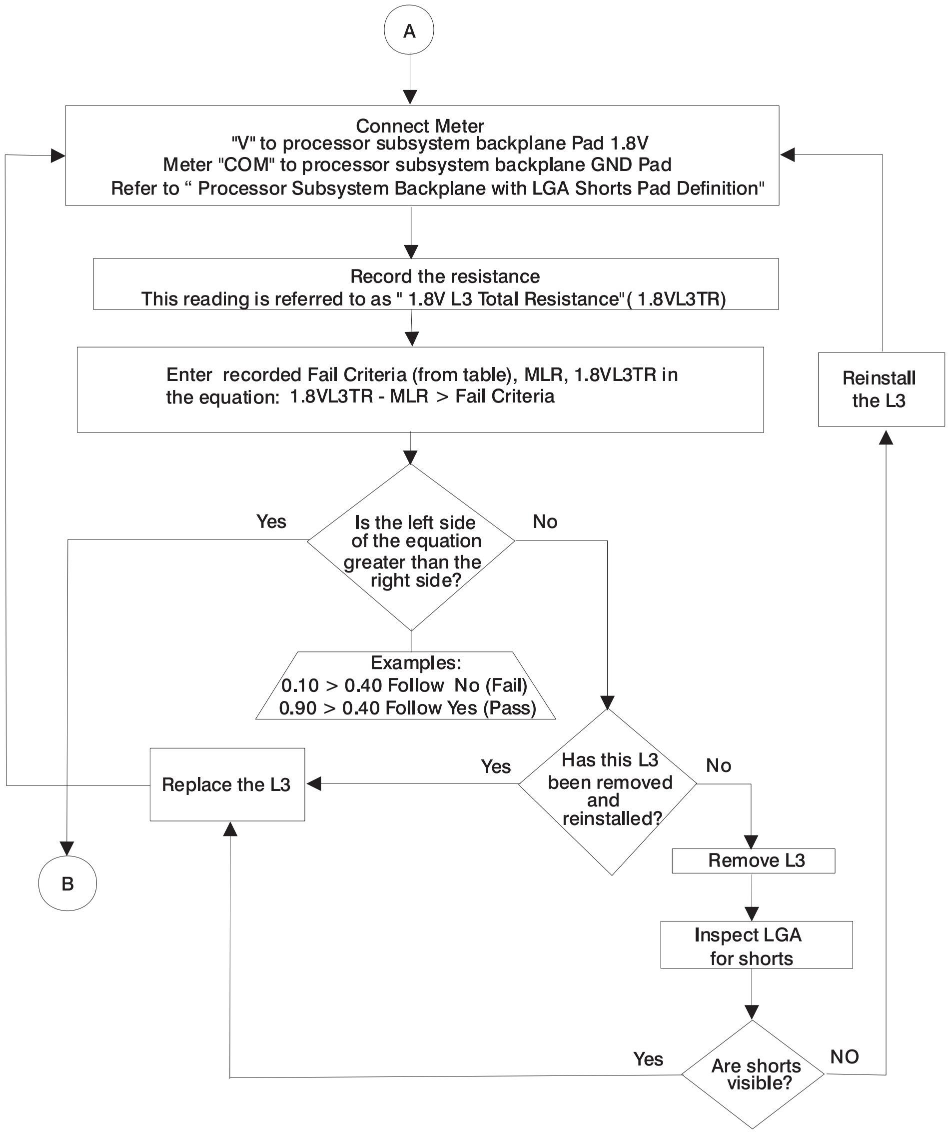
1 DCA Connector Pins
2 L3 Cache Modules (4)
3 MCM Module
4 System Planar
5 Short Pads

L3 Cache Shorts Test, Step 1:

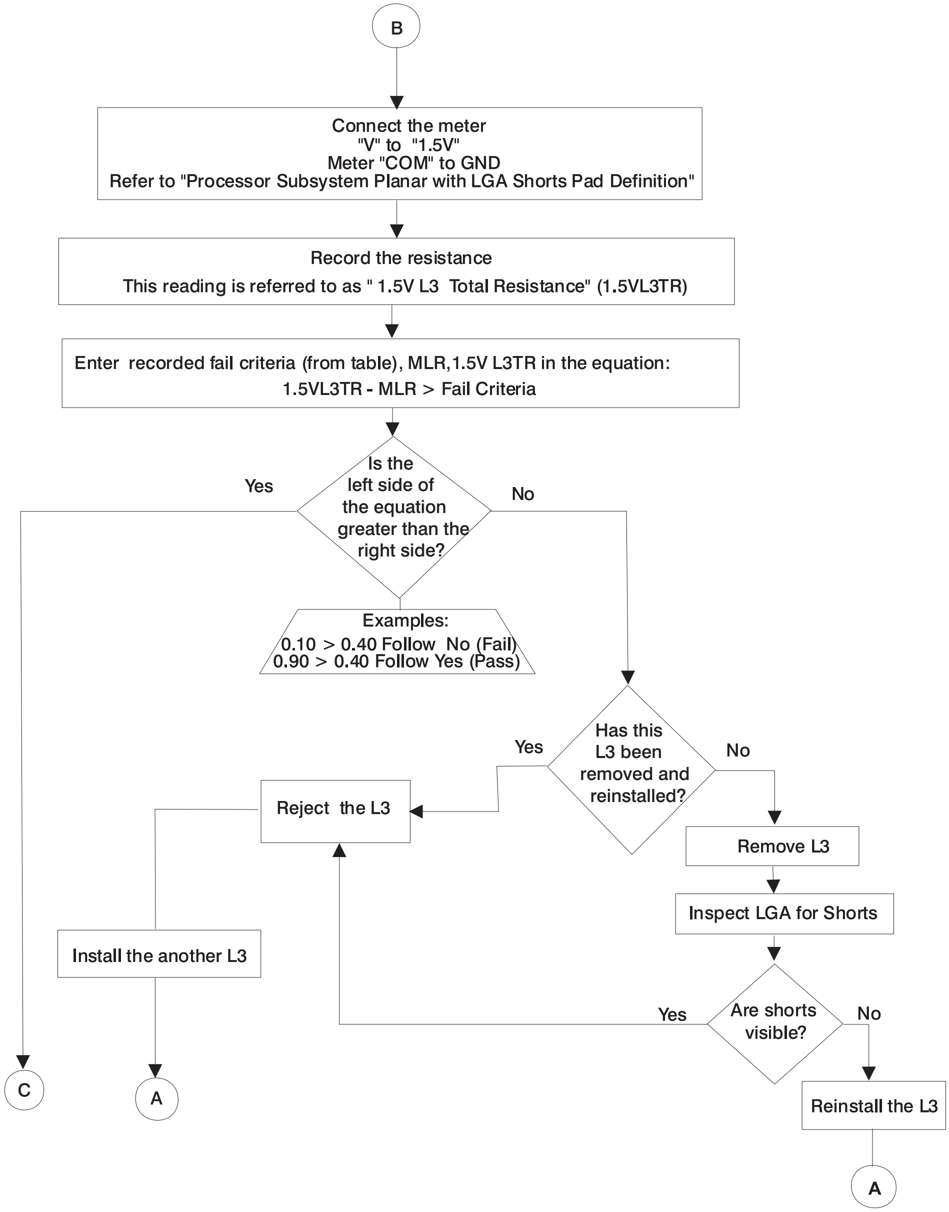


* See “Qualified Service Meters and Fail Criteria for Short Circuit Testing” on page 560.

L3 Cache Shorts Test, Step 2:

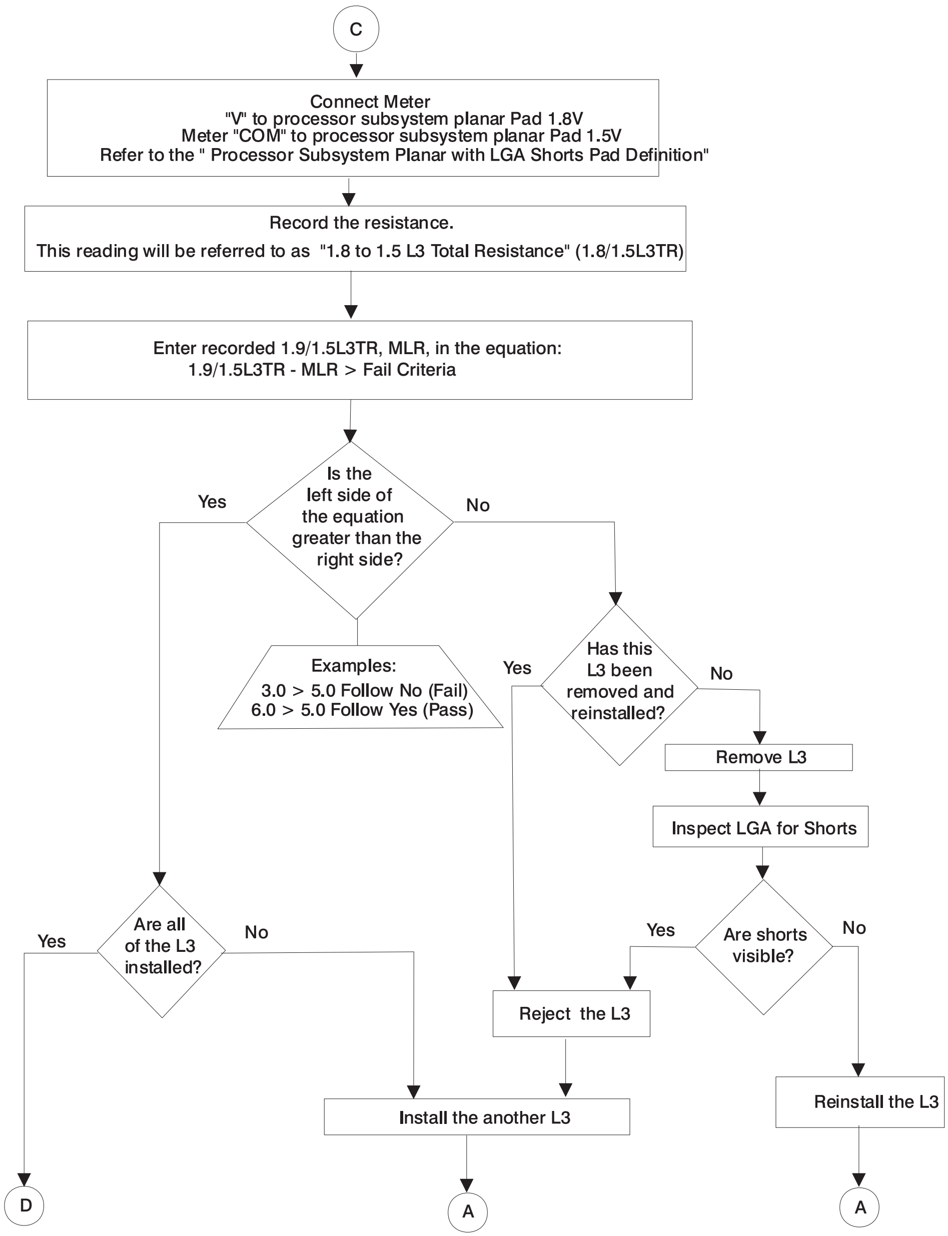


L3 Cache Shorts Test, Step 3:

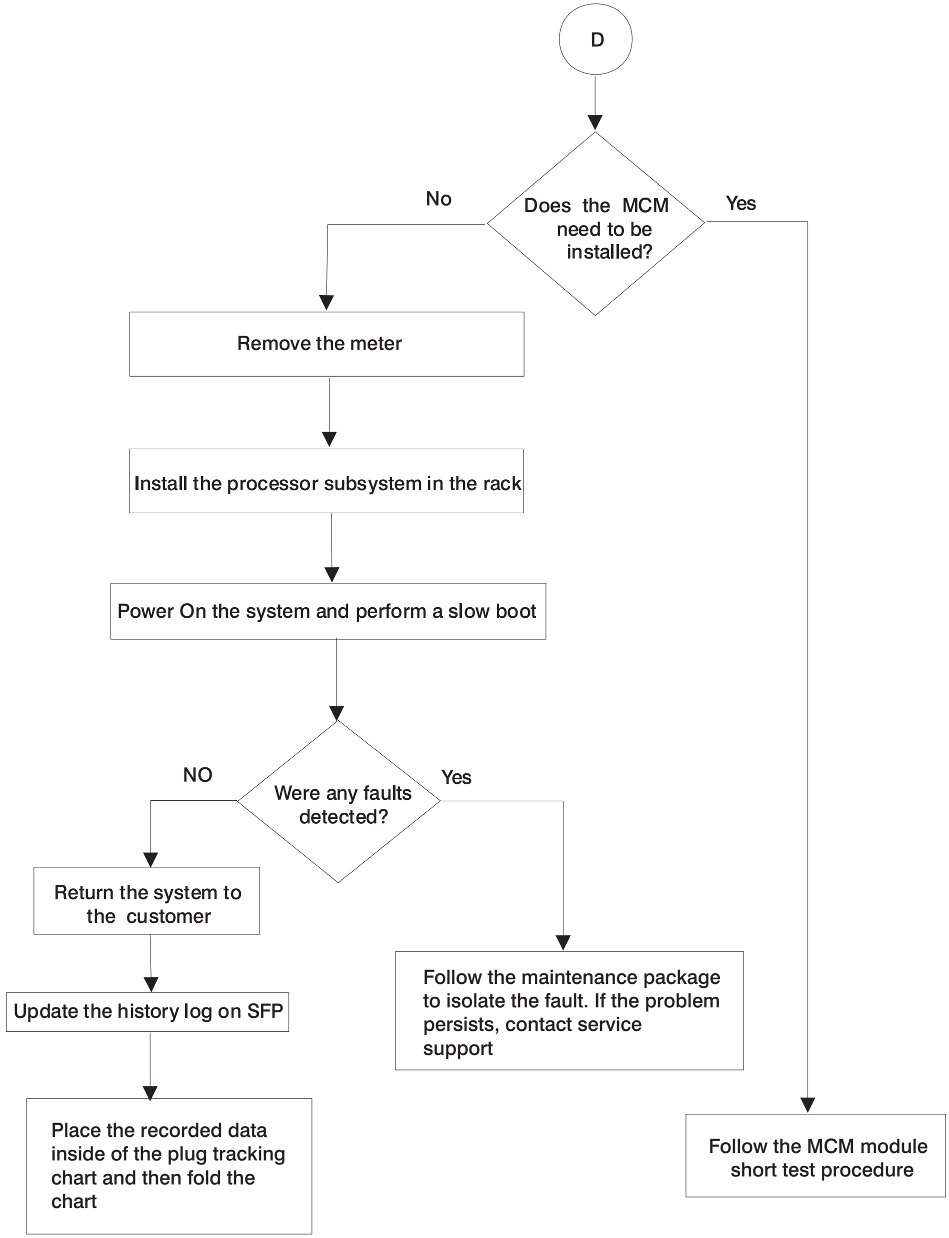


* See “Qualified Service Meters and Fail Criteria for Short Circuit Testing” on page 560.

L3 Cache Shorts Test, Step 4:



L3 Cache Shorts Test, Step 5:



Qualified Service Meters and Fail Criteria for Short Circuit Testing

Manufacturer	Model	Range	Accuracy at 1.0 ohms or less	Fail Criteria
+/-0.10 or Better Accuracy				
Fluke	8060A	200 Ohms	+/-0.04Ω	+0.40Ω
Fluke	8060A/AA	200 Ohms	+/-0.04Ω	+0.40Ω
Fluke	8062A	200 Ohms	+/-0.04Ω	+0.40Ω
Fluke	187	500 Ohms	+/-0.10Ω	+0.40Ω
Fluke	189	500 Ohms	+/-0.10Ω	+0.40Ω
Fluke	83 (original models)	400 Ohms	+/-0.10Ω	+0.40Ω
Fluke	85 (original models)	400 Ohms	+/-0.10Ω	+0.40Ω
Fluke	87 (original models)	400 Ohms	+/-0.10Ω	+0.40Ω
Fluke	87-4	500 Ohms	+/-0.10Ω	+0.40Ω
Fluke	89-4	500 Ohms	+/-0.10Ω	+0.40Ω
+/-0.20 Accuracy				
Fluke	10	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	11	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	110	600 Ohms	+/-0.20Ω	+0.50Ω
Fluke	111	600 Ohms	+/-0.20Ω	+0.50Ω
Fluke	112	600 Ohms	+/-0.20Ω	+0.50Ω
Fluke	12	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	12B	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	16	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	175	600 Ohms	+/-0.20Ω	+0.50Ω
Fluke	177	600 Ohms	+/-0.20Ω	+0.50Ω
Fluke	179	600 Ohms	+/-0.20Ω	+0.50Ω
Fluke	18	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	21-2	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	21-3	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	23-2	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	26-3	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	29-2	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	70-2	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	70-3	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	73	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	73-2	320 Ohms	+/-0.20Ω	+0.50Ω

Manufacturer	Model	Range	Accuracy at 1.0 ohms or less	Fail Criteria
+/-0.10 or Better Accuracy				
Fluke	73-3	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	75	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	75-2	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	75-3	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	76	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	77	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	77-2	320 Ohms	+/-0.20Ω	+0.50Ω
Fluke	79-2	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	79-3	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	83 (with CAT III front panel marking)	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	83-3	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	85 (with CAT III front panel marking)	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	85-3	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	87 (with CAT III front panel marking)	400 Ohms	+/-0.20Ω	+0.50Ω
Fluke	87-3	200 Ohms	+/-0.20Ω	+0.50Ω

Processor Subsystem DCA (Distributed Converter Assembly)

Removal

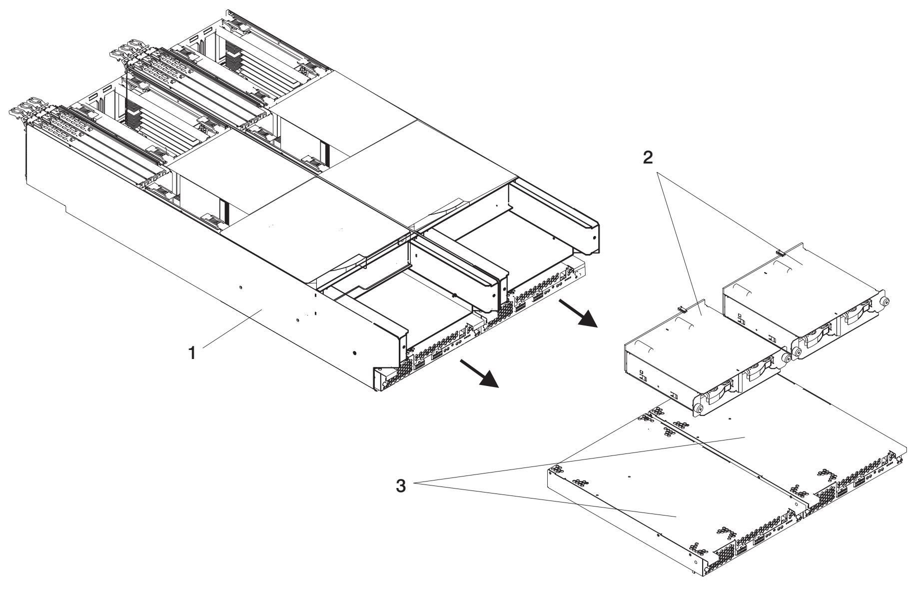
DCA units can be removed and replaced from the processor subsystem without removing the subsystem from the rack.

The following safety notice applies to power related field replaceable units.

DANGER

Do not attempt to open the covers of the power supply. Power supplies are not serviceable and are to be replaced as a unit.
D02

1. Turn off the power as described in "Powering the System Off" on page 140.
2. Locate the DCA to be replaced.



1 Processor Subsystem (2 nodes shown)

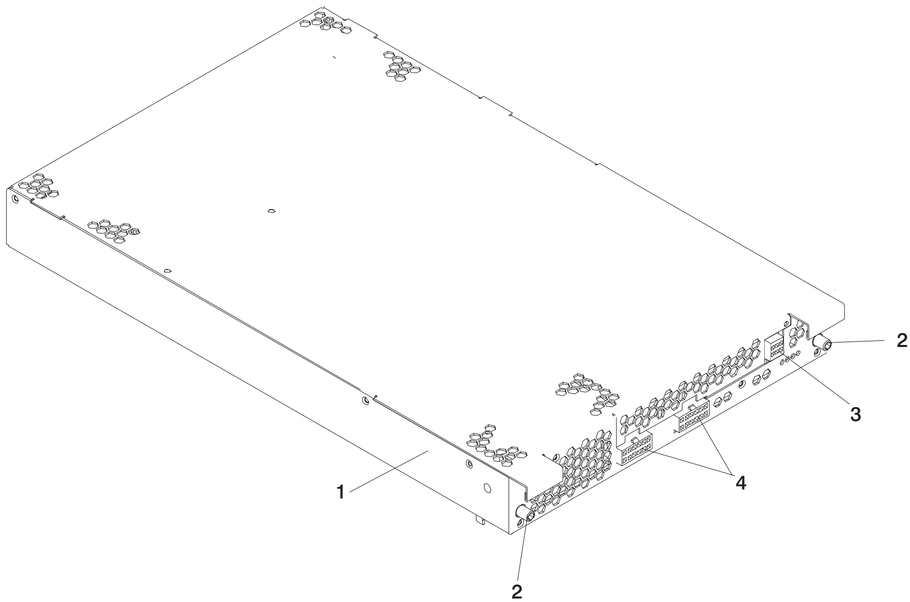
2 DASD Assembly

3 DCA

3. Note the state of the DCA LED.
4. Press the green Start Service button on the UEPO switch.
5. Proceed only if *all* the DCA's LEDs go off or the repair has been scheduled (System outage - EPO off.
6. Label cables and record their locations at the DCA and the bulk power supply.
7. Remove all cables attached to the DCA connectors.

8. Using a 4-mm hex-head driver, loosen the two captive nuts on the front of the DCA.

   Note: Loosen each captive screw by alternating between the screws every few turns until the DCA becomes disengaged from its connector.



1 DCA

2 Captive Screw (2)

3 Fan Connector

4 Power Connector

9. Grasp both sides of the DCA, and pull it out of its cage in the processor subsystem.

Replacement

Attention: Ensure that the two captive screws on the DCA are in fully disengaged position by rotating each screw counterclockwise before starting the replacement steps for the DCA.

1. Carefully slide the DCA into its cage, at the front of the processor subsystem, as far as possible.

   Note: Do not force the DCA against the backplane, because this may damage the connector.

2. Using a 4-mm hex-head driver, tighten each of the two captive screws on the DCA until the DCA is securely fastened in its cage.

   Note: Tighten each captive screw by alternating between the screws every few turns.

3. Plug all cables into their correct location (as recorded for removal) in the DCA.

4. Press the white Service Complete button on the UEPO switch to indicate completion of this procedure.
5. Perform the steps described in “Installing Corrective Service on the Frame” on page 463 to ensure that the new DCA contains the latest code.

DASD Drive

Removal

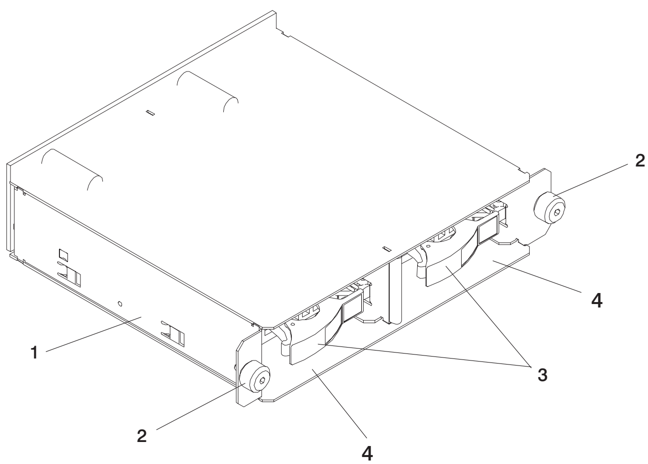
Note: The DASD drives are not hot-plug drives and must not be removed from the system during operation.

Note: You do not have to remove the processor subsystem from the rack to remove a DASD drive. Before you perform these procedures, ensure that the customer has taken appropriate actions to back up the data on the drive you are removing, and that the drive has been removed from the configuration. Physically removing a DASD drive from the system before it has been removed from the system configuration can cause unrecoverable data corruption.

Attention:

1. Before you remove a defective DASD drive, ensure that the customer backs up all important data.
2. To avoid damage to a disk drive, *do not* remove the DASD drive from the bay until it has had time to spin down (approximately 30 seconds). Handle the drive carefully.
3. Before you remove a DASD drive, Ensure it is defective. If you partially or completely remove a good drive instead of a defective one, the system might lose valuable data.

1. Turn off the power as described in “Powering the System Off” on page 140.
2. With one hand, touch any metal surface to minimize static electric discharge.
3. Pull the actuator handle open on the drive and pull it from the bay.



1 DASD Assembly

2 Knurled Nuts

3 Actuator Handle

4 Drive Bay (2)

4. If you are not replacing the drive with another drive, install a filler in the bay. Deconfigure the drive in the operating software if it is not being replaced.

   Attention: To maintain proper system cooling, a drive or filler must be installed in the bay.

Replacement

1. With one hand, touch any metal surface to minimize static electric discharge.
2. If there is a filler panel installed in the bay, remove the panel by opening the actuator handle and pulling the panel out of the bay.

   Attention: To maintain proper system cooling, a drive or filler must be placed in the bay.
3. Determine the size of the drive to be installed.

   Note: Drives with the following capacities are available for this processor subsystem: 18.2 GB, 36.4 GB and 73.4 GB.
4. Open the actuator handle of the new drive, position it in the bay, and slide it in as far as possible.
5. Press the actuator handle inward to seat the drive in the bay.
6. If you have replaced a drive with the same type and size as that removed, you have completed the replacement procedure.

   If you have replaced a drive with another type and size as that removed, go to the next step.
7. Turn on power as described in “Powering the System On” on page 139.
8. Configure the new drive in the operating software.
9. Deconfigure the old drive in the operating software.

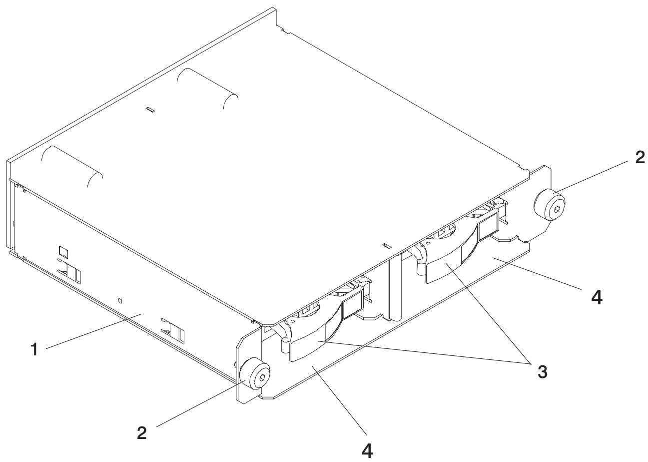
DASD Cage Assembly

The DASD cage assembly can be removed and replaced without the processor subsystem being removed from the rack.

Removal

1. Turn off the power as described in “Powering the System Off” on page 140.
2. Remove the two DASD drives from the processor subassembly as described in DASD Drive “Removal”.
3. With one hand, touch any metal surface to minimize static electric discharge.

4. Loosen the two knurled nuts on each side of the front on the DASD cage assembly and pull the cage out of it's bay in the processor subsystem.



1 DASD Assembly

2 Knurled Nuts

3 Actuator Handle

4 Drive Bay (2)

Replacement

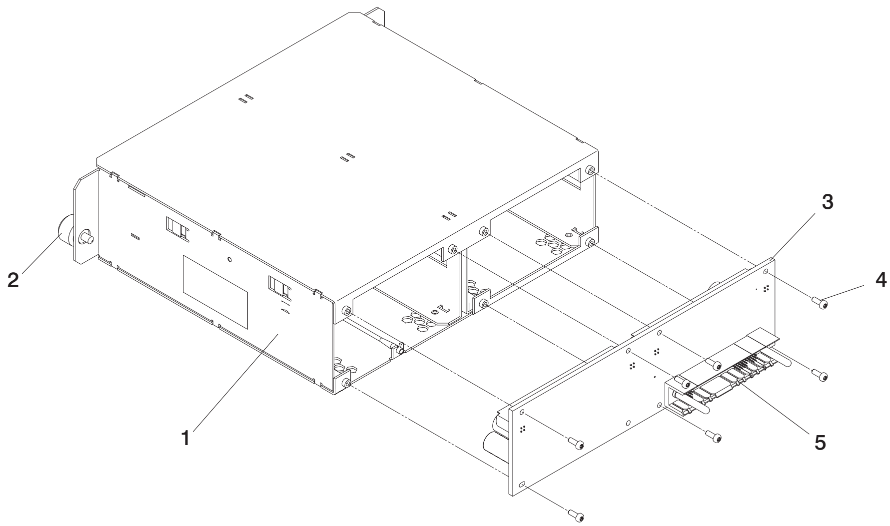
1. Position the DASD cage assembly in front of its bay on the processor subsystem and slide it in as far as possible.

   Attention: Do not force the assembly into the bay because damage can occur to the connector located on the back of the assembly.
2. Tighten the two knurled nuts on each side of the front on the DASD cage.
3. Replace the DASD drives or insert fillers. See DASD Drive "Replacement" on page 566.
4. Turn off the power as described in "Powering the System Off" on page 140.

DASD Backplane

Removal

1. Turn off the power as described in "Powering the System Off" on page 140.
2. Remove the DASD drives as described in DASD Drive "Removal" on page 565.
3. Remove the DASD cage assembly as described in DASD Cage Assembly "Removal" on page 566.
4. Using a Torx screwdriver (T10), loosen and remove the seven mounting screws at the rear of the assembly.



1 DASD Cage Assembly

2 Knurled Captive Screws (2)

3 DASD Backplane

4 Mounting Screws (7) (T10)

5 Connector for DASD Ribbon Cable

5. Grasp the DASD backplane and separate it from the assembly.

Replacement

1. Position the DASD backplane on rear of the DASD cage assembly.
2. Insert and tighten, using a Torx screwdriver (T10), the seven mounting screws on the backplane
3. Replace the DASD cage assembly in the processor subassembly as described in DASD Cage Assembly "Replacement" on page 567.
4. Replace the processor subsystem in its cage in the rack as described in Processor Subsystem "Processor Subsystem Replacement Using the Lift Tool" on page 518.
5. Dismount the service tool from the rack as described in "Dismounting the Service Tool from the Rack" on page 515.
6. Turn on power as described in "Powering the System On" on page 139.

Processor Subsystem Chassis and Planar

Removal

1. Turn off the power as described in “Powering the System Off” on page 140.
2. Place the processor subsystem in the service position as described in “Service Position for the Processor Subsystem” on page 512.
3. Remove the fan assembly as described in Fan Assembly “Removal” on page 522.
4. Remove the memory cards as described in Memory Card “Removal” on page 524.
5. Remove the DASD drives (or filler, as applicable) as described in DASD Drive “Removal” on page 565.
6. Remove the DASD cage as described in DASD Cage “Removal” on page 566.
7. Remove the service processor/MCM VPD card as described in Service Processor/MCM VPD Card “Removal” on page 527.

   Attention: If the service processor/MCM VPD card is to be reinstalled, *do not* remove the internal battery from the card.
8. Remove the MCM module as described in MCM Module “Removal” on page 534.
9. Remove the L3 cache modules as described in L3 Cache Modules “Removal” on page 547.
10. Remove the PCI Adapters as described in “PCI Adapters” on page 571.
11. Remove the processor subsystem DCA as described in “Removal” on page 562.
12. Remove the processor subsystem chassis (containing the planar) from the service tray.

Replacement

1. Position the processor subsystem chassis on the service tray.
2. Replace the PCI Adapters as described in “PCI Adapters” on page 571.
3. Replace the L3 cache modules as described in L3 Cache Module “Replacement” on page 551.
4. Replace the MCM module as described in MCM Module “Replacement” on page 539.
5. Replace the service processor/MCM VPD card as described in Service Processor/MCM VPD Card “Replacement” on page 529.
6. Replace the DASD cage assembly as described in DASD Cage “Replacement” on page 567.
7. Replace the DASD drives (or filler, as applicable) as described in DASD Drive “Replacement” on page 566.
8. Replace the memory cards as described in Memory Card “Replacement” on page 526.
9. Replace the fan assembly as described in Fan Assembly “Replacement” on page 523.
10. Replace the processor subsystem in the rack as described in Processor Subsystem “Processor Subsystem Replacement Using the Lift Tool” on page 518.

11. Dismount the service tool from the rack as described in “Dismounting the Service Tool from the Rack” on page 515.
12. Turn power on as described in “Powering the System On” on page 139.

PCI Adapters

With this system, you can install hot-plug PCI adapters with the power on. These adapters are referred to as *hot-pluggable PCI adapters*. Some adapters are not hot-pluggable and power must be removed from the system for adapter installation.

Before you install the adapter, determine if the PCI adapter you are installing is hot-pluggable. See the *PCI Adapter Placement Reference*. Also refer to "PCI Adapter-Slot LEDs" on page 14 to determine the status of an adapter before removing or replacing it.

If you are removing a PCI adapter that is:

- Not hot-pluggable, go to "Non-Hot-Pluggable PCI Adapter".
- Hot-pluggable, go to "Hot-Pluggable PCI Adapter" on page 574.

Non-Hot-Pluggable PCI Adapter

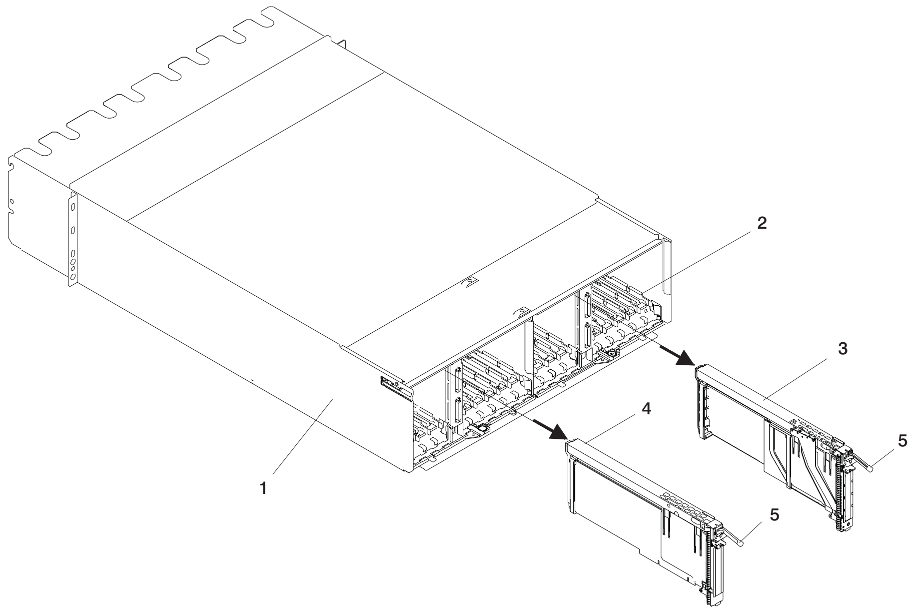
Removal

To remove an adapter, perform the following steps:

1. Turn off power and unplug the system unit power cable from the electrical outlet.

   If the system is operating under AIX, type the **shutdown** command to power off the system.
2. Determine the slot from which you are removing the adapter.
3. Disconnect any cables that are connected to the adapter being removed.
4. Press the center of the handle of the PCI card cassette to release the latch, then lower the handle completely.
5. When the handle is completely lowered, push the gray locking cross bar.
6. Carefully pull the PCI card cassette straight out from the PCI adapter slot.

Note: The PCI card cassette shown illustrates installation into an I/O subsystem.



1	I/O Subsystem	**4**	PCI Adapter Card
2	PCI Adapter Slots	**5**	Release Latch
3	PCI Adapter Card (with cassette)		

7. If you are installing another adapter in this slot, follow the instructions given under ″Replacement.″
8. If you are not installing another adapter in this slot, place a blank slot cover in the adapter slot and then lower the plastic stop over the adapter bracket. Rotate the locking latch clockwise until it clicks into the locked position.
9. Turn on power to the processor subsystem as described in “Powering the System On” on page 139.

Replacement

To replace an adapter, perform the removal steps in the reverse order.

When you are instructed to install the adapter in the adapter slot:

1. Lower the black handle completely.
2. Push the gray locking cross bar until you hear a snapping sound.
3. Hold the assembly straight on with the slot.
4. Align the bottom edge of the PCI cassette cover with the PCI card guide rail on the I/O board.

   Note: If there is a cassette to the left of the one you are installing, align the ridge on the cover with the ″tick″ in the notch of the neighboring cassette.

5. Slide the cassette partially into the guide.
6. Ensure that the dovetail on the top track aligns with its mating component(s) on both sides, then continue the installation.
7. When the cassette is fully inserted, prepare to activate the handle, and lower the gray locking bar. Lift the handle all the way up until you hear a click. The PCI card should be completely seated.
8. Set the color slide to the appropriate color.

Hot-Pluggable PCI Adapter

Note: Following the procedures in this section for hot-pluggable PCI adapters may result in unpredictable system behavior, depending on the adapter failure. The PCI hot-plug manager may become inoperable or indicate invalid or inconsistent slot status. In the even that any of the hot-plug procedures do not produce the results described, proceed to “MAP 1420: Recovery Procedures for Hot-Pluggable PCI Adapters” on page 169.

Replacing a Hot-Pluggable PCI Adapter

Note: Use this procedure only when you are replacing an adapter with an identical adapter. If you are replacing an adapter with an adapter that is not identical to the adapter removed, go to “Removing a Hot-Pluggable PCI Adapter” on page 576 and “Installing a Hot-Pluggable PCI Adapter” on page 575.

To replace an adapter, perform the following steps:

1. Remove the two thumbscrews and remove the top cover from the drawer.
2. Determine the slot from which you are removing the adapter.
3. Ensure that any processes or applications that might use the adapter are stopped.

   Note: Removing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot-plug procedures. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

   For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*.
4. Refer to “PCI Hot-Plug Manager Access” on page 579, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
5. Select **Unconfigure a Device** and press Enter.
6. Press F4 to display the Device Names menu.
7. Select the adapter you are removing from the menu.
8. Answer YES to **Keep Definition**. Press Enter.
9. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfigure is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
10. Press F3 to return to the PCI Hot-Plug Manager menu.
11. Select **Replace/Remove a PCI Hot-Plug Adapter** and press Enter. The Replace/Remove a PCI Hot-Plug Adapter menu displays.
12. Move the cursor to select the adapter that you are removing and press Enter.

13. Press the Tab key until the entry field displays the replace operation and then Press the Enter key. Follow the instructions that display on the screen until you are instructed to remove the adapter.
14. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.
15. Turn the locking latch and lift the plastic stop for the adapter.
16. Carefully grasp the adapter by the edges and pull it straight out from the I/O board.
17. Replace the adapter in the adapter slot. Carefully grasp the adapter by the edges and align the adapter in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.
18. Lower the plastic stop over the adapter bracket and rotate the locking latch clockwise until it clicks into the locked position. Some full-length cards can be supported by rotating the blue adapter latch on the right end of the adapter counterclockwise.
19. Connect appropriate cables and devices to the adapter.
20. Continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
21. Press the F3 key to return to the PCI Hot-Plug Manager menu.
22. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful replacement is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
23. If you do not have other adapters to replace, continue with the next step.

    If you have other adapters to replace, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 11 on page 574.
24. Press F10 to exit the Hot-Plug Manager.

    If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
25. Install the covers that you removed earlier and return the drawer to the normal operating position.

Installing a Hot-Pluggable PCI Adapter

To install an adapter, perform the following steps:

1. Refer to “PCI Hot-Plug Manager Access” on page 579 and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
2. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.
3. For adapter placement information, see the *PCI Adapter Placement Reference*. Then, select an empty PCI slot for the adapter.
4. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
5. Turn the locking latch, lift the plastic stop, and remove the blank cover.

6. Follow the instructions on the screen to install the adapter until the visual indicator (LED) for the specified PCI slot is set to the Action state. See “PCI Adapter-Slot LEDs” on page 14.
7. When you are instructed to install the adapter in the adapter slot:
   a. Lower the black handle completely.
   b. Push the gray locking cross bar until you hear a snapping sound.
   c. Hold the assembly straight on with the slot.
   d. Align the bottom edge of the PCI cassette cover with the PCI card guide rail on the I/O board.

      Note: If there is a cassette to the left of the one you are installing, align the ridge on the cover with the ″tick″ in the notch of the neighboring cassette.
   e. Slide the cassette partially into the guide.
   f. Ensure that the dovetail on the top track aligns with its mating component(s) on both sides, then continue the installation.
   g. When the cassette is fully inserted, prepare to activate the handle, lower the gray locking bar. Lift the handle all the way up until you hear a click. The PCI card should be completely seated.
   h. Set the color slide to the appropriate color.
8. Connect appropriate cables and devices to the adapter.
9. Continue to follow the screen instructions until you receive a message that the installation is successful. Successful installation is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
10. Press the F3 key to return to the PCI Hot-Plug Manager menu.
11. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful installation is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
12. If you do not have other adapters to install, continue with the next step.
    OR
    If you have other adapters to install, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 2 on page 575.
13. Press F10 to exit the Hot-Plug Manager.

    If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
14. Install the covers that you removed earlier, and return the drawer to the operating position.

Removing a Hot-Pluggable PCI Adapter

Note: If you are removing an adapter and replacing it with an adapter that is identical to the adapter removed, use the “Replacing a Hot-Pluggable PCI Adapter” on page 574 procedure.

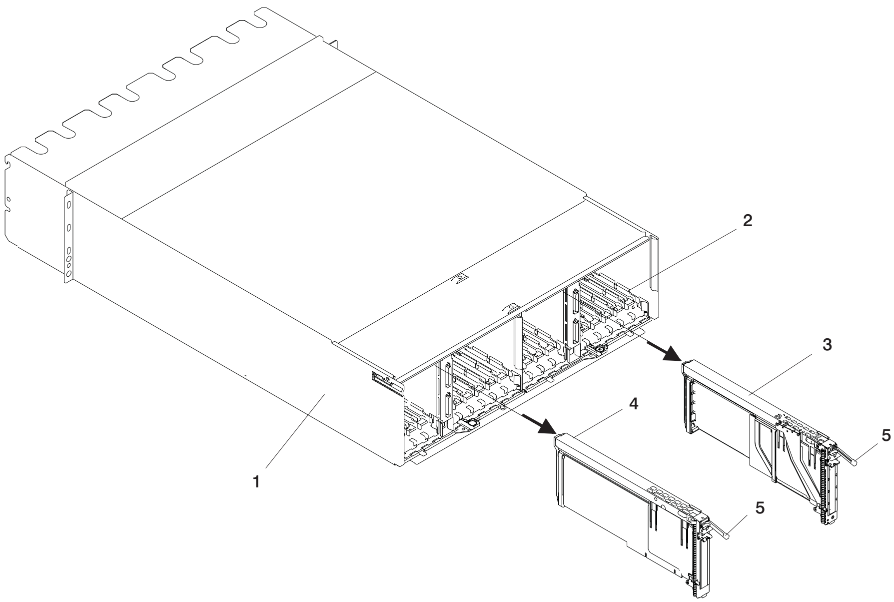
To remove an adapter, perform the following steps:

1. Open the door of the rack.
2. Determine the slot from which you are removing the adapter.
3. Ensure that any processes or applications that might use the adapter are stopped.

   Note: Removing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot-plug procedures. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

   For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is located on the *AIX Documentation* CD. The documentation information is made accessible by loading the documentation CD onto a system with a CD-ROM drive.
4. Refer to “PCI Hot-Plug Manager Access” on page 579, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
5. Select **Unconfigure a Device** and press Enter.
6. Press F4 to display the Device Names menu.
7. Select the adapter you are removing from the menu.
8. Use the Tab key to answer NO to **Keep Definition**. Press Enter.
9. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfigure is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
10. Press F3 to return to the PCI Hot-Plug Manager menu.
11. Select **Replace/Remove a PCI Hot-Plug Adapter** and press Enter. The Replace/Remove a PCI Hot-Plug Adapter menu displays.
12. Move the cursor to select the adapter that you are removing and press Enter. (The description entry displays as `unknown`).
13. Press the Tab key until the entry field displays the remove operation and then Press the Enter key. Follow the instructions that display on the screen until you are instructed to remove the adapter.
14. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.
15. Press the center of the handle of the PCI card cassette to release the latch, then lower the handle completely.
16. When the handle is completely lowered, push the gray locking cross bar.

17. Carefully pull the PCI card cassette straight out from the I/O subsystem. Take care not to pull EMC gaskets from neighboring cassettes.



1 I/O Subsystem	**4** PCI Adapter Card
2 PCI Adapter Slots	**5** Release Latch
3 PCI Adapter Card (with cassette)	

18. If you are not installing another adapter in this slot, place a blank slot cover in the adapter slot, and then lower the plastic stop over the adapter bracket. Rotate the locking latch clockwise until it clicks into the locked position.
19. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
20. If you do not have other adapters to remove, continue with the next step.

    If you have other adapters to remove, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 11 on page 577.
21. Press F10 to exit the Hot-Plug Manager.
22. If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
23. Install the covers that you removed earlier, and return the drawer to the normal operating position.

PCI Hot-Plug Manager Access

The installation instructions for hot-pluggable PCI adapters refer you to these procedures when it is appropriate to perform them.

Note: A PCI adapter is only hot-pluggable if the PCI adapter is supported for hot-plug applications. See the *PCI Adapter Placement Reference*.

Accessing Hot-Plug Management Functions

Note: Removing or installing a Hot-Pluggable PCI adapter requires the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is located on the *AIX Documentation* CD. The documentation information is made accessible by loading the documentation CD onto a system with a CD-ROM drive.

To access the hot-plug menus, do the following:

1. Log in as root user. If the system is a partitioned system, log in as root user on the partition that has the adapter assigned to it.
2. At the command line, type **smitty**.
3. Select **Devices**.
4. Select **PCI Hot Plug Manager** and press Enter.
5. The PCI Hot-Plug Manager menu displays. Return to the procedure that directed you here. The following is a description of the menu options.

PCI Hot-Plug Manager Menu

The following options are available from the PCI Hot Plug Manager menu:

Note: For information about the PCI slot LED states, see “PCI Adapter-Slot LEDs” on page 14.

List PCI Hot-Plug Slots

Provides a descriptive list of all slots that support PCI hot-plug capability. If the listing for a slot indicates it holds an “Unknown” device, select the **Install/Configure Devices Added after IPL** to configure the adapter in that slot.

Add a PCI Hot-Plug Adapter

Allows the user to add a new PCI hot-plug-capable adapter to the slot with the system turned on. You will be asked to identify the PCI slot that you have selected prior to the actual operation. The selected PCI slot will go into the Action state and finally into the On state.

Note: The system will indicate the slot holds an "Unknown" device until you perform the **Install/Configure Devices Added After IPL** option to configure the adapter.

Replace/Remove a PCI Hot-Plug Adapter

Allows the user to remove an existing adapter, or replace an existing adapter with an identical one. For this option to work, the adapter must be in the Defined state (see "Unconfigure a Device" option below).

You will be asked to identify the PCI slot prior to the actual operation. The selected PCI slot will go into the Action state.

Identify a PCI Hot-Plug Slot

Allows the user to identify a PCI slot. The selected PCI slot will go into the Identify state. See "PCI Adapter-Slot LEDs" on page 14.

Unconfigure a Device

Allows the user to put an existing PCI adapter into the Defined state if the device is no longer in use.

This step must be completed successfully before starting any removal or replacement operation. If this step fails, the customer must take action to release the device.

Configure a Defined Device

Allows a new PCI adapter to be configured into the system if software support is already available for the adapter. The selected PCI slot will go into the On state.

Install/Configure Devices Added After IPL

The system attempts to configure any new devices and tries to find and install any required software from a user-selected source.

The add, remove, and replace functions return information to the user indicating whether the operation was successful. If additional instructions are provided on the screen, complete the recommended actions. If the instructions do not resolve the problem, see the following:

- If the adapter is listed as Unknown, perform the **Install/Configure Devices Added After IPL** option to configure the adapter.
- If you receive a warning indicating that needed device packages are not installed, the system administrator must install the specified packages before you can configure or diagnose the adapter.
- If you receive a failure message indicating a hardware error, the problem might be either the adapter or the PCI slot. Isolate the problem by retrying the operation in a different PCI slot, or trying a different adapter in the slot. If you determine that you have failing hardware, call your service representative.

PCI Adapter or Blank Filler Removal from a Cassette Assembly

Use this procedure when you are preparing to install or replace an adapter or an adapter blank filler in the system unit or an I/O drawer.

Note: An adapter or an adapter blank filler must be installed into the PCI adapter cassette assembly before it is reinstalled in a system unit or an I/O drawer.

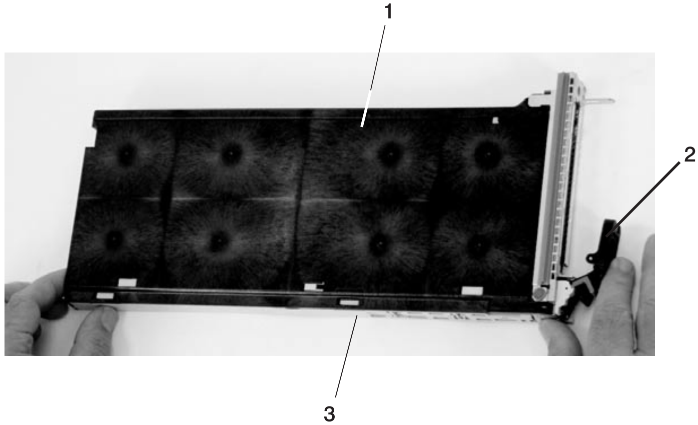
Determine the slot of the system or I/O drawer in which you plan to install or remove an adapter, and refer to the procedures for removing an adapter from the system. Remove the PCI adapter cassette assembly from the system unit or I/O drawer before beginning this procedure.

Note: It may take approximately 30 to 40 minutes to perform this procedure the first time. This time includes using the instructions in this guide and performing the steps. Thereafter, performing this procedure usually takes approximately 10 minutes.

Before performing the following steps, familiarize yourself with the entire procedure.

To remove a PCI adapter or blank filler from a cassette assembly, do the following:

1. Place the PCI adapter cassette assembly on a flat work surface with the cover facing up, and the top of the adapter facing you. See the following illustration.

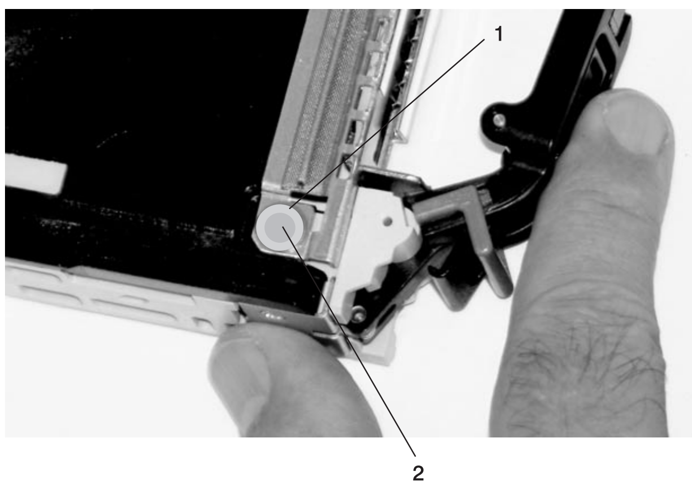


1 Cover

2 Handle

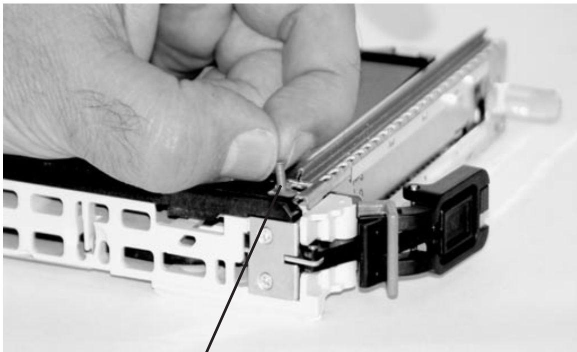
3 Top of Cover

2. Using two fingers, remove the bushing-lock pin from the bushing. The pin can be removed by pulling it out of the bushing with your fingernails.



1 Bushing

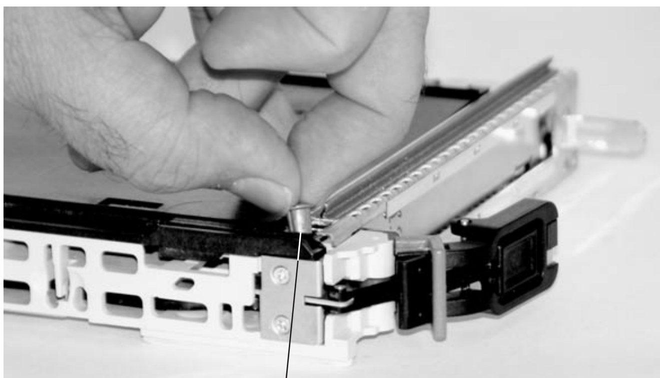
2 Bushing-Lock Pin



1

1 Bushing-Lock Pin

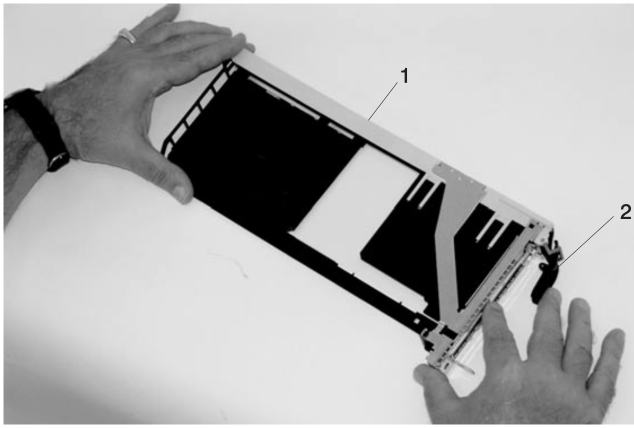
3. Remove the bushing. The bushing can be removed by pulling it out of the PCI adapter cassette assembly with your fingernails.



1

1 Bushing

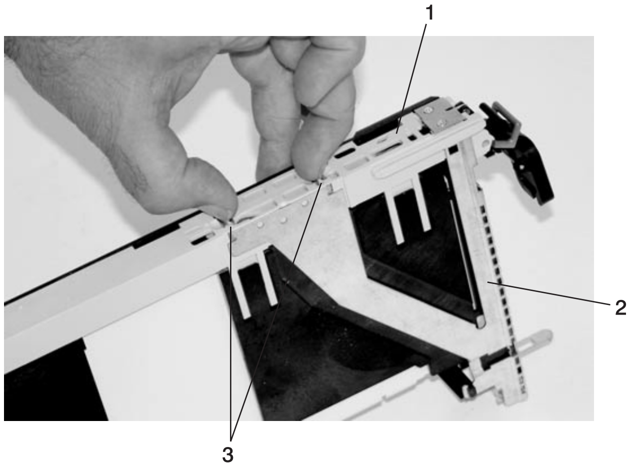
4. Turn over the PCI adapter cassette assembly so that the top is facing away from you.



1 Top of Adapter

2 Handle

5. Remove the bezel, as follows:
   a. Locate the plastic latch fingers in the top part of the cassette.

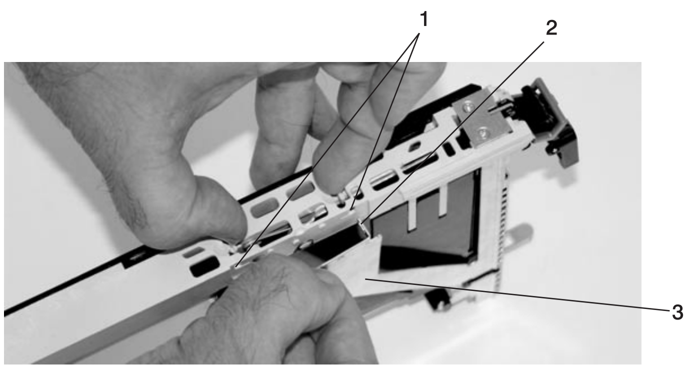


1 Top of Cassette

2 Bezel

3 Plastic Latch Fingers

   b. Using one hand, pinch the plastic latch fingers, and with your other hand, carefully lift the top part of the bezel extension out until the tabs clear the slots in the PCI adapter cassette assembly.

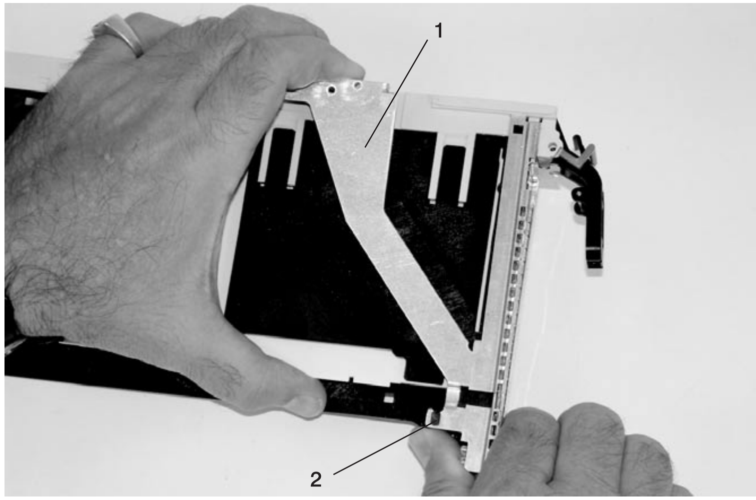


1 Slots

2 Tab

3 Bezel Extension

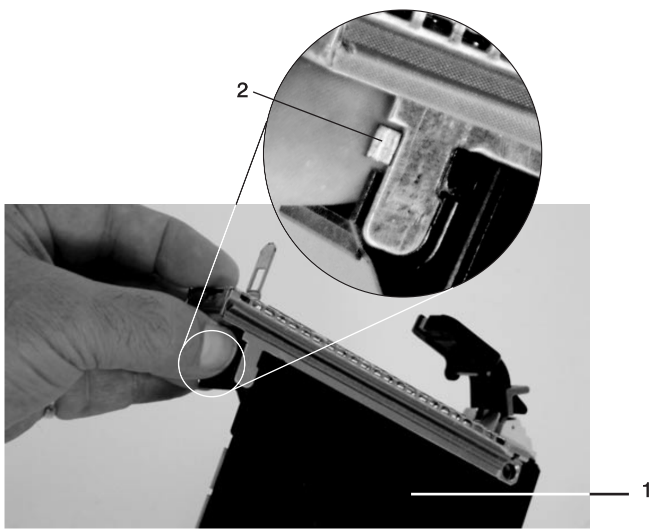
c. While holding the bezel extension out, push the plastic cover latch out of the bezel hook, as shown in the following illustration. This action allows the bezel to be removed.



1 Bezel Extension

2 Plastic Cover Latch in Bezel Hook

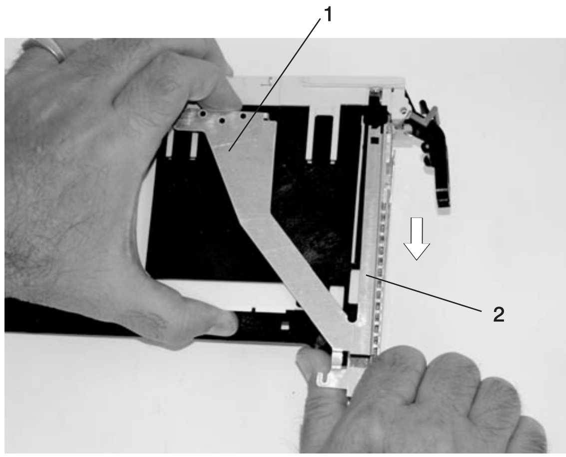
d. On the opposite side of the cassette (cover side), push the cover latch to release the bezel.



1 Cover Side

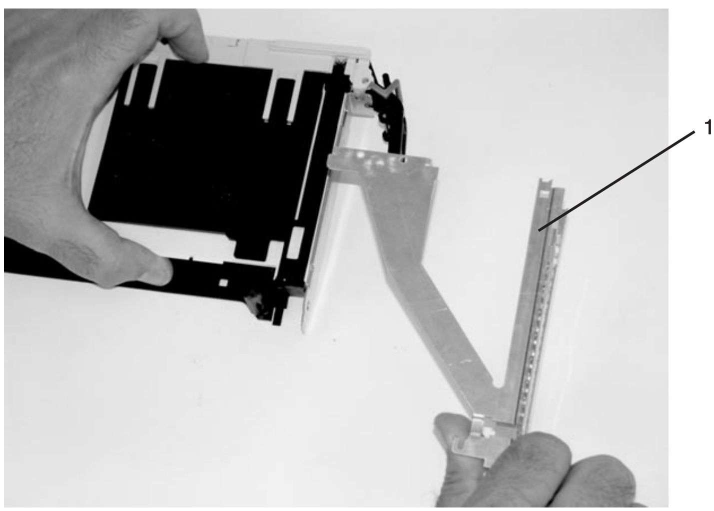
2 Cover Latch

e. While holding the bezel extension out, carefully slide the bezel off. You might have to work from both sides to loosen the bezel assembly from the cassette assembly. When the bezel is free, slide it completely off the cassette assembly, and set it aside.



1 Bezel Extension

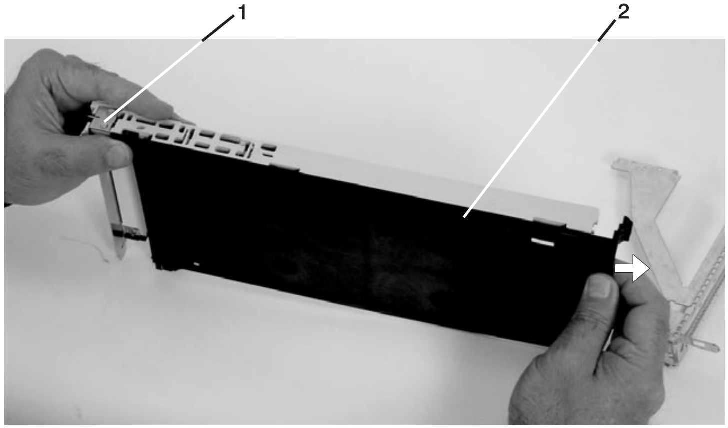
2 Bezel



1 Bezel

6. As shown in the following illustration, turn over the cassette so that the cover is facing up. Remove the cover from the cassette as follows:
   a. Slide the cover until it releases from the cassette assembly.

      Attention: The cover might be tight and difficult to slide. If you grasp the left end (handle end) of the cassette and the right end of the cover, you can use enough force to pull the cover off the PCI adapter cassette assembly.

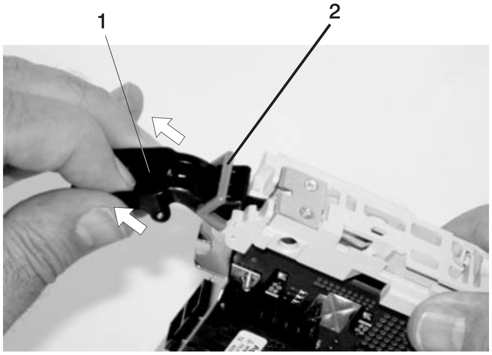


1 Left End of the Cassette

2 Cassette Cover

   b. Lift the cover off the assembly, and set it aside.

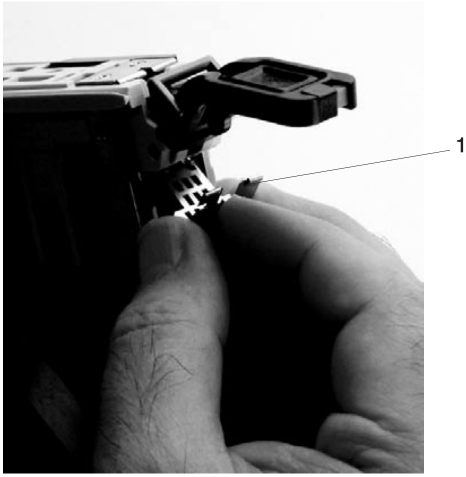
c. By pulling on both sides of the gray plastic locking bar, which is located on the handle, ensure that the handle is pulled into the unlocked position. Raise the handle on the cassette linkage assembly until it locks into the up position (the blank filler or adapter moves downward).



1 Handle

2 Gray Plastic Locking Bar

7. Remove the metal EMC shield from the top of the tailstock.



1 Metal EMC Shield

8. Remove the blank filler or adapter that is installed in the cassette linkage assembly.

   Note: If there is a blank filler in the cassette linkage assembly, as shipped from the manufacturer, there are two adapter arms. One adapter arm with short adapters (short adapter arm) and one adapter arm is used with long adapters (long adapter arm).

   If you are removing a short adapter or blank filler, go to “Short Adapter or Blank Filler Removal”.

   If you are removing a long adapter, go to “Long Adapter or Blank Filler Removal” on page 594.

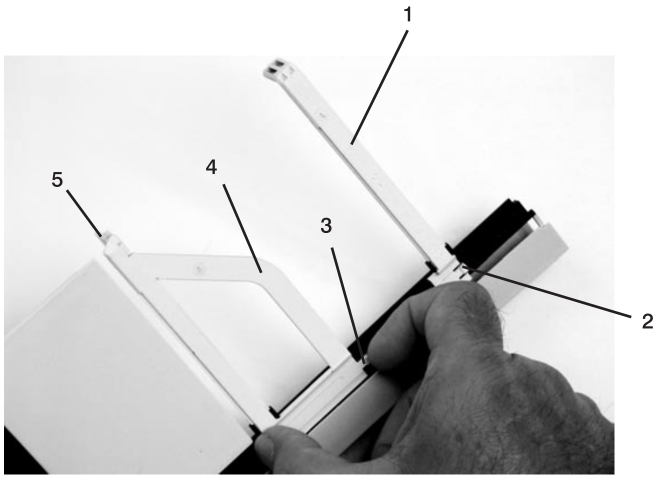
Short Adapter or Blank Filler Removal

To remove a short adapter or blank filler, do the following:

1. Slide the long and short adapter arms away from the adapter or blank filler by doing the following:
   a. Each adapter arm has a release tab that allows the arm to be moved away from the adapter or blank filler in the cassette assembly. Use your fingernail to lift the tab, to allow each arm to be moved away from the adapter or blank filler. Lift the release tab on the short adapter arm, and push on the slotted tab to release the end of the blank filler.

      Note: If you plan to install a short adapter, leave the long adapter arm on the cassette linkage assembly. If you plan to install a long adapter, remove both the long and short adapter arms from the cassette linkage assembly in the next step.

b. Slide the long and short adapter arms away from the blank filler or adapter.



1 Long Adapter Arm

2 Release Tab

3 Release Tab

4 Short Adapter Arm

5 Slotted Tab

2. Remove the adapter or blank filler from the cassette linkage assembly by rotating the bottom of the tailstock out, as shown in the following illustration. Store the adapter or blank filler in a safe place.

1 Cassette Linkage Assembly

2 Bottom of Tailstock

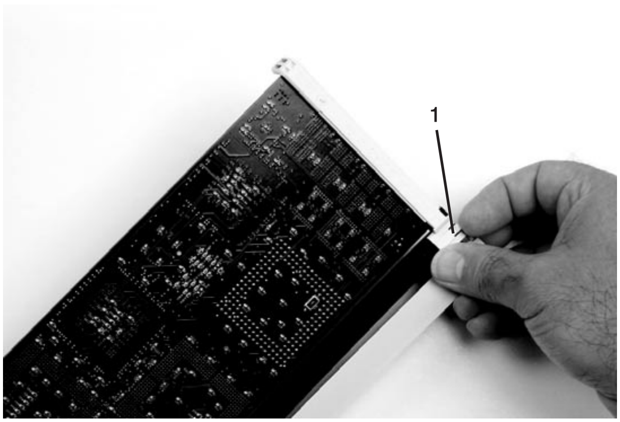
3 Handle

3. The removal procedure for the PCI adapter cassette assembly is complete. To install a new adapter or blank filler in the cassette, go to “Installing a Hot-Pluggable PCI Adapter” on page 575.

Long Adapter or Blank Filler Removal

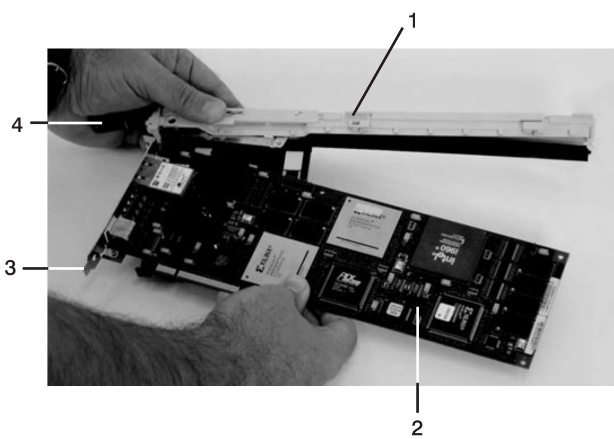
To remove a long adapter, do the following:

1. Each adapter arm has a release tab that allows the arm to be moved away from the adapter in the cassette assembly. Use your fingernail to lift the tab, to allow the arm to be moved away from the adapter. Lift the release tab on the long adapter arm, and slide it off the cassette linkage assembly.



1 Release Tab

2. Remove the adapter from the cassette linkage assembly by rotating the bottom of the tailstock out, as shown in the following illustration. Store the adapter in a safe place.



1 Cassette Linkage Assembly

2 Adapter

3 Bottom of Tailstock

4 Handle

3. The PCI adapter cassette assembly removal procedure is complete. To install a new adapter or blank filler in the cassette, go to “Installing a Hot-Pluggable PCI Adapter” on page 575.

I/O Subsystem Distributed Converter Assembly (DCA)

Notes:

1. Each I/O subsystem can have up to two DCAs. You can replace each DCA separately. The removal and replacement procedures are the same for each DCA.
2. This procedure applies to the I/O subsystem DCAs.
3. If a subsystem has two DCAs, each is hot-pluggable. If only one needs to be removed, you do not have to power down the system.

Removal

DANGER

> **Do not attempt to open the covers of the power supply. Power supplies are not serviceable and are to be replaced as a unit.**
> **D02**

1. Locate the DCA to be replaced.
2. Note the state of the DCA's LEDs.
3. Press the green Start Service button on the UEPO switch.
4. Proceed only if *all* the DCA's LEDs go off or the repair has been scheduled (System outage - EPO off),
5. Verify the cable labeling and locations, then unplug the cables from the DCA.
6. Loosen the left and right fasteners, using the torque tool (part number 6422789), alternating between the fasteners until the unit can slide out of the slot.
7. Grasp both sides of the front DCA and pull it out of the drawer.

Replacement

1. Ensure that both the left and the right fasteners on the DCA are in the full counterclockwise position.
2. Carefully slide the DCA into the slot until it stops via the latch (the back edge of the top of the DCA is about 0.25 inch from the cage bracket).

   Note: Do not force the DCA against the backplane, as this may damage the connector.
3. Hold the upper part of the DCA against the backplane, and use the torque tool to start the left fastener about two turns into the cage bracket.

   Note: Do not attempt to push the DCA into the enclosure after you have started to tighten the left or right fasteners.
4. Alternate tightening the left and right fasteners until both are fully torqued in.
5. Check the torque on both fasteners.
6. Plug all cables into their correct location in the DCA.
7. Press the white Service Complete button on the UEPO switch.

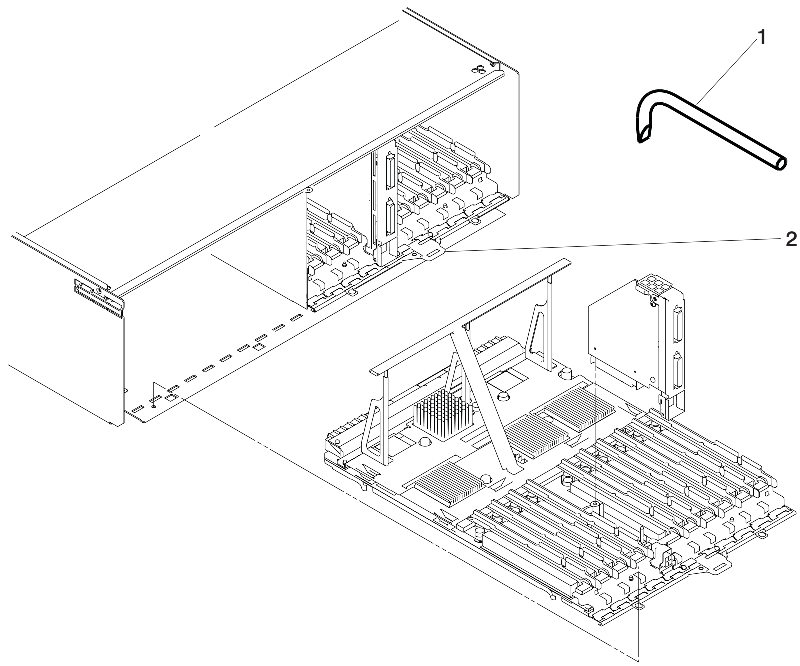
8. Perform the steps described in "Installing Corrective Service on the Frame" on page 463 to ensure that the new DCA contains the correct code.

I/O Subsystem I/O Backplane Assembly

Removal

1. Turn off power as described in “Powering the System Off” on page 140.
2. Disconnect and label all cables from the adapters on the affected I/O backplane.
3. Remove and label adapters. (See “PCI Adapters” on page 571).
4. Remove the two screws securing the I/O backplane to the subsystem.
5. Insert the I/O subsystem backplane insertion tool (part number 44P0549), and pry the tool backward to remove the board from the connector.
6. Slide the I/O subsystem backplane assembly to the rear.

   Note: Be sure to hold the board level to ensure that the board can clear the step in the cover and the EMC gasket.
7. Remove the assembly.



1 Insertion Tool
2 Tool Insertion Point on I/O Subsystem Backplane

Replacement

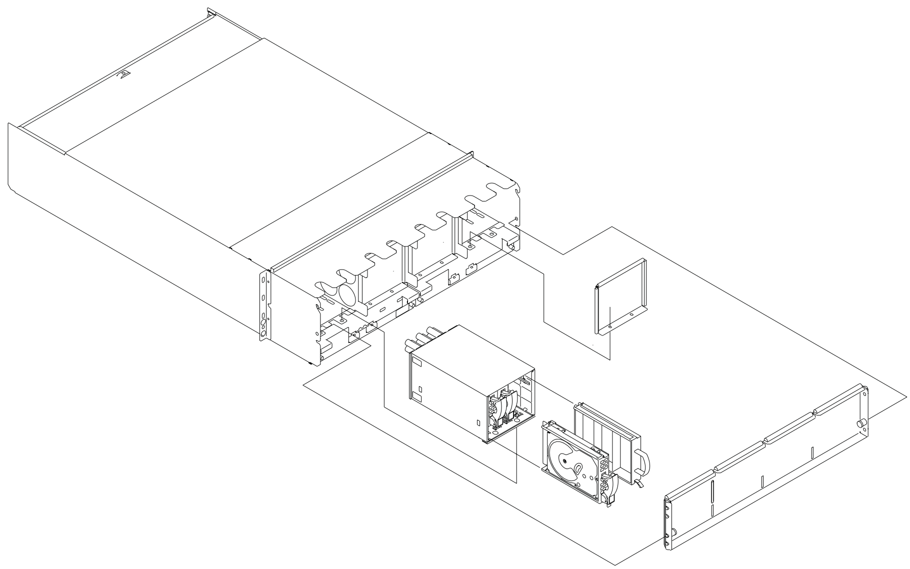
1. Align the I/O subsystem backplane assembly with the chassis opening and ensure that the roll bar clears the top edge EMC gasket without damaging it.

2. Slide the I/O subsystem backplane assembly into the chassis. Ensure that the two pins in the chassis align with the bottom of the backplane. Align the backplane with the connector.
3. Continue to slide the backplane in slowly until contact is made with with the connector is obvious.
4. Upon contact, insert the insertion tool (part number 11P4789) to cam the backplane into the connector.
5. Pry with the tool until the screw holes on the chassis and the board align.
6. Secure with two screws.
7. Reinstall all adapters and reconnect all cables to the replaced I/O backplane.
8. Perform the steps to initialize the subsystem as described in a Frame's Managed Systems and Resources in the *IBM Hardware Management Console for pSeries Installation and Operations Guide* to allow the new I/O backplane to be associated with the system being serviced.

I/O Subsystem DASD Hard Disk Drive Assembly

Removal

1. This procedure is a hot swap procedure. Refer to the ″“SCSI Hot Swap Manager” in the “Introduction to Tasks and Service Aids” chapter in the @server *pSeries Diagnostic Information for Multiple Bus Systems*. Use the SCSI Hot Swap Manager Task to prepare to remove and replace a SCSI disk drive. Then continue with the following steps.
2. Press on the blue latch to release it from hooking the body.



3. Move the black handle all the way down and pull the assembly out. A slight resistance at first is normal.
4. Ensure that the 4-pack has not been damaged. If the DASD assembly was installed incorrectly, the removal could force the metal tab in the 4-pack to bend over the camming slot.

Replacement

Note: All four bays in each DASD 4-pack must be occupied. If a bay does not have a DASD assembly, it must be occupied by a filler assembly.

1. Inspect the DASD 4-pack to ensure that it is not damaged.
2. Ensure that the lower retaining screws are inserted and secured.
3. Ensure that the front retaining screws are inserted and secured without interfering with the DCA.
4. Open fully the latch on the DASD assembly by pressing the blue handle and pulling the black handle. A thump signals when it is fully open.
5. With the handle to the bottom, insert the assembly into the appropriate slot.

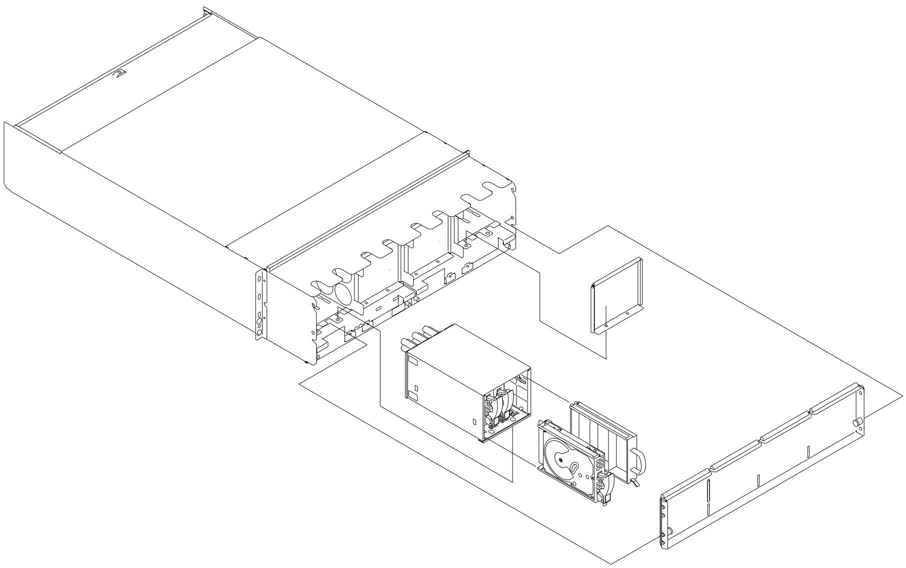
6. Slide the assembly forward until the you feel some resistance. Verify that the spring on the top is contacting the edge of the 4-pack. This should be the only resistance.
7. Push the assembly forward with slightly more force until you meet more resistance. Verify that the tab on the black handle is located above the cam slot in the 4-pack.

   Note: If the tab is not aligned with the slot, do not raise the handle. Remove the assembly and start again.
8. Lift the black handle to move the assembly in slightly.
9. Lift the handle and push forward until the blue latch hooks the assembly body.

I/O Subsystem DASD 4-Pack

Removal

1. Locate the DASD backplane to be replaced.
2. Turn off the power as described in “Powering the System Off” on page 140.
3. Press the green Start Service button on the UEPO switch.
4. Remove the front cover from the I/O subsystem by grasping the pins at either side of the cover, pulling them towards the center of the drawer, and simultaneously lifting the cover up and to the front to release it from the I/O subsystem chassis.
5. Remove the DASD hard-disk drive assemblies or DASD filler(s) from the affected 4-pack.



6. With short-blade screwdriver, remove the two M4x0.7 screws from the lower inside front of DASD 4-pack .
7. Remove the two M4x0.7 hex socket-head cap screws from the lower inside rear of DASD 4-pack.
8. Grasp the DASD 4-pack by the cutouts in the top of the I/O subsystem and pull the DASD 4-pack out of the front of the I/O subsystem.

Replacement

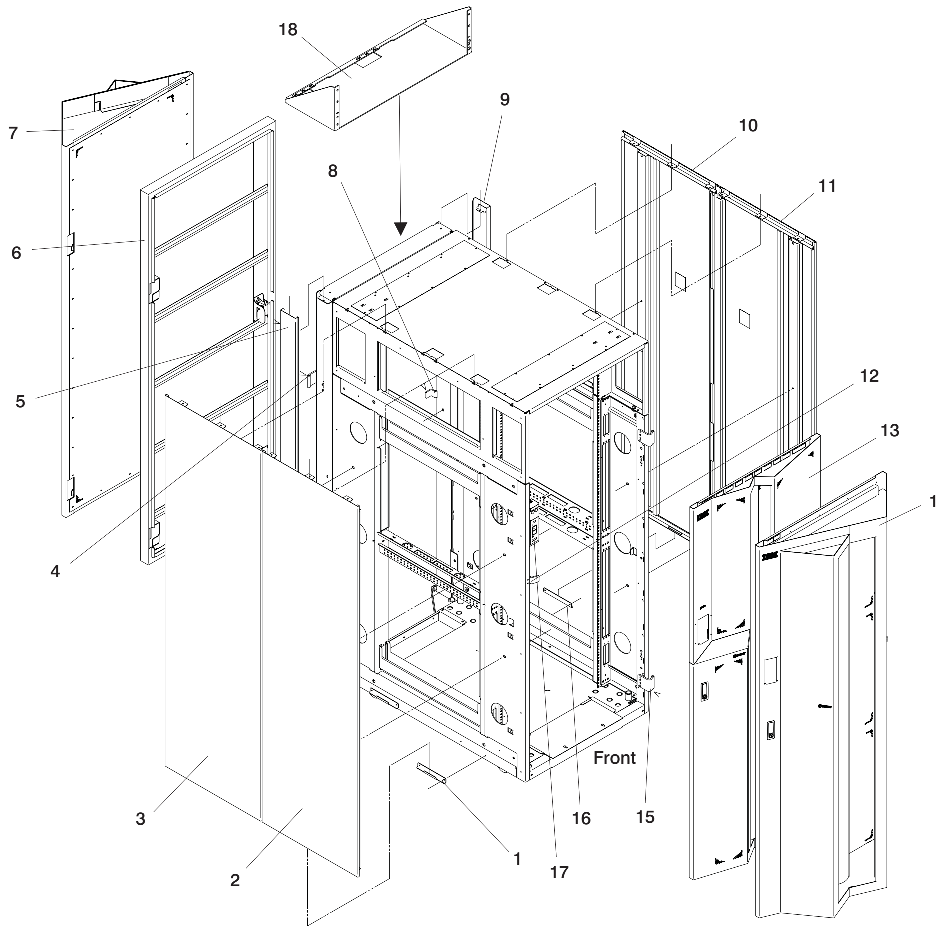
1. Perform steps 4 through 8 of the removal instructions in reverse order.
2. Press the white Service Complete button on the UEPO switch.

Chapter 10. Parts Information

This chapter contains parts information for the pSeries 655.

7040 Model W42 Rack Subsystem

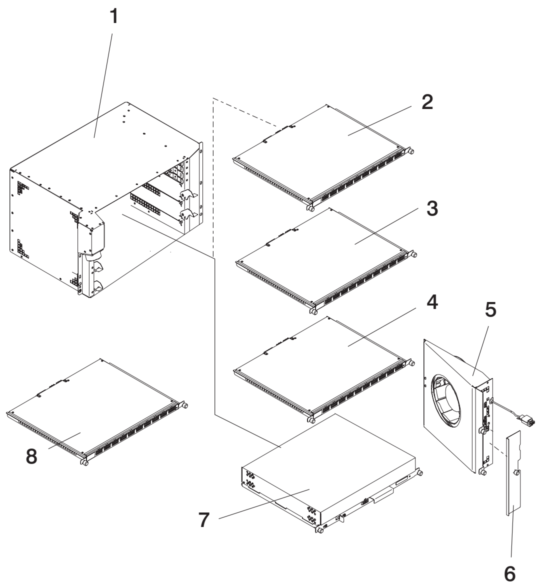
The rack subsystem (part number 44P2491) consists of the following components:



Index	Part Number	Units Per Assy	Description
1	05N6585 2665528	2 4	J-Bracket Screw
2	44P0126 77G0599	1 3	Cover, Right Side Screw
3	44P0125 77G0599	1 3	Cover, Left Side Screw
4	11P4106 11P3535 2665525	2 2 4	Hinge Hinge Screw
5	44P2819 77G0599	1 1	Extender Cover Screw
6	44P2324	1	Cover, Rear (Non-Acoustic)
7	44P2792	1	Cover Rear (Acoustic)
8	11P1093 44P2459 54G2882	1 1 2	Latch, Rear Latch Screw
9	44P2819 77G0599	1 1	Extender, Cover Screw
10	44P0126 77G0599	1 3	Cover, Right Side Screw
11	44P0125 77G0599	1 3	Cover, Left Side Screw
12	11P1097 44P2459 54G2882	1 1 2	Latch, Front Latch Screw
13	44P2325	1	Cover, Front (Non-Acoustic)
14	44P2791	1	Cover, Front (Acoustic)
15	11P3535 2665525	2 4	Hinge Screw
16	05N6585	2 4	J-Bracket Screw
17	44P2718	1	Universal Emergency Power Off (UEPO) Switch
18	44P2680	As Required	Shelf
Not Shown		1	Power Subsystem (see "Power Subsystem" on page 606)
Not Shown	44P2670	3	Air Filter (installed in front cover)
Not Shown		1	Tool Box

Power Subsystem

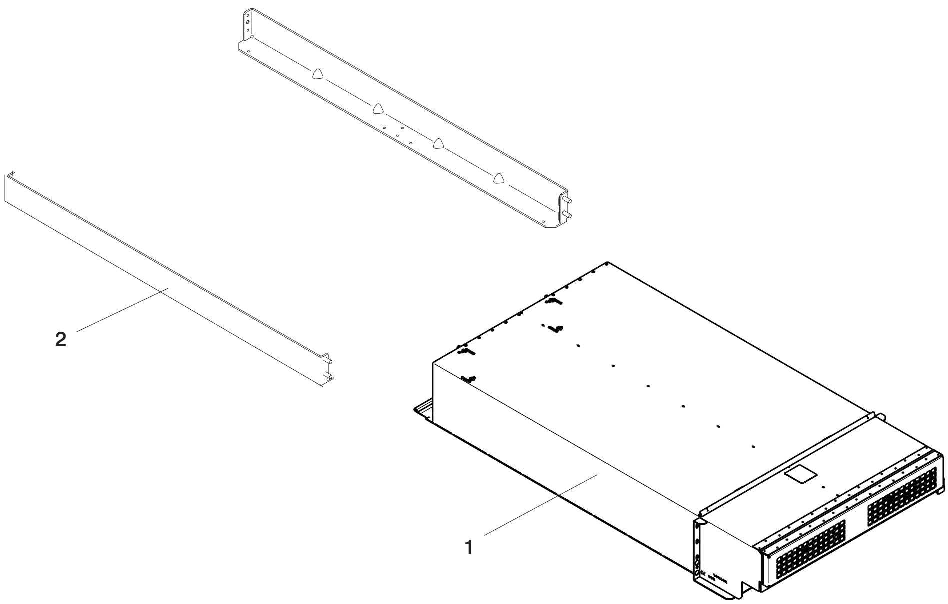
The power subsystem occupies the top EIA locations above EIA 35 in the rack. The power subsystem contains two BPAs. One BPA is located on side A (front of the rack), and the second BPA is located on side B (rear of the rack). Each BPA contains the following components:



Index	Part Number	Units Per Assy	Description
1	44P1958	2	Bulk Power Enclosure (BPE)
2	44P1998	0 or 2 (as required)	Bulk Power Jumper (BPJ)
3	44P1959	0 or 2	Bulk Power Distribution (BPD)
4	44P1221	2	Bulk Power Controller (BPC)
5	11P1787	2	Bulk Power Fan (BPF)
6	44P0550	2	Fan Cover Plate
7	44P1995	1 to 3	Bulk Power Regulator (BPR)
8	11P3732	0, 2, 4, or 6	Integrated Battery Feature (IBF)

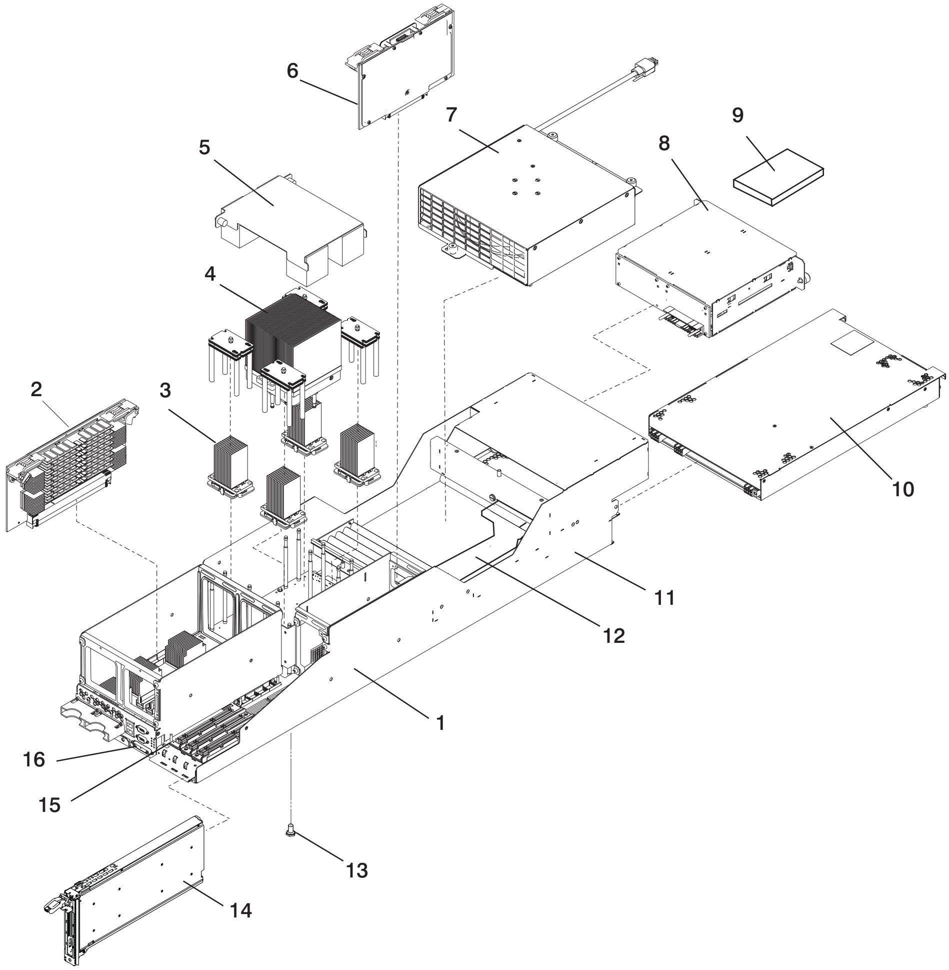
Model 651 Processor Subsystem Outer Chassis and Rails

The processor subsystem outer chassis consists of the mounting enclosure (frame cage), mounting rail, and associated hardware.



Index	Part Number	Units Per Assy	Description
1	44P3016	1	Outer chassis (2 processor side-to-side mounting enclosure)
	44P1527	As Required	Cage Filler
2	07H5247	2	Mounting rail
	74F1823	4	Nut clip
	54G2882	4	Screw (10 mm hexagon)

Model 651 Processor Subsystem



Index	Part Number	Units Per Assy	Description
1	44P3026	1	Processor subsystem chassis (with System Planar and DASD Ribbon Cable)
2	09P6215	1 to 4	Memory card (4 GB)
	00P2881	1 to 4	Memory card (8 GB)
3	00P3982	1	L3 Cache Module FRU Kit (433 MHz)*
4	44P3103	1	MCM FRU Kit (4-way, 1.3 GHz)
	44P3112	1	MCM FRU Kit (8-way, 1.1 GHz)
5	44P1531	1	MCM/L3 Cage Cover
6	00P4017	1	Service processor/VPD card
	16G8095	1	Battery
7	44P2255	1	Fan assembly
8	44P2547	1	DASD backplane and cage
9	09P4435	1	DASD drive (18.2 GB)
	09P4445	1	DASD drive (36.4 GB)
	09P4888	1	DASD drive (73.4 GB)
	11P3662	As required	DASD filler
10	44P3110	1	Distributed converter assembly (DCA)
14	11P4861	As required	PCI Blind-Swap Blank Cassette
Note: Only the 433 MHz L3 cache module is a field spare.			

Location of Additional Parts

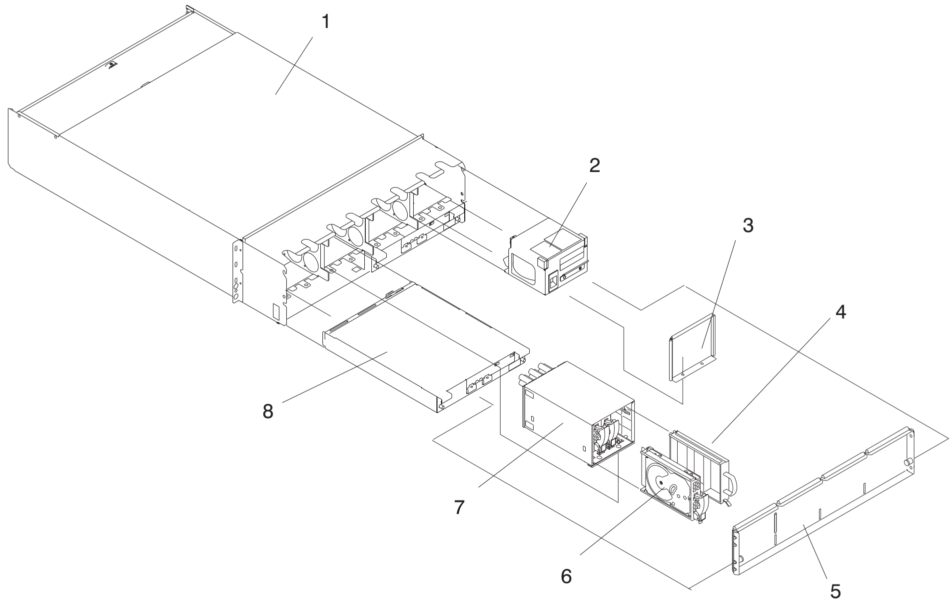
The following table lists parts that are not FRUs, but part names and their location in the processor subsystem chassis are provided to clarify the location of the parts.

Index	Part Number	Units Per Assy	Description
11	N/A	1	Chassis
	N/A	1	MCM Spring Plate (between system planar and chassis)
12	N/A	1	DASD Ribbon Cable
14	N/A	1	MCM Actuation Bolt
15	N/A	1	System Planar
		1	Capacitor Card (mounted on bottom of planar)
16	N/A	1	Debug Card (used only by Manufacturing)

7040 Model 61D I/O Subsystem

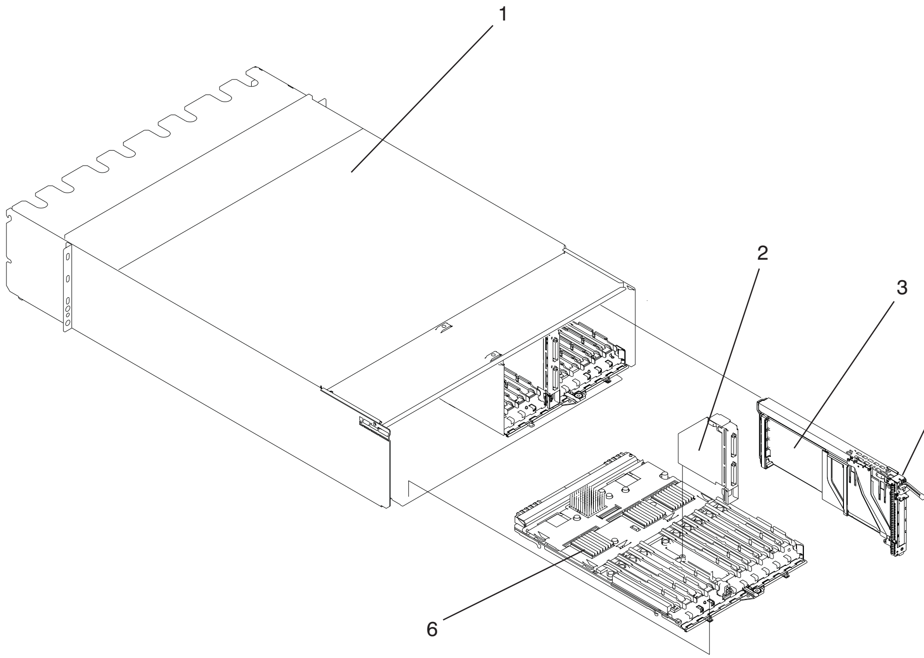
The system can contain up to four I/O subsystems. This section lists detail for one I/O subsystem. Depending on your configuration, the quantities of parts listed may increase by the actual number of I/O subsystems in your system.

Front



Index	Part Number	Units Per Assy	Description
1	44P0705	1	I/O Subsystem Chassis
	07H5247	2	Frame Rail
2	11P4624	1 to 4	Fan assembly
3	44P1277	1 to 4	DASD 4-Pack Filler
4	11P3662	Up to 15	DASD Filler
5	44P0189	1	Front Cover
6	See Note	1 to 16	SCSI DASD Disk Drives
7	11P4855	4	DASD 4-Pack Cage/Backplane Assembly
	11P3667		Screw - used on the DASD backplane assembly
8	11P3582	2	DCA
Note: See @server *pSeries Diagnostic Information for Multiple Bus Systems* for part numbers.			

Rear



Index	Part Number	Units Per Assy	Description
1	44P0705	1	I/O Subsystem Chassis
2	NA	2	RIO Riser Card, part of the I/O subsystem backplane assembly
3	See note	1 to 20	PCI Adapter Card Assembly
	11P4089	1 to 20	PCI Filler Book
4	44P1055	1 to 20	Blind swap cassette, for standard PCI adapter
	44P0323	As needed	Adapter bracket for Gigabit Ethernet FC 2969 type 9U
	44P0798	As needed	Adapter bracket for Ultra3 SCSI FC 6203 Type 4Y
	44P0321	As needed	Adapter bracket for 10/100 BaseT Ethernet FC 4962 Type AF
	44P0406	As needed	Adapter bracket for Gigabit Fibre Channel PCI FC 6228 Type 4W
5	11P4861	1 to 20	PCI filler, for slots with no adapter
6	44P1414	1 to 2	I/O Backplane
Note: See @server *pSeries Diagnostic Information for Multiple Bus Systems* for part numbers.			

Power Cabling

Cable from Power Subsystem Connector (BPC and BPD)	Cable to Subsystem (Processor or I/O Location Code)	Part Number	Description
P09	U1.9	44P1876	DCA 1 BPC (A-9) to Right DCA at EIA position 9
		44P1877	DCA 1 BPC (B-9) to Right DCA at EIA position 9
P08	U1.10	44P1878	DCA 2 BPC (A-8) to Right DCA at EIA position 9
		44P1879	DCA 2 BPC (B-8) to Right DCA at EIA position 9
P07	U1.5	44P2212	DCA 3 BPC (A-7) to Left DCA at EIA position 5
		44P2213	DCA 3 BPC (B-7) to Left DCA at EIA position 5
P06	U1.6	44P2212	DCA 4 BPC (A-6) to Right DCA at EIA position 5
		44P2213	DCA 4 BPC (B-6) to Right DCA at EIA position 5
P05	U1.1	44P2212	DCA 5 BPC (A-5) to Left DCA at EIA position 1
		44P2213	DCA 5 BPC (B-5) to Left DCA at EIA position 1
P04	U1.2	44P2212	DCA 6 BPC (A-4) to Left DCA at EIA position 1
		44P2213	DCA 6 BPC (B-4) to Left DCA at EIA position 1
P09	U1.19	44P1888	DCA 7 BPD (A-9) to Left DCA at EIA position 19
		44P1889	DCA 7 BPD (B-9) to Left DCA at EIA position 19
P08	U1.20	44P1890	DCA 8 BPD (A-8) to Right DCA at EIA position 19
		44P1891	DCA 8 BPD (B-8) to Right DCA at EIA position 19
P07	U1.23	44P1898	DCA 9 BPD (B-7) to Left DCA at EIA position 23
		44P1899	DCA 9 BPD (B-7) to Left DCA at EIA position 23

Cable from Power Subsystem Connector (BPC and BPD)	Cable to Subsystem (Processor or I/O Location Code)	Part Number	Description
P06	U1.24	44P1900	DCA 10 BPD (A-6) to Right DCA at EIA position 23
		44P1901	DCA 10 BPD (B-6) to Right DCA at EIA position 23
P05	U1.27	44P1902	DCA 11 BPD (A-5) to Left DCA at EIA position 27
		44P1903	DCA 11 BPD (B-5) to Left DCA at EIA position 27
P04	U1.28	44P1904	DCA 12 BPD (A-4) to Right DCA at EIA position 27
		44P1905	DCA 12 BPD (B-4) to Right DCA at EIA position 27
P03	U1.31	44P1906	DCA 13 BPD (A-3) to Left DCA at EIA position 31
		44P1907	DCA 13 BPD (B-3) to Left DCA at EIA position 31
P02	U1.32	44P1908	DCA 14 BPD (A-2) to Right DCA at EIA position 31
		44P1909	DCA 14 BPD (B-2) to Left DCA at EIA position 31
P01	U1.13	44P1910	DCA 15 BPD (A-1) to Left DCA at EIA position 13
		44P1911	DCA 15 BPD (B-1) to Left DCA at EIA position 13
P00	U1.14	44P1912	DCA 16 BPD (A-0) to Right DCA at EIA position 13
		44P1913	DCA 16 BPD (B-0) to Right DCA at EIA position 13

Notes:

1. P10 connector is not used.
2. Cable clamp (part number 11P4606) is used with all cables.
3. Cable hook-and-loop fastener (part number 07H6655) is used with all cables.

RIO Cables and I/O Power Cables

Factory Part Number	FRU Part Number	Units Per Assy	Description
	11P2355	Up to 6	RIO cable 0.5-meter
	53P5242	Up to 6	RIO cable 1-meter
	11P0272	Up to 6	RIO cable 2-meter
	53P5243	Up to 6	RIO cable 3-meter
11P4490	11P4734	1	I/O Subsystem 1 power cable (DCA1-P01)
11P4491	11P4735	1	I/O Subsystem 1 power cable (DCA1-P00)
11P4492	11P4734	1	I/O Subsystem 1 power cable (DCA2-P01)
11P4493	11P4735	1	I/O Subsystem 1 power cable (DCA2-P00)
11P4494	11P4734	1	I/O Subsystem 2 power cable (DCA1-P01)
11P4495	11P4735	1	I/O Subsystem 2 power cable (DCA1-P00)
11P4496	11P4734	1	I/O Subsystem 2 power cable (DCA2-P01)
11P4497	11P4735	1	I/O Subsystem 2 power cable (DCA2-P00)
11P4498	11P4734	1	I/O Subsystem 3 power cable (DCA1-P01)
11P4499	11P4735	1	I/O Subsystem 3 power cable (DCA1-P00)
11P4500	11P4734	1	I/O Subsystem 3 power cable (DCA2-P01)
11P4501	11P4735	1	I/O Subsystem 3 power cable (DCA2-P00)
11P4502	11P4734	1	I/O Subsystem 4 power cable (DCA1-P01)
11P4503	11P4735	1	I/O Subsystem 4 power cable (DCA1-P00)
11P4504	11P4734	1	I/O Subsystem 4 power cable (DCA2-P01)
11P4505	11P4735	1	I/O Subsystem 4 power cable (DCA2-P00)

Note: The universal cables for the I/O Subsystem are:

- 11P4735 for P00
- 11P4734 is for P01

System Power Cables

Index Number	FRU Part Number	Units Per Assy	Description
1	44P2290	2	Line Power Cord, US, Canada, Japan, etc., 200-240 VAC, 6 AWG/Type W, 14 feet, IEC 309 100 A plug
1	44P2436	2	Line Power Cord, US, Canada, Japan, etc., 200-240 VAC, 6 AWG/Type W, 14 feet, IEC 309, 60 A plug
1	11P0916	2	Line Power Cord, US, Canada, Japan, etc., 480 VAC, 10 AWG, 14 feet, IEC 309, 30 A plug
1	44P2289	2	Line Power Cord, US, Chicago, 200-240 VAC, 6 AWG/Type W, 6 feet, IEC 309, 100 A plug
1	44P2435	2	Line Power Cord, US, Chicago, 200-240 VAC, 6 AWG/Type W, 6 feet, IEC 309, 60 A plug
1	11P0914	2	Line Power Cord, US, Chicago, 480 VAC, 10 AWG/Type W, 6 feet, IEC 309, 30 A plug
1	11P0918	2	Line Power Cord, World Trade, 380-415 VAC, 8 AWG (40 A maximum), 14 feet, No plug

Bulk Power Jumper Cable

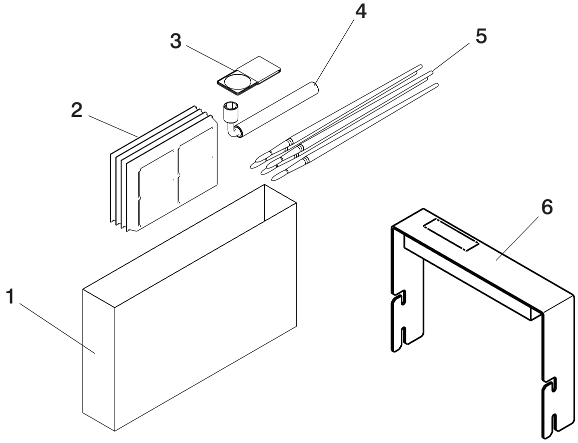
Index	Part Number	Units Per Assy	Description
1	44P2088	1	BPJ Cable

Tools

This section contains information about toolkits used to perform service operations on the system.

Processor Subsystem Service Toolkit

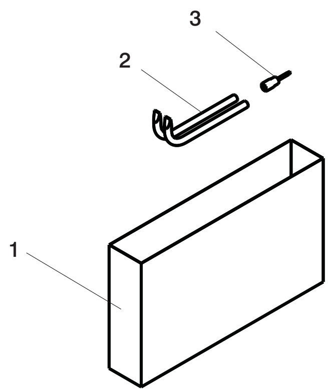
The processor subsystem service toolkit is located in the rack toolkit. The rack toolkit is located at the front bottom of the rack. The tools shown in the following illustration are required to perform service actions on the @server pSeries 655 Model 651.



Index	Part Number	Units Per Assy	Description
1	44P1461	1	Service Toolkit (in plastic bag)
2	11P4654	1	L3 Cache Module Trays
3	11P4747	1	Magnifying Glass
4	44P1452	1	MCM Torque Wrench
5	04N6923	5	Brushes
6	44P3102	1	MCM Handle

I/O Subsystem Toolkit

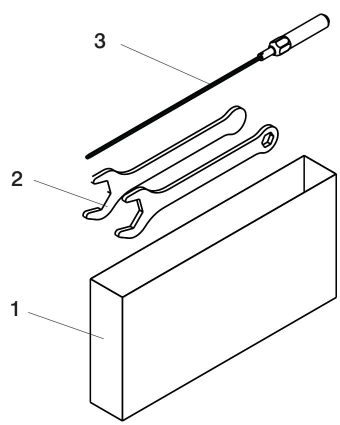
The I/O subsystem toolkit is located in the rack toolkit. The rack toolkit is located at the front bottom of the rack. The tools shown in the following illustration are needed to perform service actions on the I/O subsystem.



Index	Part Number	Units Per Assy	Description
1	44P2629	1	I/O Subsystem Toolkit (in plastic bag)
2	44P0549	1	Insertion Tool
3	44P0182	1	DASD Tool

Frame Service Toolkit

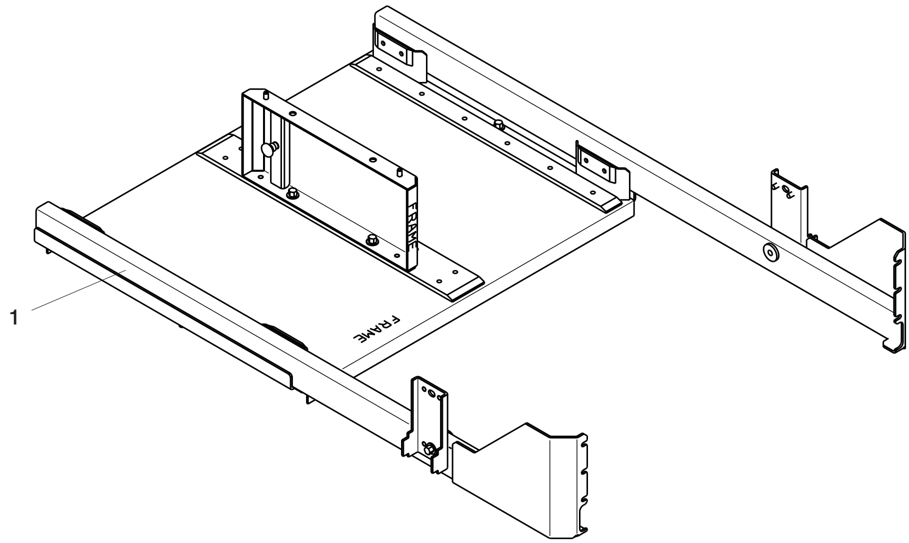
The frame service toolkit is located in the rack toolkit. The rack toolkit is located at the front bottom of the rack.The tools shown in the following illustration are needed to perform service actions on the frame.



Index	Part Number	Units Per Assy	Description
1	44P2630	1	Frame Service Toolkit (in plastic bag)
2	31L8313 (2)	2	Leveling Wrench
3	6422789	1	Torque Tool

Service Tray

The service tray attaches to the rack, and functions as a work platform to hold a processor subsystem being serviced.



Index	Part Number	Units Per Assy	Description
1	44P2452	1	Service Tool

Appendix A. Environmental Notices

Product Recycling and Disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product return programs in several countries, for country specific instructions please refer to the following web site: http://www.ibm.com/ibm/environment/products/prp.phtml

This product may contain a sealed lead acid battery(s) or nickel-cadmium battery(s). The battery(s) must be recycled or disposed of properly. Recycling facilities may not be available in your area. In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used sealed lead acid, nickel cadmium and nickel metal hydride batteries and battery packs from IBM equipment. For information on proper disposal of the batteries in this product, please contact IBM at 1-800-426-4333. For information on disposal of sealed lead acid or nickel cadmium batteries outside the United States, contact your local waste disposal or recycling facility.

Environmental Design

The environmental efforts that have gone into the design of this system signify IBM's commitment to improve the quality of its products and processes. Some of these accomplishments include the elimination of the use of Class 1 ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Declared Acoustical Noise Emissions

Product Configuration	Declared A-Weighted Sound Power Level, L_{WAd} (B)		Declared A-Weighted Sound Pressure Level, LpAm (dB)	
	Operating	Idle	Operating	Idle
One @server pSeries 655 processor node (16 max.), nominal conditions, non-acoustical doors	7.4	7.4	57	57
One @server pSeries 655 processor node (16 max.) nominal conditions, acoustical doors	6.7(4)	6.7(4)	50(4)	50(4)
Typical configuration @server pSeries 655 (3 processor nodes, bulk power, 1 I/O drawer), nominal conditions, non-acoustical doors	8.2	8.2	64	64
Typical configuration @server pSeries 655 (3 processor nodes, bulk power, 1 I/O drawer), nominal conditions, acoustical doors	7.5(4)	7.5(4)	57(4)	57(4)
Maximum configuration @server pSeries 655 (16 processor nodes, bulk power), nominal conditions, non-acoustical doors	8.7(3), (4)	8.7(3), (4)	69(3), (4)	69(3), (4)
Maximum configuration @server pSeries 655 (16 processor nodes, bulk power), nominal conditions, acoustical doors	8.0(3), (4)	8.0(3), (4)	62(3), (4)	62(3), (4)

Notes:

1. **L_{WAd}** is the upper-limit A-weighted sound level; **LpAm** is the mean A-weighted sound pressure level measured at the 1-meter bystander positions; 1 B = 10 dB.
2. All measurements made in conformance with ISO 7779 and declared in conformance with ISO 9296
3. **Attention:** Your server installation may be subject to government regulations (such as those prescribed by OSHA or European Community Directives) that cover noise-level exposure in the workplace. The 7040 Model W42 is available with an optional acoustical door feature that can reduce the likelihood of exceeding noise-level exposure limits for racks densely populated with p655 processor subassemblies. The actual sound-pressure levels in your installation will depend on a variety of factors, including the number of racks in the installation; the size, materials, and configuration of the room where the racks are installed; the noise levels from other equipment; the room ambient temperature, and employees' location in relation to the equipment. It is recommended that a qualified person, such as an industrial hygienist, be consulted to determine whether the sound-pressure levels to which employees may be exposed exceed regulatory limits.
4. These numbers are based on preliminary data and are subject to change.

Appendix B. Notices

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Appendix C. Service Processor Setup and Test

Attention: This procedure applies to modems attached to the serial ports (S1 and S2) on the processor subsystem(s). It does not affect the operation of the modem attached to the HMC.

The call-out function is normally handled by the Service Focal Point running on the HMC.

For your convenience, an example of a basic service processor setup checklist is included here. Your setup may include more or fewer of the available features, so you can adjust this checklist for your own application.

Note: The call-out and surveillance options are disabled in partitioned systems.

Service Processor Setup Checklist

1. Shut down the managed system, and wait for the `OK` in the physical operator panel value on the HMC.
2. Open a virtual terminal on the HMC.
3. Bring up the service processor menus.
4. Set the system name.
5. Enable Surveillance.
6. Configure call-in/call-out.
7. Attach modems if necessary. If modem attachment is not necessary, proceed to step 8. To attach a modem do the following:
   - Exit the service processor menus.
   - Disable 350V dc outputs from the BPA by placing the UEPO switch in the *off* position.

     Attention: Power is still present within the BPA with the UEPO *off*.
   - Place the UEPO switch in the *on* position.
   - Proceed to step 8.
8. Test both of the following:
   - Call-In, page “Testing Call-In” on page 626
   - Call-Out, page “Testing Call-Out” on page 626
9. Use the “Save or Restore Hardware Management Policies,” in the “Introduction to Tasks and Service Aids” section of the @server *pSeries Diagnostic Information for Multiple Bus Systems* to back up the service processor settings.

   Note: This is strongly recommended to protect the usefulness of the service processor and the availability of the server.

Your service processor is now ready for use.

Testing the Setup

This section contains sample testing procedures to help ensure your setup is working.

These tests include communicating with the server operating system. Before you start, ensure that the necessary serial port(s) is configured. If you need assistance, refer to "Serial Port Configuration" on page 627.

The server should be powered off as a result of the "Service Processor Setup Checklist" on page 625.

Testing Call-In

1. At your remote terminal, call in to your server. Your server answers and offers you the service processor Main Menu after requesting your privileged-access password.
2. Select **System Power Control**.
3. Select **Power-On System**.

   When you are asked if you wish to continue powering on the system, type **Y**.
4. After the system firmware and operating system have initialized the server, the login prompt displays at your remote terminal if you set up seamless modem transfer. This may take several minutes. When the login prompt displays, you have successfully called the service processor.
5. Type **logout** to disconnect from the operating system. The message `No Carrier` displays on your remote terminal.
6. Call your server again. The operating system answers and offers you the login prompt. If these tests are successful, call-in is working.
7. Log in and type **shutdown -F** to shut down your server.
8. The message `No Carrier` displays on your remote terminal.

Testing Call-Out

During the setup, you entered your phone numbers for the pager and customer voice. These numbers are used for this test.

1. Your remote terminal is disconnected as a result of the Call-In test.
2. Call your server again.
3. At the service processor Main Menu, select **Call-In/Call-Out Setup** menu, then select **Call-Out** test. This action causes a simulated error condition for the purposes of this test.
4. After a few moments, a message displays, regarding an illegal entry. Press Enter to clear the message and return to the main menu.
5. When your telephone rings, answer the call. You should hear the sound of a telephone being dialed. This is your computer trying to page you.

If this test is successful, call-out is working correctly.

Serial Port Configuration

To configure the serial port on an AIX system, run the following from an AIX console:

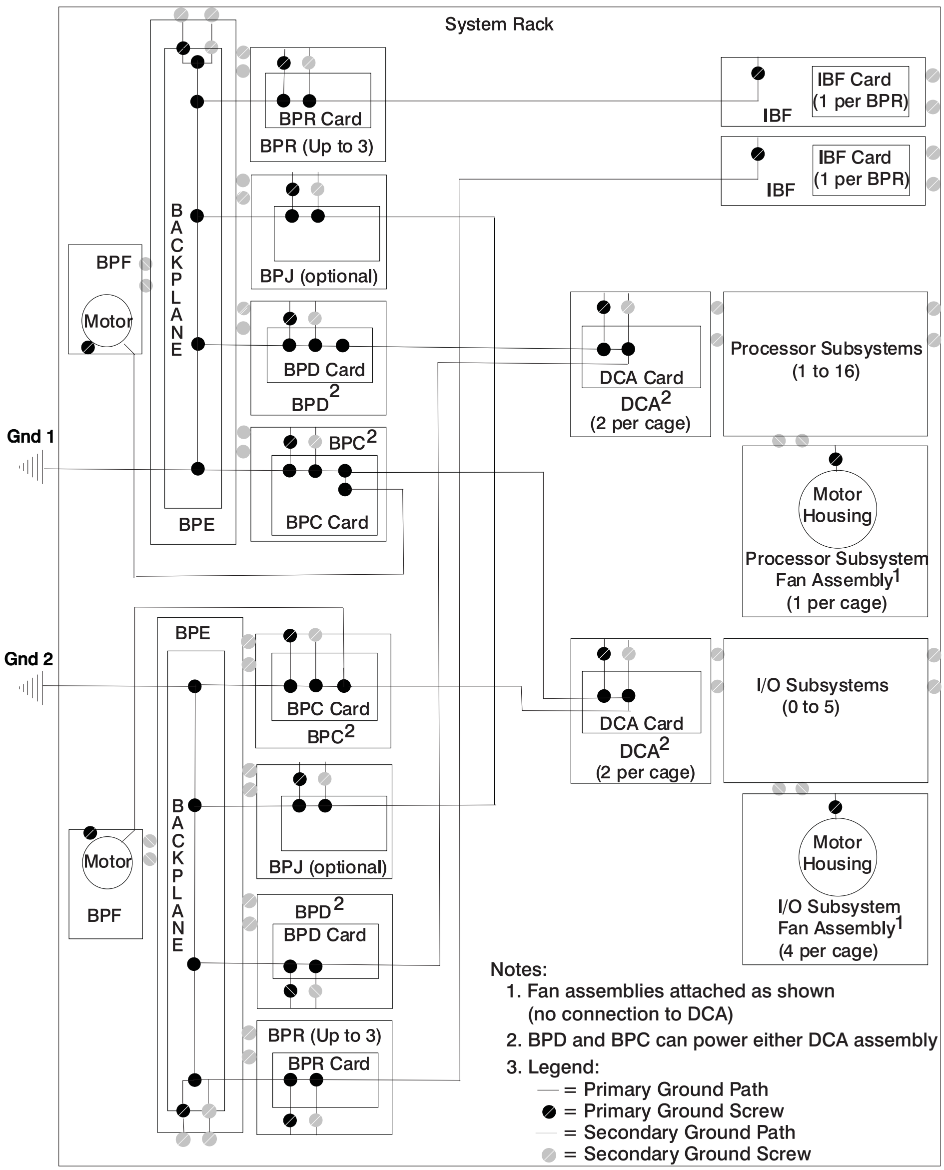
1. Log in as `root` user.
2. To determine if you have any serial ports already configured, type:

   ```
   lsdev -Cc tty
   ```

   If no serial ports are configured, none are listed. If you want to configure serial ports that are not listed, continue with the remaining steps.
3. Identify the serial port(s) with the modem(s).
4. Type **smit tty**
5. Select **add tty**
6. Select **RS232**
7. Select **Baud rate 9600** or higher.
8. Select **login enable** and set the flow control to RTS.
9. Commit the selections and set up any other needed serial ports.
10. Exit SMIT.

Appendix D. Ground Path

The ground path for the @server pSeries p655 is shown in the following illustration.



Index

Special characters

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W

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pSeries 655
Service Guide

Publication No. SA38-0618-00

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