

Enterprise Server S80
pSeries 680 Model S85



Service Guide

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Enterprise Server S80
pSeries 680 Model S85



Service Guide

Second Edition (November 2000)

Before using this information and the product it supports, read the information in “Safety Notices” on page xiii, “Appendix A. Environmental Notices” on page 591, and “Appendix B. Notices” on page 593.

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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:

- xv
- 88
- 491
- 516

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:

- xv
- xvi
- 88
- 491
- 504
- 505
- 508
- 510
- 512
- 520

Note: For a translation of these notices, see the *System Unit Safety Information* manual, order number SA23-2652.

Rack Safety Instructions

- Do not install this unit in a rack where the internal rack ambient temperatures will exceed 40 degrees C.
- Do not install this unit in a rack where the air flow is compromised. Any side, front or back of the unit used for air flow through the unit must not be in indirect contact with the rack.
- Care should be taken to ensure that a hazardous condition is not created due to uneven mechanical loading when installing this unit in a rack. If the rack has a stabilizer it must be firmly attached before installing or removed this unit.
- This unit requires 3 amp. with an input of 200-240 V ac power. Consideration should be given to the connection of the equipment to the supply circuit so that overloading of circuits does not compromise the supply wiring or overcurrent protection.

- An electrical outlet that is not correctly wired could place hazardous voltage on the 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.

Electrical Safety

Observe the following safety instructions any time you are connecting or disconnecting devices attached to the server.

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 communication lines.

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.

CAUTION:

This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect two power supply cords before servicing.

CAUTION:

Energy hazard, remove power before servicing. Disconnect two power supply cords.

Laser Safety Information

The optical drive in this system unit is a laser product. The optical drive has a label that identifies its classification. The label, located on the drive, is shown below.

CLASS 1 LASER PRODUCT LASER KLASSE 1 LUOKAN 1 LASERLAITE APPAREIL À LASER DE CLASSE 1 IEC 825:1984 CENELEC EN 60 825:1991

The optical drive in this system unit is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 (1st edition 1984) and CENELEC EN 60 825:1991 for Class 1 laser products.



CAUTION:

A class 3 laser is contained in the device. Do not attempt to operate the drive while it is disassembled. Do not attempt to open the covers of the drive as it is not serviceable and is to be replaced as a unit.

Class 1 laser products are not considered to be hazardous. The optical drive contains internally a Class 3B gallium–arsenide laser that is nominally 0.14 milliwatts at 765 to 815 nanometers. The design incorporates a combination of enclosures, electronics, and redundant interlocks such that there is no exposure to laser radiation above a Class 1 level during normal operation, user maintenance, or servicing conditions.

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 Enterprise Server S80 pSeries 680 Model S85 (hereafter referred to as the models S80 and S85 in this book), adapters, and 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 *Diagnostic Information for Multiple Bus Systems*.

This book is used by the service technician to repair system failures. This book assumes that the service technician has had training on the system unit.

ISO 9000

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

Online Publications

RS/6000 and p Series publications are available online. To access the online books, visit our Web site at: http://www.rs6000.ibm.com/resource/hardware_docs/

Related Publications

The following publications provide additional information about the system::

- The *System Unit Safety Information*, order number SA23-2652, contains translations of safety information used throughout this book.
- The *Enterprise Server S80 pSeries 680 Model S85 User's Guide*, order number SA38-0557, contains information to help users set up, install options, configure, and modify the system, as well as solve minor problems.
- The *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 *Diagnostic Information for Multiple Bus Systems*.
- The *PCI Adapter Placement Reference*, order number SA38-0538, contains guidelines for placement of PCI adapters into I/O drawers of models S80 and S85 systems. This manual is intended to help in planning adapter installation, so that optimum tested adapter configurations are used.
- The *Site and Hardware Planning Information*, order number SA38-0508, contains information to help you plan your installation.

- The *Electronic Service Agent for RS/6000 User's Guide*, contains information for use by the service representative to help set up and use the Electronic Service Agent package.
- The *Capacity Upgrade on Demand Installing and Upgrading Processors*, order number SA38-0583, contains information regarding the capacity upgrade on demand feature.
- *SSA Adapters User's Guide and Maintenance Information*, order number SA33-3272, is intended to help users and service representatives work with and diagnose problems with SSA adapters and devices.
- The *RS/6000 SP Maintenance Information Manual, Volume 1, Installation and Customer Engineering Operations*, order number GC23-3903, is used for installation and service information when an models S80 and S85 system is used in an RS/6000 SP attachment configuration.
- The *High Availability Cluster Multi-Processing for AIX, Version 4.3: Enhanced Scalability Installation and Administration Guide*, SC23-4284, is needed for HACMP/ES planning information.
- The *High Availability Cluster Multi-Processing for AIX, Version 4.3: Planning Guide*, order number SC23-4277, is needed for HACMP/ES planning information.
- The *7133 SSA Disk Subsystem: Operator Guide* describes how to operate the 7133 SSA Disk Subsystem, how to install or replace disk drives to the system, and how to deal with problems encountered when using the system.
- The *7133 SSA Disk Subsystem: Service Guide* is used by the service technician to repair system failures in the 7133 SSA Disk Subsystem.

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- RS/6000

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Chapter 1. Reference Information

This chapter provides an overview of the models S80 and S85. This includes a logical description and a physical overview of the system. Additional details pertaining to the models S80 and S85 are also provided. These include:

- Memory overview and ordering rules
- General description of the operator panel
- Cabling rules
- System location rules and descriptions
- Powering on and off the system
- Power flow
- Data flow

Models S80 and S85 Overview

The models S80 and S85 systems are exclusively multi-processor, multi-bus systems packaged in two different rack types. The processors and memory are packaged in the system rack and the DASD and I/O devices are in I/O drawers. The basic system consists of one system rack and one I/O drawer in a separate rack. The system is expandable to one system rack and four I/O drawers in up to four I/O racks. Connection between the system rack and subsequent I/O drawers is made through a number of cables, which include SPCN (system power control network), RIO (remote input output), JTAG, and operator panel cables.

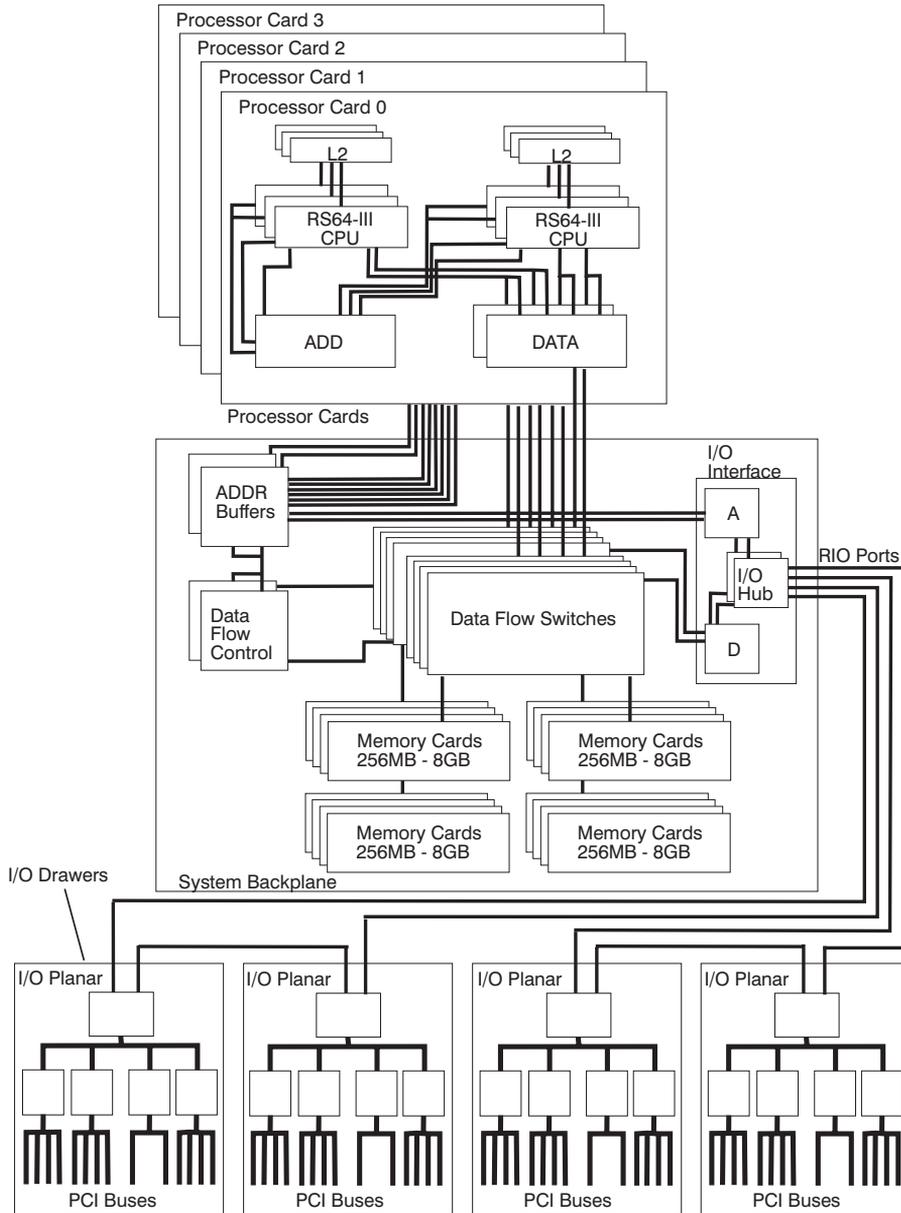
The system rack is powered independently from the I/O drawer. The system rack supports a minimum of one processor card to a maximum of four. Each processor card has six processors, each having its own L2 cache. The system memory is controlled through a multi-port controller complex and supports up to 16 memory slots. The total memory available to the system user is dependent on the memory feature card installed and the number of memory cards. All system memory resides in the system rack. Additional major functional units in the system rack include the operator panel and control circuitry, the SPCN controller, interrupt, and system bus control logic. Power is brought into the system rack through an ac power cord (200 - 240 V ac), distributed to six bulk supplies and then fed through regulators for both system resources and logic and memory.

The I/O rack holds the I/O drawer, which provides for up to 14 PCI adapters per drawer. Four distinct peripheral component interface (PCI) buses are present in each I/O drawer. The primary I/O drawer (drawer 0) has PCI slots 6, 7, 8, and 13 reserved for the system media, Service Processor and DASD bays resident in the I/O drawer. These slots are available in subsequent I/O drawers 1 through 3 for any supported PCI adapter to use. The PCI bus speed is 33Mhz with both 32- and 64- bit adapters supported on a slot basis. Slots 1, 5, 9, 10 and 14 support either 32- or 64- bit PCI adapters. The remaining slots are 32 bit only. "Models S80 and S85 Data Flow" on page 2 illustrates the system data flow.

The I/O drawer provides space for up to three media devices (tape, CD-ROM, and diskette drive) and two DASD bays, each holding up to six disk drives.

The I/O rack uses 200 - 240 V ac power.

Models S80 and S85 Data Flow



Powering the System On and Off

The system can be powered on after the following cables are connected:

- All RIO cables
- All SPCN cables
- JTAG cable
- Inter-rack operator panel cable
- All PCI cables to supported drawers

After the required cables are installed and the power cables are connected, the power button on the system operator panel can be pushed one time to initialize the system (if the button is pushed two times, the system powers off). Progress indicators, also referred to as *checkpoints*, are visible on the operator panel display and the green LED to the right of the power button illuminates, indicating the system power is on.

The remote I/O drawers are powered up through the system power control network (SPCN) controls and interfaces in both the system rack and I/O drawers. When power is applied, a light-emitting diode (LED) on the I/O drawer indicator panel goes from blinking (green) to on continuously, which indicates that power levels are satisfactory in the drawers.

If the system is operating under AIX, enter the **shutdown -F** command to power off the system. If you cannot use this method, you can power off the system by pressing the operator panel power button two times.

Attention: Using the operator panel power pushbutton to power off the system may cause unpredictable results in the data files, and the next IPL will take longer to complete.

For complete details on how to power the system on and off, go to “Powering Off and Powering On the System” on page 492 and “System Power-On Methods” on page 470.

Console Strategy

The firmware invokes a console-selection sequence at system boot time if any of the following is true:

- A console has not yet been selected.
- A previous console-selection sequence timed out.
- A change occurred in the system configuration affecting the console (keyboard installed/removed, mouse installed/removed, graphics adapter installed/removed or moved to another PCI slot).

The console-selection sequence allows the selection (from the appropriate input device) of one of the available console devices. If no console is selected within approximately 60 seconds, serial port 1 (com1) is selected as the console, and the selection sequence times out.

After a console has been selected, the console-selection sequence is only invoked at boot time if there is a change in the system configuration (as described above), or the contents of the system's nonvolatile memory (NVRAM) is lost.

Note: Moving an ASCII terminal from one serial port to another (from com1 to com2) cannot be detected by the firmware, so it does not constitute a configuration change.

A system console-selection sequence can also be initiated from the System Management Services (SMS) menus.

Power-On Self-Test

After power is turned on and before the operating system is loaded, the system 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 is displayed, and POST indicators appear on the system console (if one is connected). 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 system is preparing to load the operating system. The POST indicators appear as words on the system console. Each time the system starts a different step in the POST, a POST indicator word displays on the console. Each word indicates the tests that are being performed.

The POST screen displays the following words:

Memory

Memory test

Keyboard

Initialize the keyboard and mouse. The window for pressing a key to access the System Management Services, or to boot from a default boot list is now open. See "POST Keys" for more information.

Network

Self-test on network adapters.

SCSI Adapters are being initialized.

Speaker

Sounds an audible tone at the end of POST.

POST Keys

The POST keys, if pressed *after* the keyboard POST indicator displays and *before* the last POST indicator displays, cause the system to invoke services or boot modes used for configuring the system and diagnosing problems. The keys are described below:

Numerical 1 Key

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

Numerical 5 Key

The numerical 5 key, when pressed during POST, invokes a service mode boot using the default 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 numerical 5 key is used to boot the system in service mode to run stand-alone diagnostics.

The default boot order is:

1. Diskette
2. CD ROM
3. Hard file
4. Tape drive
5. Network
 - a. Token ring
 - b. Ethernet

Numerical 6 Key

The numerical 6 key works like the numerical 5 key, except firmware looks for a boot record according to the custom bootlist that was set up by System Management Services.

The numerical 6 key is used to boot the system in service mode to run online diagnostics.

Numerical 8 Key

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

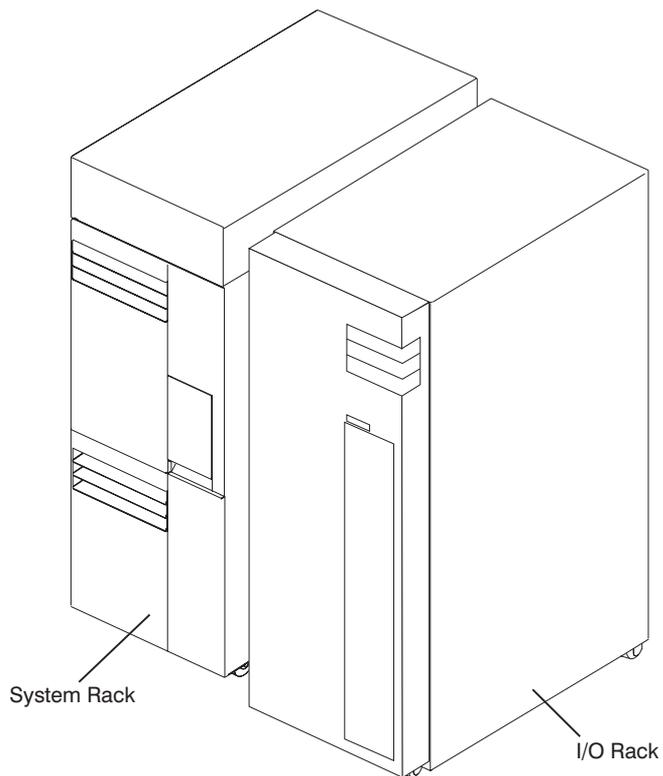
When initialization and power-on self-test (POST) are complete, the open firmware command line (an OK prompt) displays.

The open firmware command line is used to set up adapters that are not configurable with the System Management Services. Your adapter documentation directs you to use this option if it is needed.

To exit from the open firmware command, type `reset-all` or power down the system and reboot.

Models S80 and S85 Locations

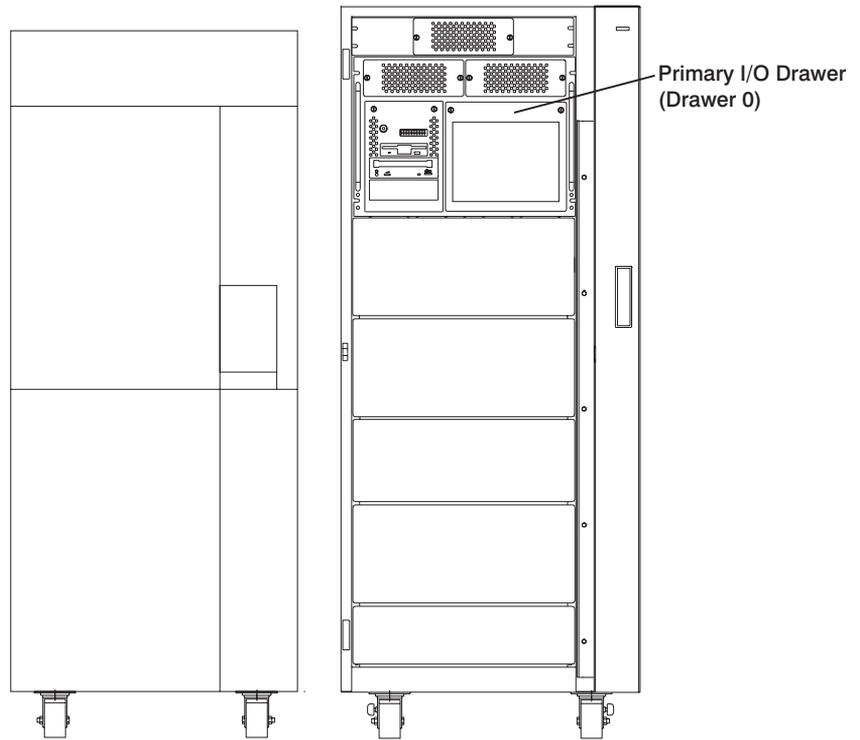
Models S80 and S85 systems consist of a minimum of two racks — the system rack and the input/output rack (I/O rack). These two components are connected by cables that transmit data and control signals. Additional I/O racks can be added if further expansion of the system is required. The following illustration shows the two racks.



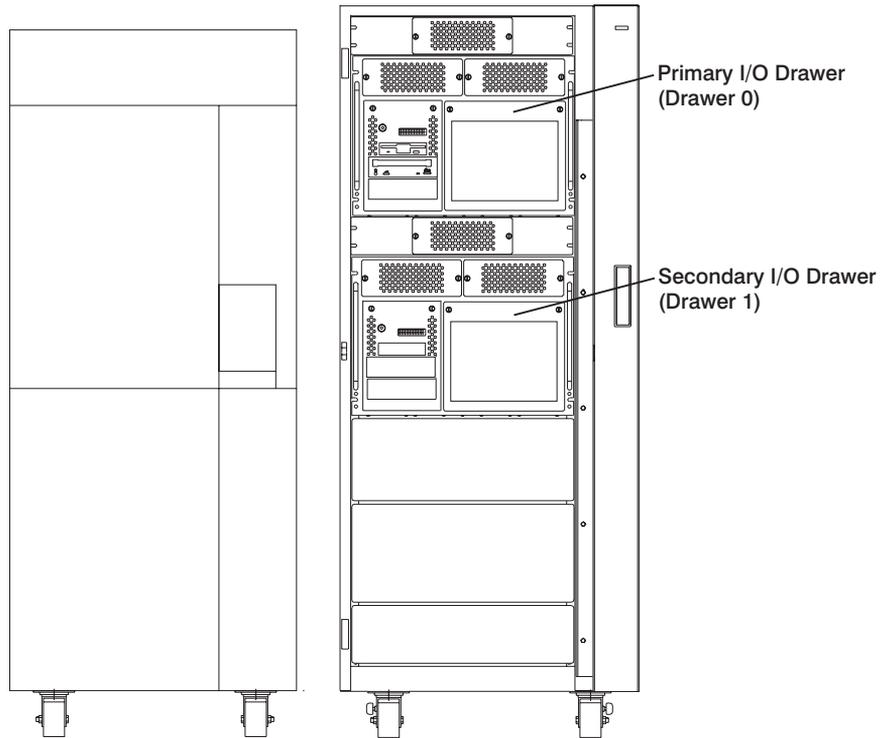
System and I/O Rack Configurations

Model S80 and S85 systems can be set up in various configurations regarding the placement of the primary I/O drawer. Typically, the primary I/O drawer is installed in an I/O rack with other drawers attached to the same system rack. If two systems are installed side-by-side, then the two systems can share one I/O rack by installing both primary I/O drawers in the same rack. This can be done to save space and also if the systems are used for high-availability (HA) applications. The following illustrations show some basic configurations.

Basic Configuration with Primary I/O Drawer



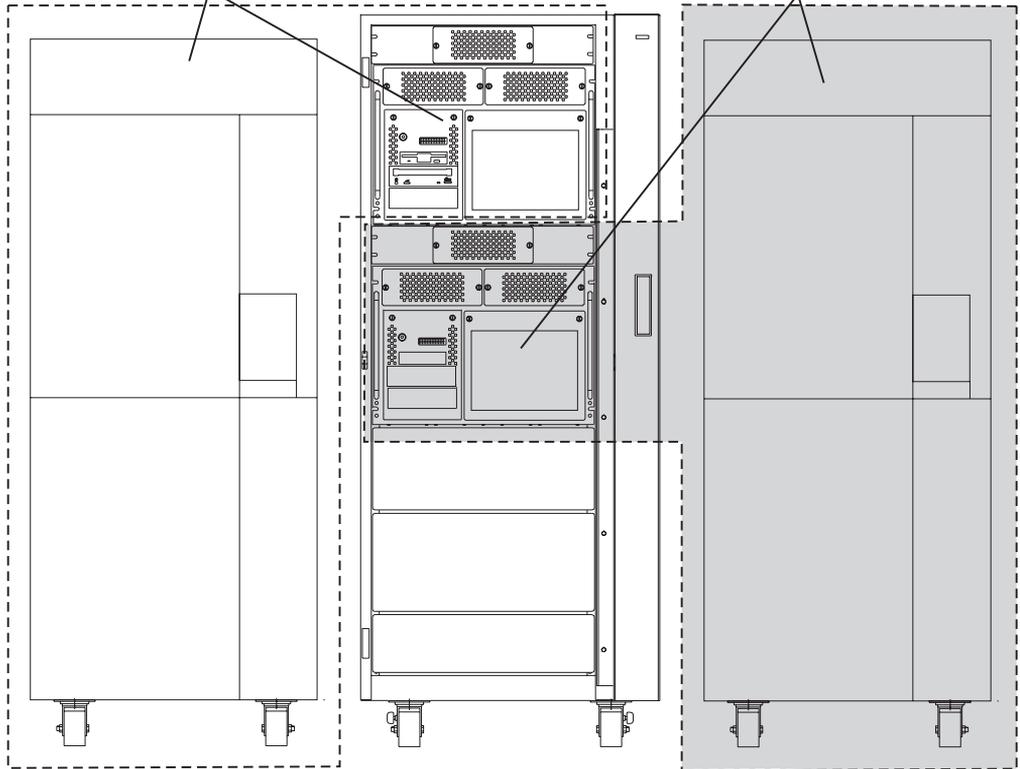
Basic Configuration with Two I/O Drawers



Two Systems Sharing One I/O Rack

First System with Primary I/O Drawer Installed in Top Position of the I/O Rack

Second System with Primary I/O Drawer Installed in the Lower Position of the I/O Rack

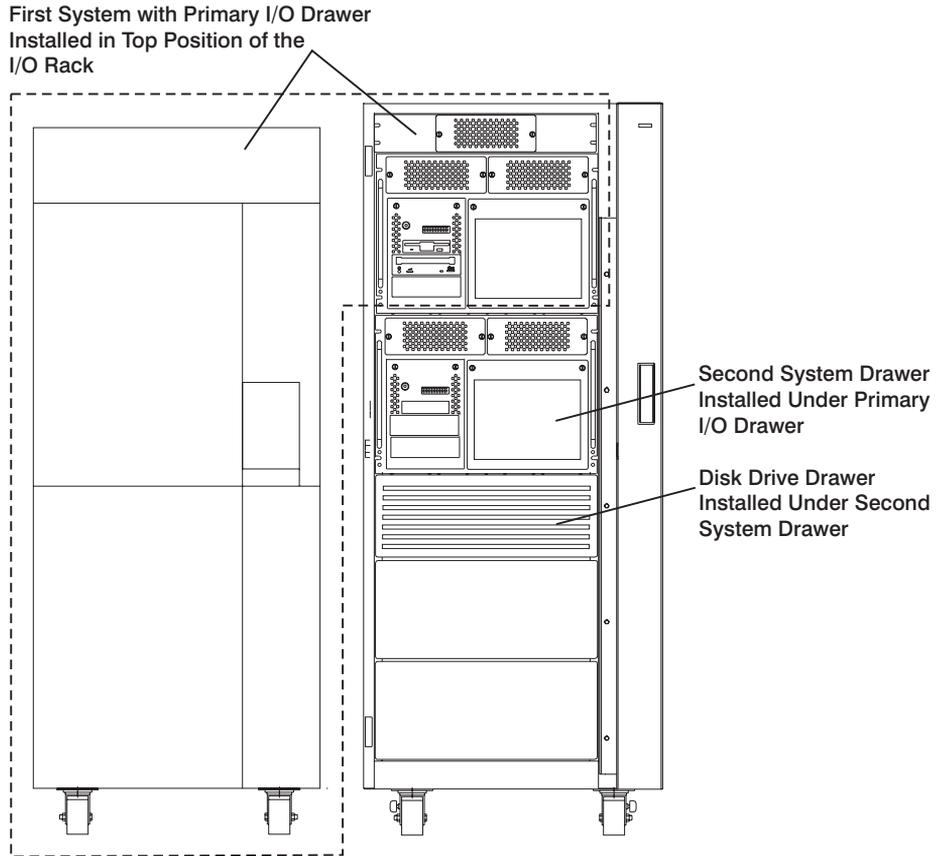


Attention: If power is to be removed from one I/O drawer of a system that shares an I/O rack with another system, ensure that the power is removed from the correct drawer. Check the cabling before removing the power to make sure that you do not disrupt the operation of the second system.

Basic Configuration with H50 and H70 Sharing the I/O Rack

The I/O rack can also have other system drawers installed. The following illustrations show configurations that allow systems drawers to be installed in the I/O rack along with primary and secondary I/O drawers.

Primary I/O Drawer in Top Position

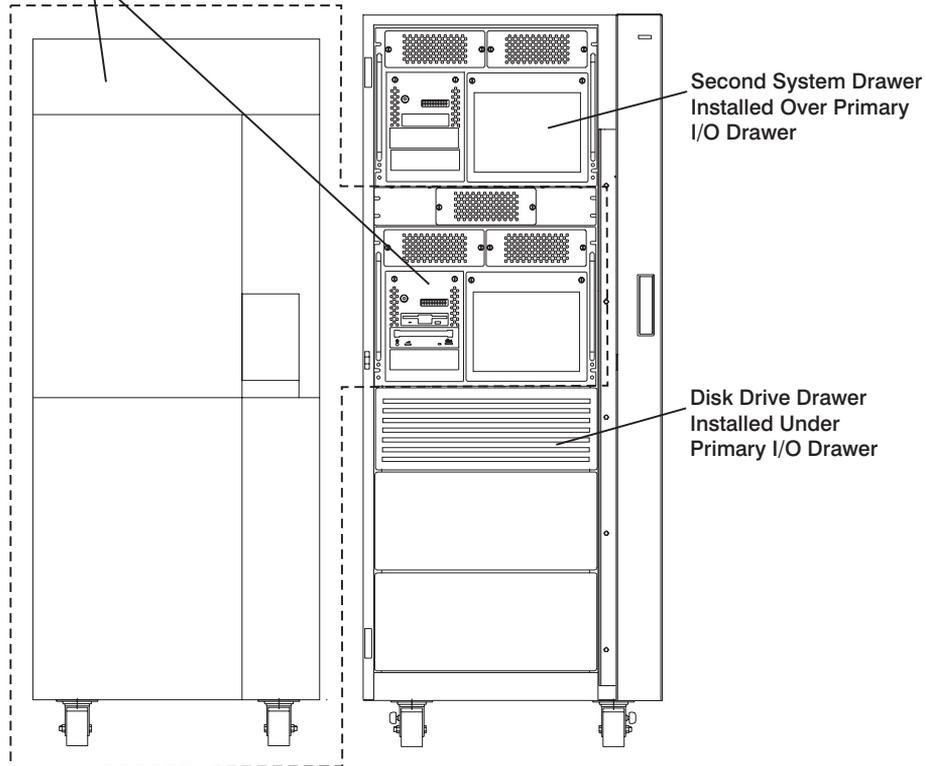


Note: Ensure that the cables from the I/O drawer are tied to the sides of the rack to enable servicing of the system installed under the I/O drawers.

Follow the installation instructions for each system when the I/O rack is shared between two system configuration types.

Primary I/O Drawer in Lower Position

First System with Primary I/O Drawer
Installed Under the Second System
Drawer.



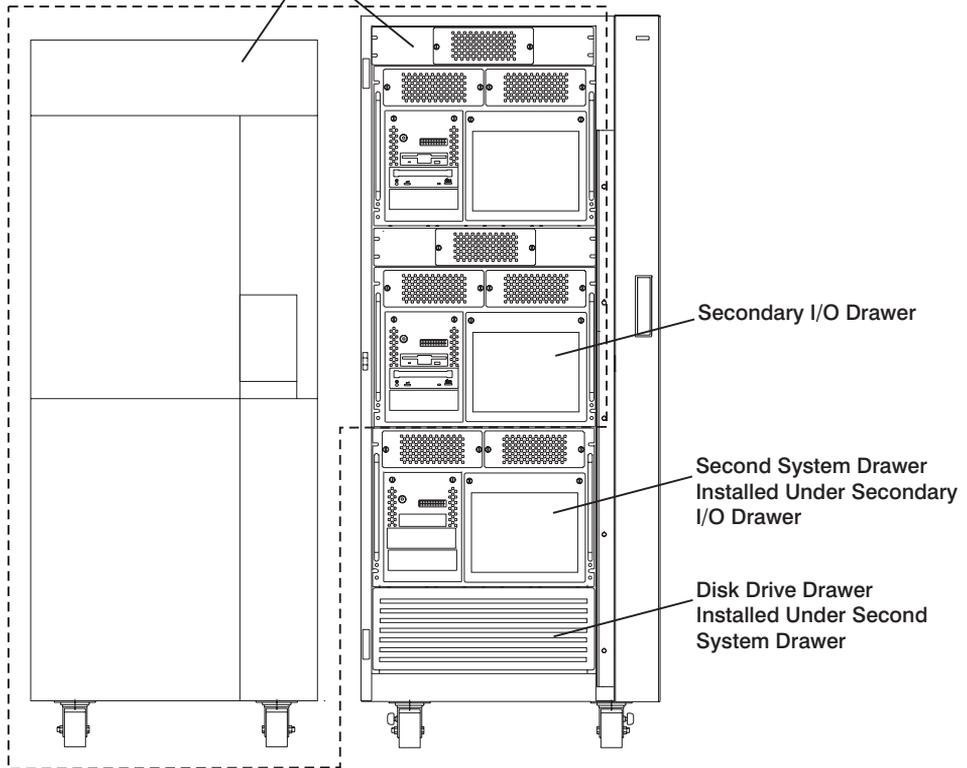
Note: Ensure that the cables from the upper drawers are tied to the sides of the rack to enable servicing of the lower drawers.

Follow the installation instructions for each system when the I/O rack is shared between two system configuration types.

System with Two I/O Drawers and H50 and H70 Sharing the I/O Rack

Primary I/O Drawer in Top Position

First System with Primary I/O Drawer
Installed in Top Position of the
I/O Rack and a Secondary I/O Drawer
Installed Below the Primary I/O Drawer

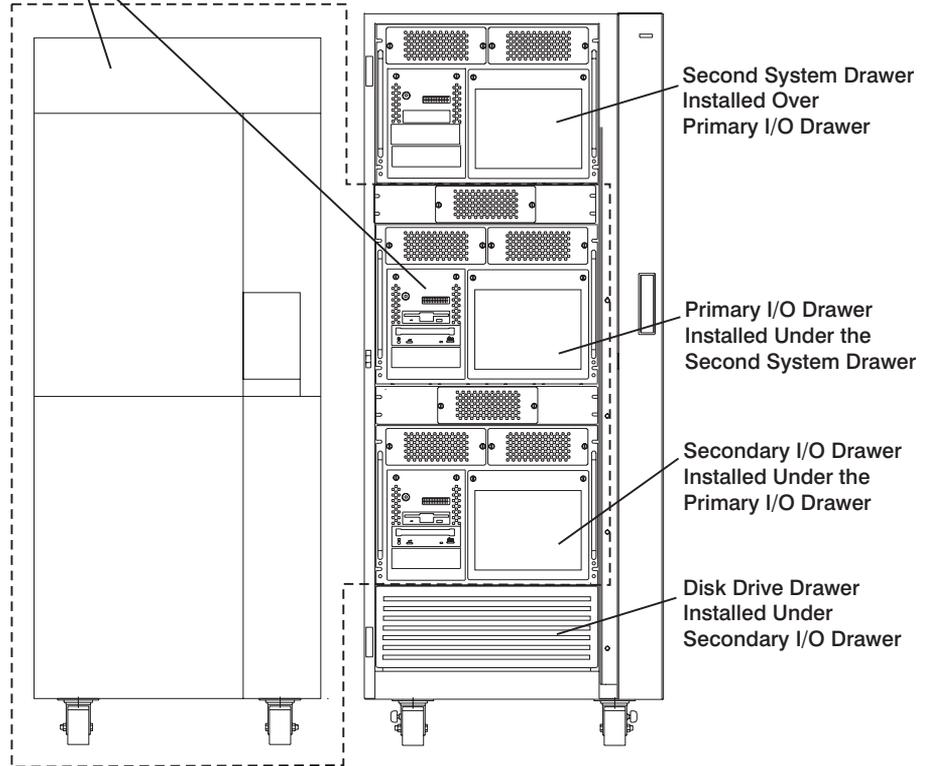


Note: Ensure that the cables from the I/O drawers are tied to the sides of the rack to enable servicing of the system drawer installed under the secondary I/O drawers.

Follow the installation instructions for each system when the I/O rack is shared between two system configuration types.

Primary I/O Drawer in Lower Position

First System with Primary and Secondary I/O Drawers Installed Under a Second System Drawer in Top Position of the I/O Rack

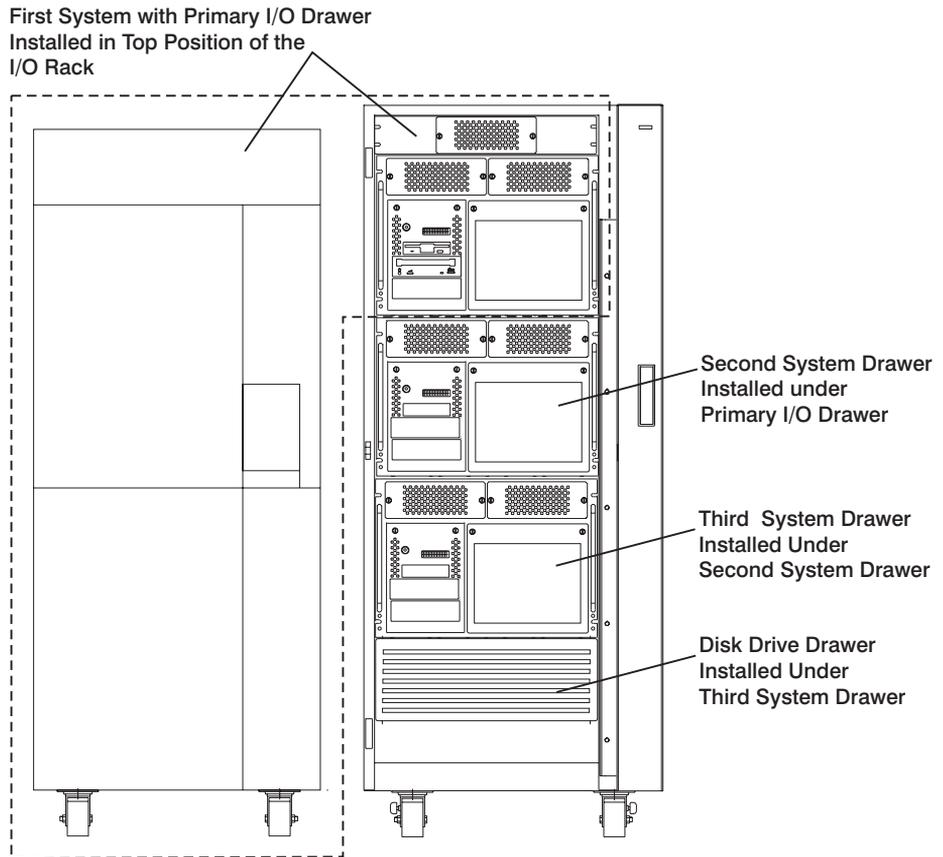


Note: Ensure that the cables from the upper drawers are tied to the sides of the rack to enable servicing of the lower drawers.

Follow the installation instructions for each system when the I/O rack is shared between two system configuration types.

System with One I/O Drawer, and Two H50 and H70s Sharing the I/O Rack

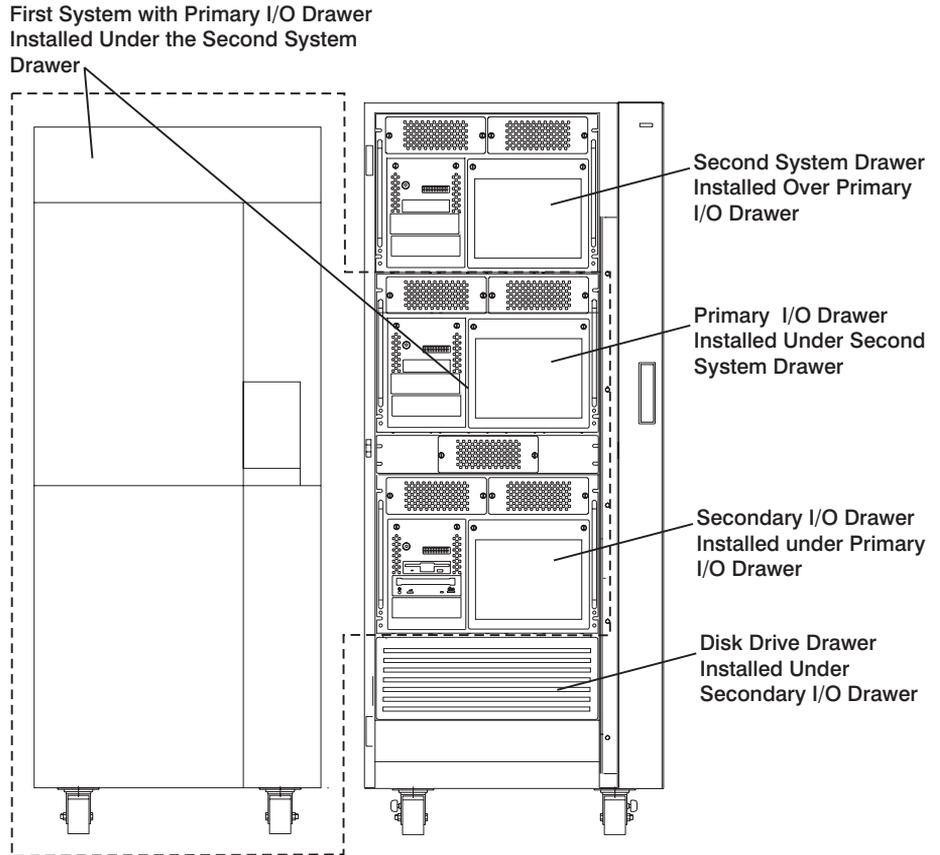
Primary I/O Drawer in Top Position



Note: Ensure that the cables from the I/O drawer are tied to the sides of the rack to enable servicing of the system drawers installed under the I/O drawers.

Follow the installation instructions for each system when the I/O rack is shared between two system configuration types.

Primary I/O Drawer in Lower Position

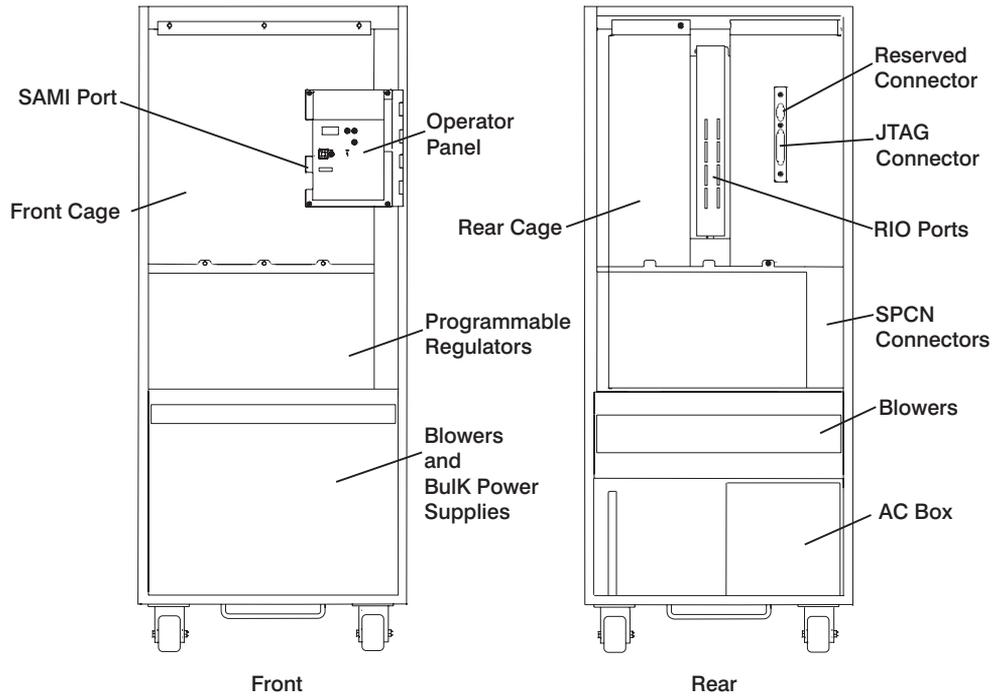


Note: Ensure that the cables from the upper drawers are tied to the sides of the rack to enable servicing of the lower drawers.

Follow the installation instructions for each system when the I/O rack is shared between two system configuration types.

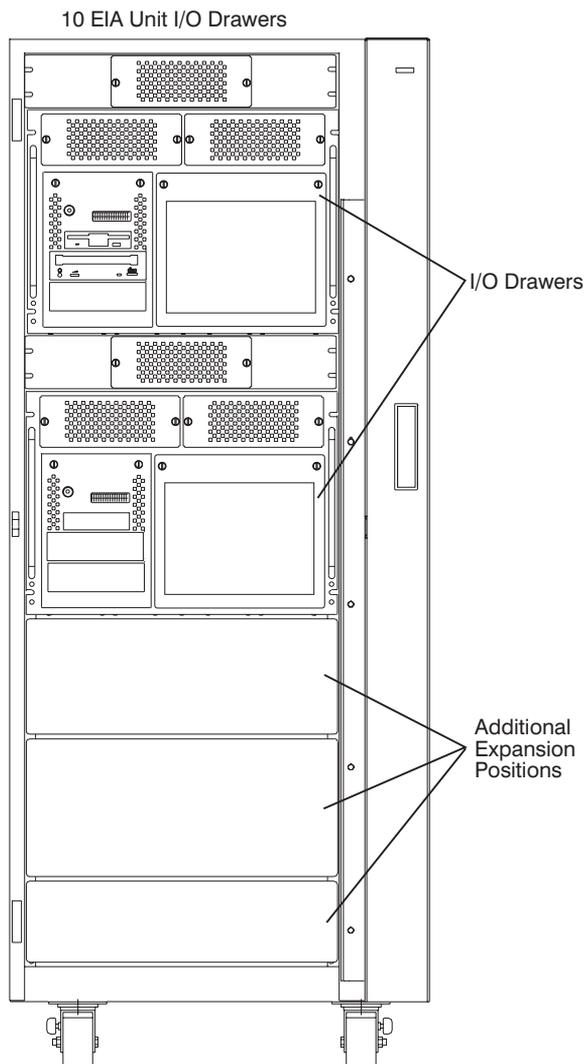
System Rack Locations

The following illustration shows locations for the front and rear views of the system rack. More detailed locations for parts that are inside the covers of the system rack follow.



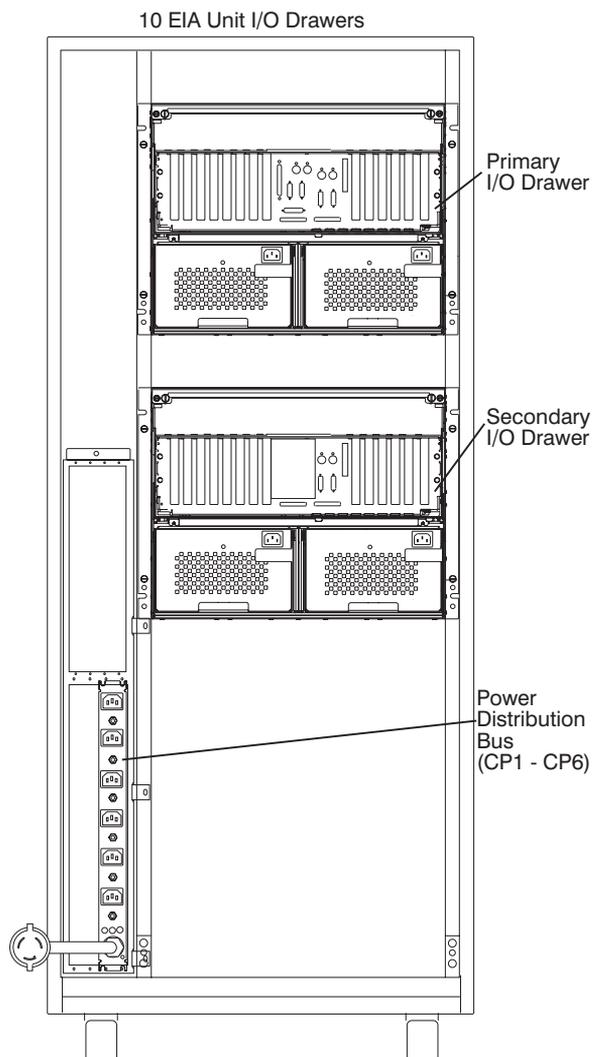
I/O Rack Front Locations

The following illustration shows the front of an I/O rack. 10 EIA-Unit I/O Drawers can be installed, as shown in the illustration.



I/O Rack Rear Locations

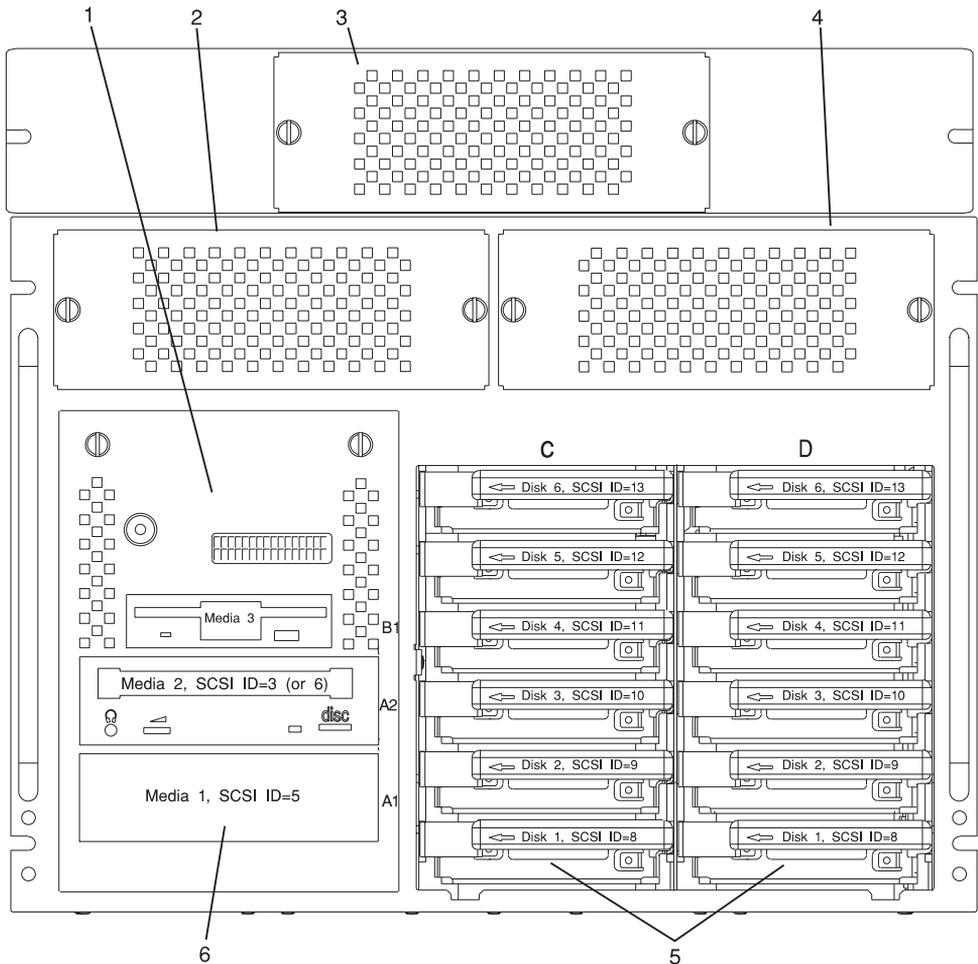
The following illustration shows the rear of an I/O rack. 10 EIA-Unit I/O Drawers can be installed, as shown in the illustration.



I/O Drawer Locations

This section shows component locations for the 10 EIA-unit I/O drawer.

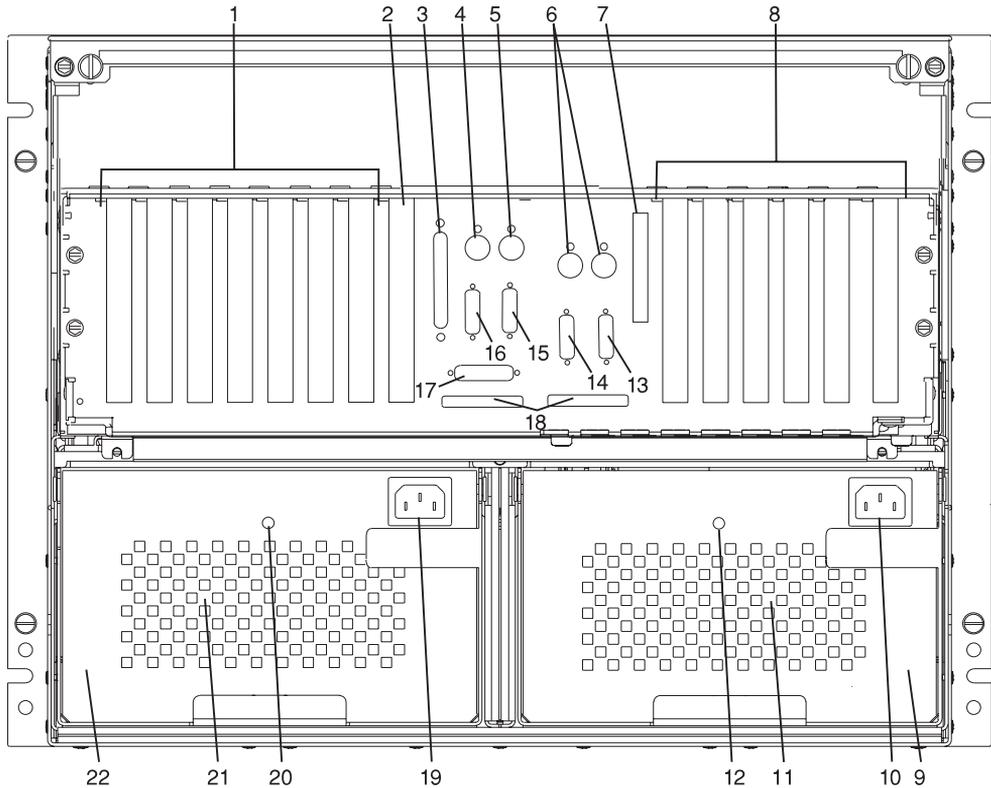
10 EIA-Unit I/O Drawer Front View



Note: The SCSI IDs shown for media devices indicate how installed devices will be set when shipped from the factory.

1. Indicator Panel
2. Blower 1 (left)
3. Blower 3 (center)
4. Blower 2 (right)
5. Hot Swap Disk Drive Bays
6. Media Bay

10 EIA-Unit I/O Drawer Rear View



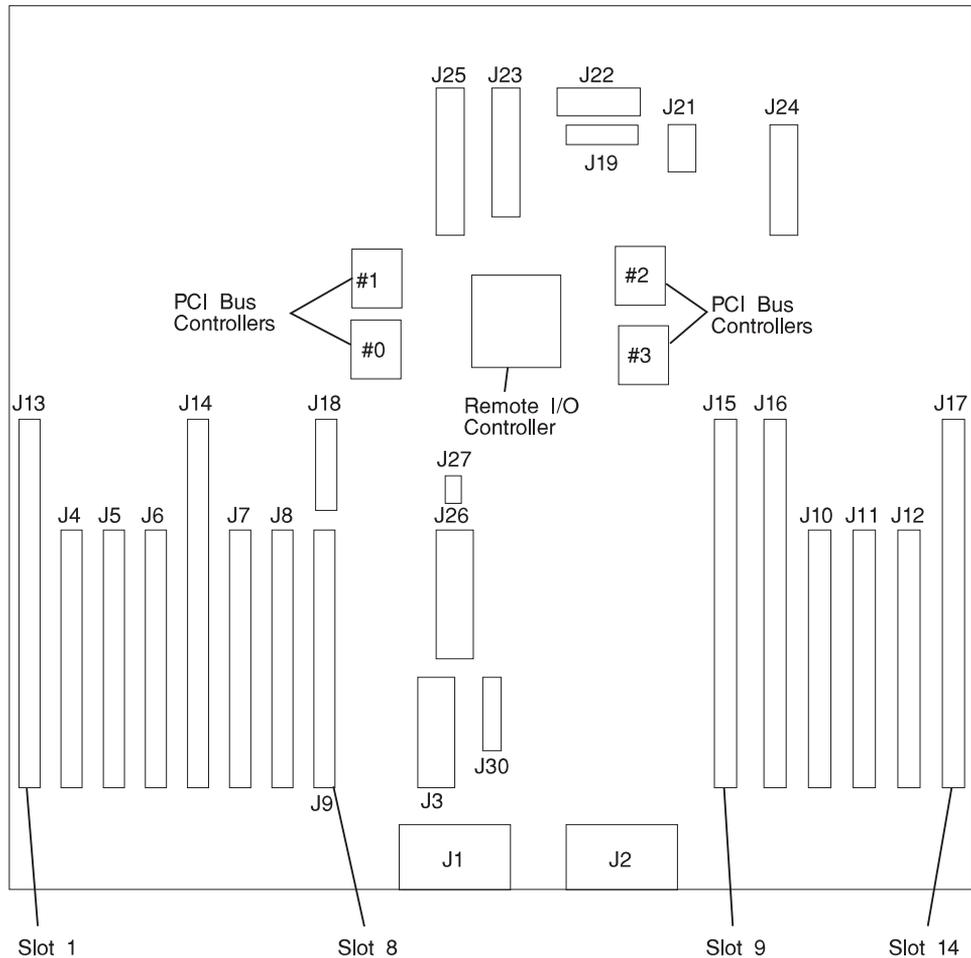
1. PCI adapter slots (1 - 7)
2. PCI adapter slot 8, service processor card and JTAG cable in primary I/O drawer (drawer 0)
3. Parallel connector
4. Keyboard connector
5. Mouse connector
6. Reserved
7. Reserved
8. PCI adapter slots (9 - 14)
9. Right power supply
10. Power cord connector for right power supply
11. Fans (mounted on front end of right power supply)
12. Right power supply, power good LED
13. SPCN2 connector
14. SPCN1 connector
15. Serial port S2*
16. Serial port S1* (Used for TTY terminal connection)
17. Serial port S1* (Used for TTY terminal connection)
18. Serial port S1* (Used for TTY terminal connection)
19. Power supply
20. Power supply
21. Latch
22. Latch

Note: In an RS/6000 SP environment, there is normally a cable attached from this port to the SP Control Workstation. To directly attach a TTY terminal to this port, the cable to the SP Control Workstation must be disconnected. Be sure to reconnect this cable after servicing the system.

17. Operator panel (OP) connector
18. RIO 0 and RIO 1
19. Power cord connector for left power supply
20. Left power supply, power good LED
21. Fans (mounted on front end of left power supply)
22. Left power supply

* Serial ports 1 and 2 can only be used for service processor menus. No “heartbeat-” type devices can be used on these ports.

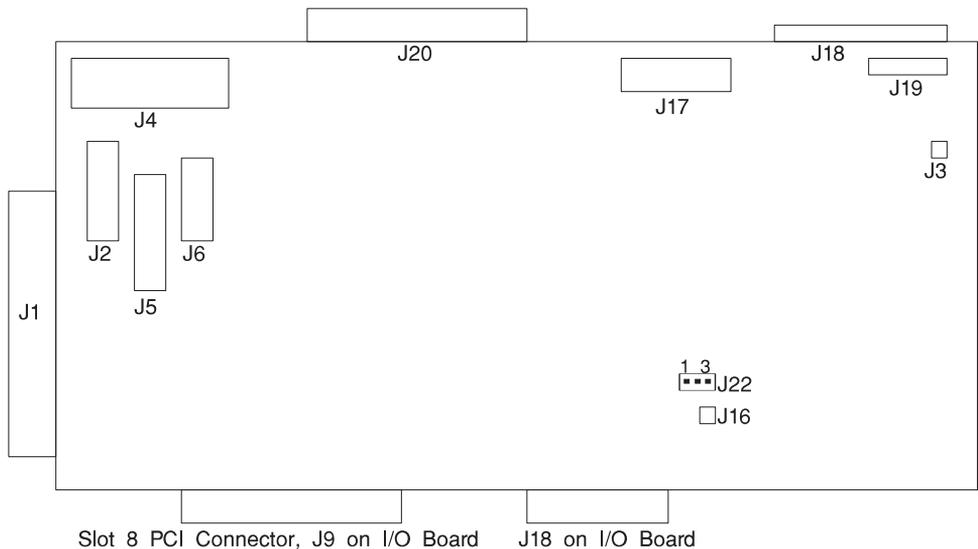
10 EIA-Unit I/O Drawer I/O Board Locations



J1	RIO bus
J2	RIO bus
J3	SPCN connector
J4	PCI slot 2, controller 1
J5	PCI slot 3, controller 1
J6	PCI slot 4, controller 1
J7	PCI slot 6, controller 0
J8	PCI slot 7, controller 0
J9	PCI slot 8, controller 0
J10	PCI slot 11, controller 2
J11	PCI slot 12, controller 2
J12	PCI slot 13, controller 2
J13	PCI slot 1, controller 1
J14	PCI slot 5, controller 0

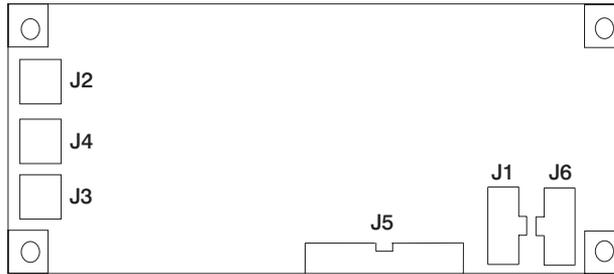
J15	PCI slot 9, controller 3
J16	PCI slot 10, controller 3
J17	PCI slot 14, controller 2
J18	JTAG connector
J19	Display indicator panel (DIP) connector
J21	I35 SCSI backplane connector
J22	Power distribution board (PDB) card connector
J23	PCI slot (1-8) power connector
J24	PCI slot (9-14) power connector
J25	+12 V dc, -12 V dc, and +3.3 V dc, power supply connector
J26	PCI slot power (1-8) +3.3 V dc power connector
J27	Speaker
J30	Reserved

Service Processor Card Locations



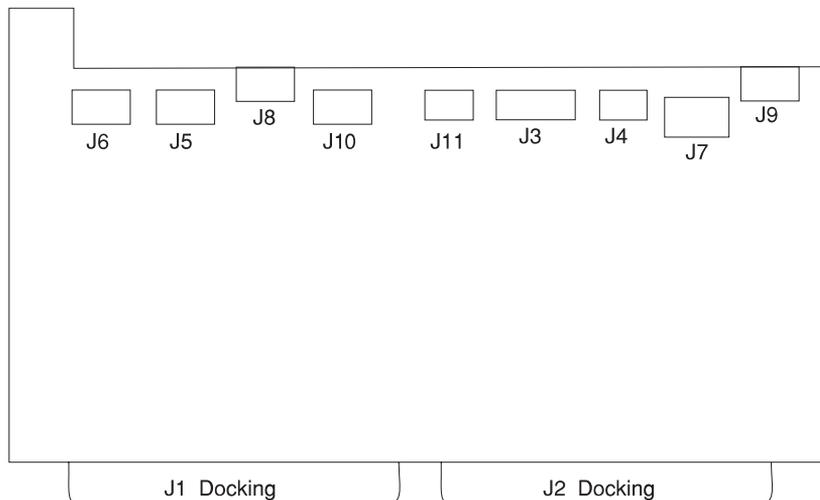
J1	JTAG connector to system rack
J2	Serial port connector to inside bulkhead card
J3	Speaker connector
J4	Diskette drive connector
J5	Parallel Port connector
J6	Keyboard/mouse connector to inside bulkhead card
J16	Write protect DASD FLASH (if jumper is on pins)
J17	Operator panel connector from the system rack
J18	Test Port 0
J19	Test Port 1
J20	Test Port 2
J22	Write protect boot FLASH (if jumper is set between pins 2 and 3)

Fan Monitor Control (FMC) Card Locations (10 EIA-Unit I/O Drawer)



- | | |
|-----------|--|
| J1 | To Power Distribution Board |
| J2 | Fan 2 (Left Blower) |
| J3 | Fan 1 (Center Blower) |
| J4 | Fan 3 (Right Blower) |
| J5 | Power Supply and Fans 4, 5, 6, 7 (Power Supply Fan Assemblies) |
| J6 | To PCI Connectors |

Power Distribution Board Locations



- | | |
|-----------|------------------------------------|
| J1 | Power supply docking connector |
| J2 | Power supply docking connector |
| J3 | I/O planar connector |
| J4 | Fan monitoring card connector |
| J5 | +12 V dc, -12 V dc |
| J6 | +5 V dc |
| J7 | +5 V dc |
| J8 | I35 SCSI backplane power connector |
| J9 | Media bay power connector |

J10	+5 V dc
J11	Fan monitoring card connector

System Memory

All system memory for the models S80 and S85 system is provided on several sizes of memory cards, which are plugged into reserved slots.

There are 16 slots available for system memory, and they are located for easy access from the front or rear of the system rack. These slots are shown in:

“System Rack Locations Front” on page 17

shows the relative positions to the system rack

“System Rack Locations Rear” on page 18

shows the relative positions to the system rack

“Memory Locations and Ordering Rules”

a top view including the processor and clock cards

The memory cards are M01 through M03 and M08 through M10 on the front of the system, and M11 through M15 and M20 through M24 on the rear of the system. Memory cards are available in several sizes: 256MB, 512MB, 1024MB, 2048MB, and 4096MB.

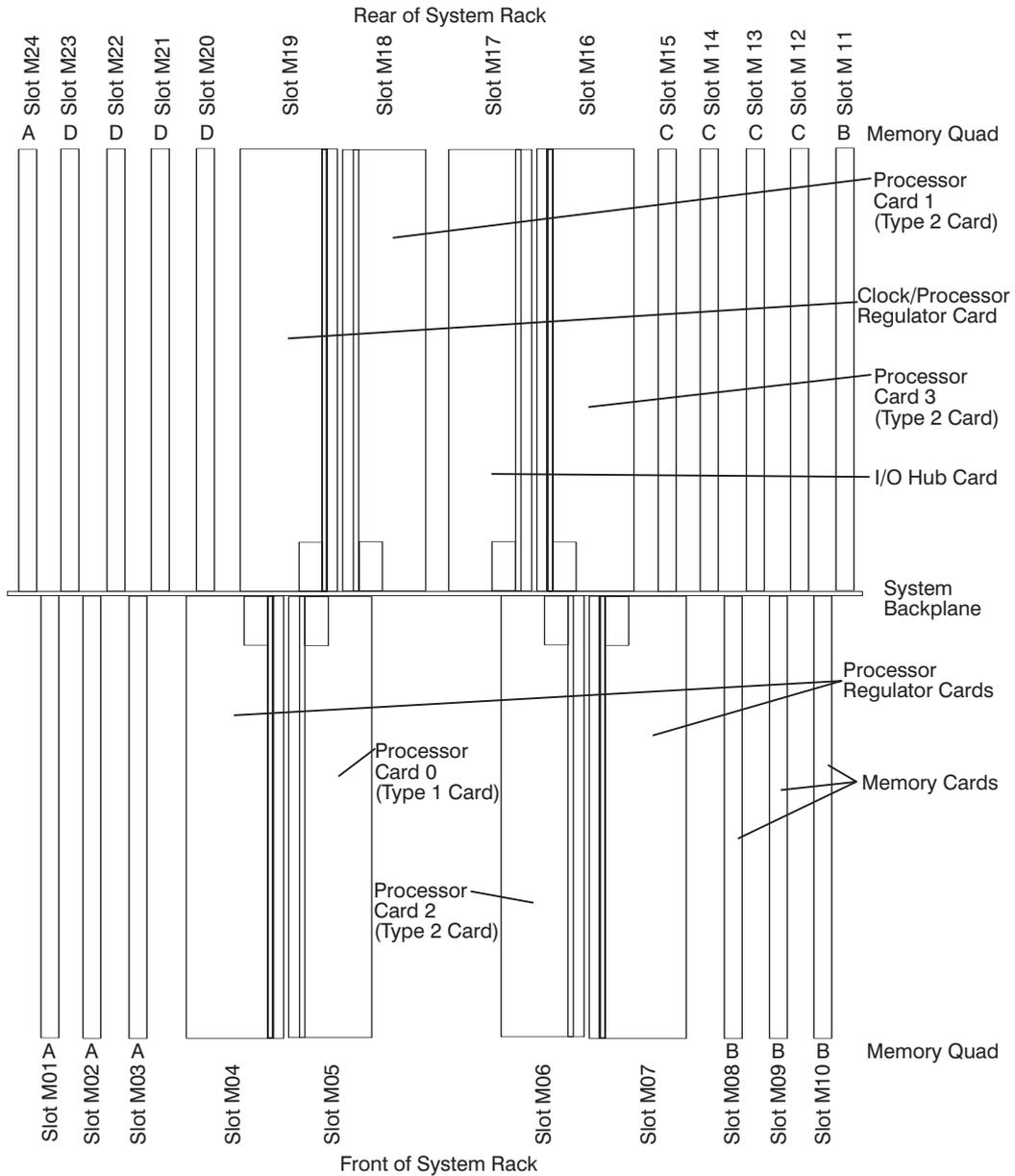
Memory Locations and Ordering Rules

The following illustration is a top-level view of the system memory. This view shows a full configuration of memory cards installed into the system backplane.

R1 memory cards are used in models S80 and S85 systems. All memory cards are installed in four-card functional units called *quads*. The quads must be composed of four cards of the same type. The complete set of four cards must be properly installed in the proper card slots for the newly installed memory to work correctly. See the following illustration for the locations of the card slots that are in each quad.

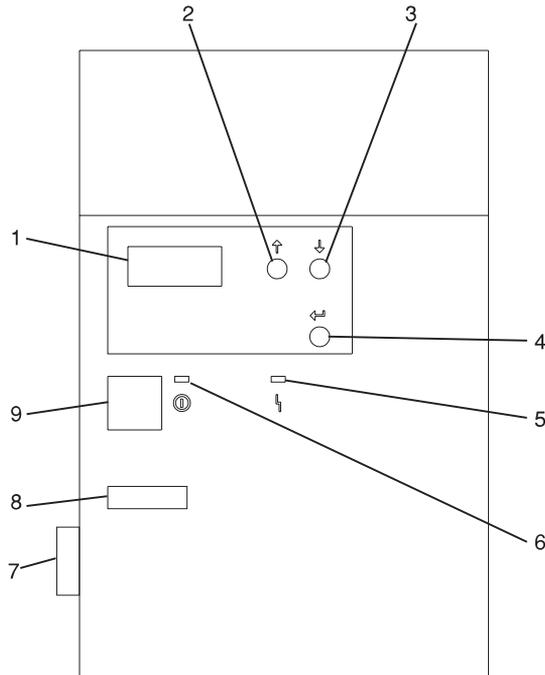
Certain technical applications must have the memory configured for optimal performance. The memory system of the models S80 and S85 is accessed through two separate ports. Optimization is achieved by equalizing as much as possible the amount of memory on each of the ports. Quads A and D are on one port. Quads B and C are on the other port.

To upgrade the system for optimal performance, sort all of the memory features by quad size, from largest to smallest. Install the largest memory feature in quad A, insert the next largest memory feature in quad B. Continue inserting memory quads in the available quads alphabetically, with the smaller features following the larger.



System Rack Operator Panel

The following illustration shows the locations of the operator panel display and the operator panel pushbuttons. For details about the operator panel functions and descriptions, see “Appendix C. Operator Panel Function Codes” on page 595.

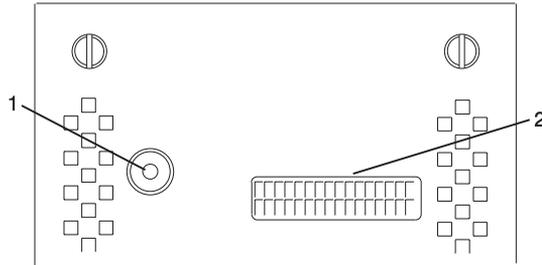


- 1 Operator Panel Display
- 2 Scroll Up Pushbutton
- 3 Scroll Down Pushbutton
- 4 Enter Pushbutton
- 5 Attention LED
- 6 Power-On LED
- 7 SAMI Port. This port is used when connecting an models S80 and S85 in an RS/6000 SP environment.
- 8 Serial Number
- 9 Power Pushbutton

I/O Drawer Indicator Panel

This section describes the indicator panel located on the I/O drawer.

10 EIA-Unit I/O Drawer Indicator Panel



- 1 Power-On LED
- 2 Drawer Indicator Panel Display

10 EIA-Unit I/O Drawer and Power Supply LED Status

State of LED	Display Indicator Panel LED	Right Power Supply LED	Left Power Supply LED
Off	No power connected	No power connected	No power connected
On, blinking green	System power connected, not turned on	System power connected, not turned on	System power connected, not turned on
On, steady green	System power connected and turned on	System power connected and turned on	System power connected and turned on

10 EIA-Unit I/O Drawer Indicator Panel Status

Drawer State	LED	Drawer Indicator Panel
After Connecting ac Power		
Standby	Blinking	Blinking location U?.?
System power	On solid	Blinking location U?.?
Receive Firmware Command	On solid	On solid location Ux.y#
Thereafter	On solid	On solid location Ux.y#
After Power is Removed Because of a Shutdown		
Standby	Blinking	Blinking location Ux.y
System power	Solid	Blinking location Ux.y
Receive Firmware Command	Solid	Solid location Ux.y#
Thereafter	Solid	Solid location Ux.y#

represents a blinking asterisk (*)

Cabling the System Rack and I/O Rack

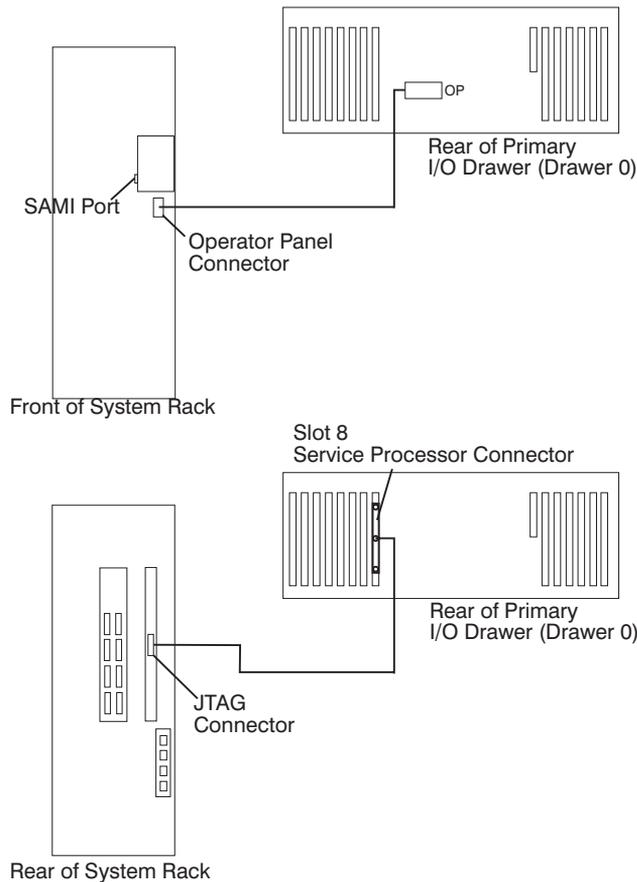
The minimum system consists of two racks. The system rack contains the system processors, memory, and supporting hardware. The I/O rack contains I/O drawer(s) with PCI adapters, disk drives, and media drives. The models S80 and S85 must have a minimum of one I/O drawer. This primary I/O drawer contains the service processor for the system. Additional I/O drawers can be added to the system. These secondary I/O drawers are connected to the system rack but do not contain a service processor. The models S80 and S85 supports up to a total of four I/O drawers in different I/O rack configurations.

Use the following steps to connect the system rack to the I/O drawers in their I/O racks:

1. Connect the JTAG cable and the operator panel cable. These two cables are connected only between the system rack and the primary I/O drawer. See “Connecting JTAG and Operator Panel Cables” on page 32 for illustrations showing these cables.
2. Connect the RIO cables, and the SPCN cables. These cables connect between the system rack and all the I/O drawers in loops. See “Connecting RIO and SPCN Cables” on page 32 for illustrations showing these cables.

Connecting JTAG and Operator Panel Cables

Use the following illustration to connect the JTAG and operator panel (OP) cables.



Connecting RIO and SPCN Cables

The RIO and SPCN cables provide two functions in the models S80 and S85 system: remote data bus connection and power control. The following rules must be followed when connecting these two types of cables:

- The I/O drawers must be connected in a loop fashion for both the RIO cables and the SPCN cables. The loop connection provides redundant paths so that if a failure occurs in part of a cable, the system will continue to operate. If a failure occurs, a warning message displays on the system console but the system continues to operate.
- One loop is required for the SPCN cabling. This loop begins and ends at the system rack.
- Two loops are possible for the RIO cabling depending on the number and desired configuration of I/O drawers. These loops begin and end at the system rack.

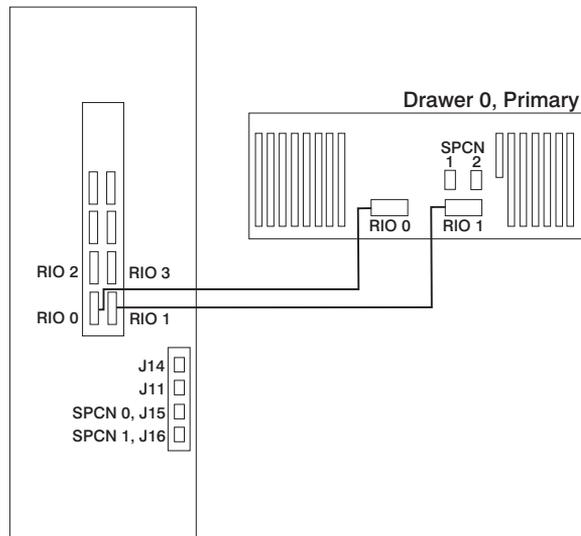
RIO Cabling

The following rules apply to RIO cable connections:

- I/O drawers 0 and 1 are connected using the first RIO loop, which uses RIO ports 0 and 1 on the system rack.
- I/O drawers 2 and 3 are connected using the second RIO loop, which uses RIO ports 2 and 3 on the system rack.
- The primary I/O drawer must be installed and connected to RIO port 0 of the system rack. The connection must be made from RIO port 0 of the system rack to RIO port 0 of the primary I/O drawer. This connection is required to make the primary drawer the first drawer in the loop, which allows the firmware to initialize the system.
- If the loop connection between RIO 2 and RIO 3 is broken, the system is not able to differentiate between I/O drawer 2 and I/O drawer 3. The system still conillustrations RIO 0 and RIO 1 ports, but does not conillustration RIO 2 or RIO 3 ports.

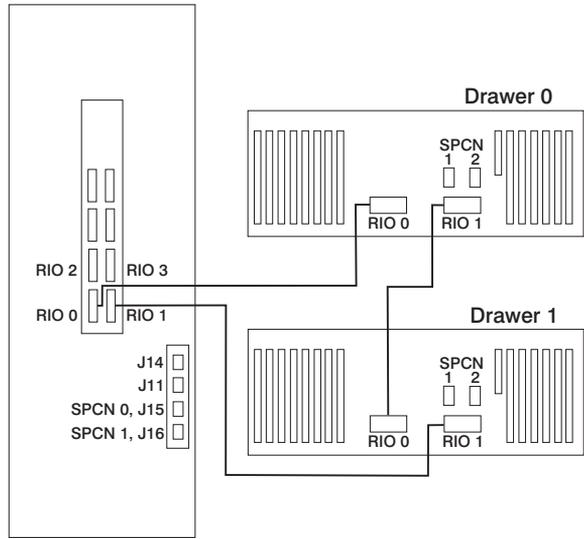
The following illustrations provide cabling examples for all valid cabling configurations. Match your configuration to the correct illustration and connect your RIO cables as shown.

System Rack Attached to One I/O Drawer

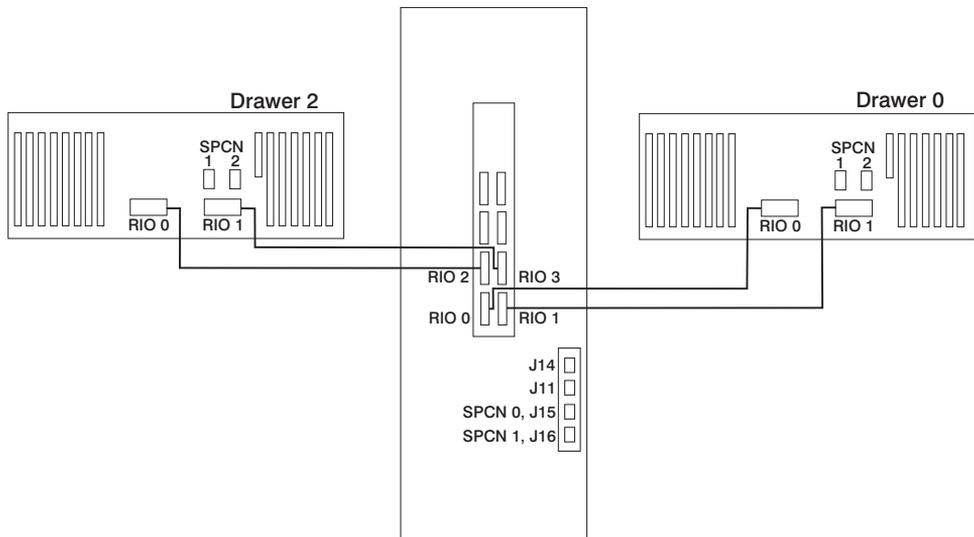


System Rack Attached to Two I/O Drawers

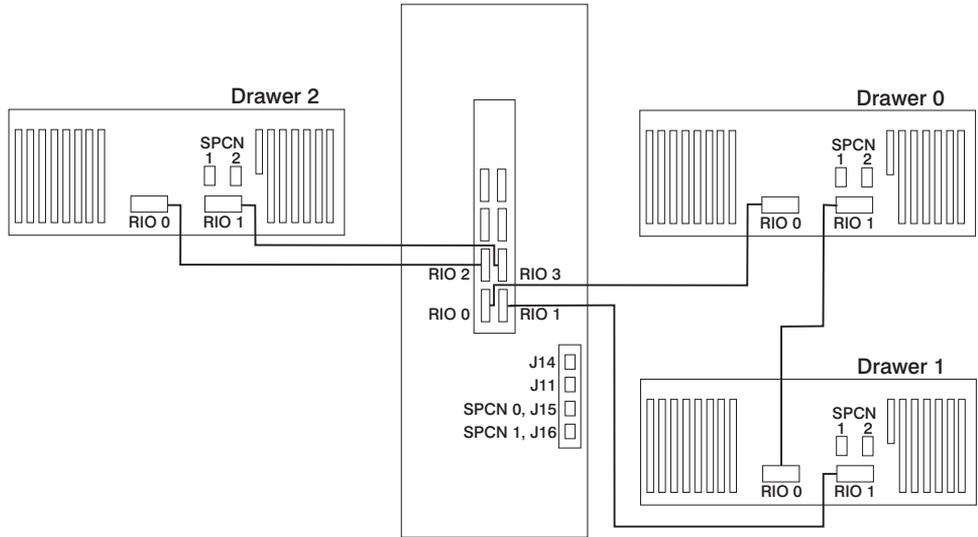
Either of the following cabling configurations can be used for a system rack attached to two I/O drawers.



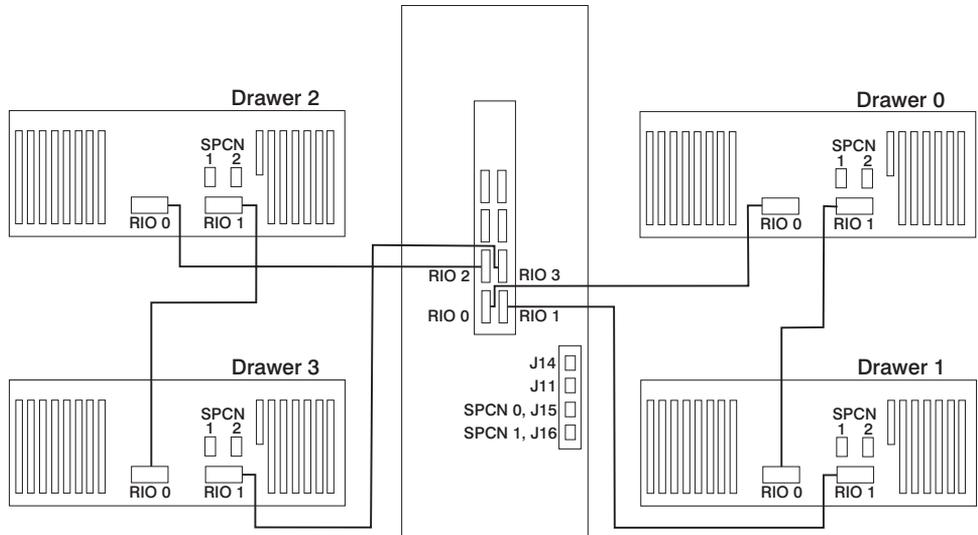
OR



System Rack Attached to Three I/O Drawers



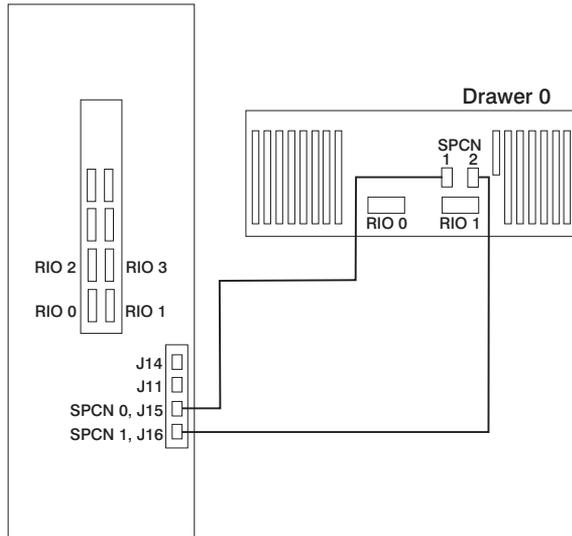
System Rack Attached to Four I/O Drawers



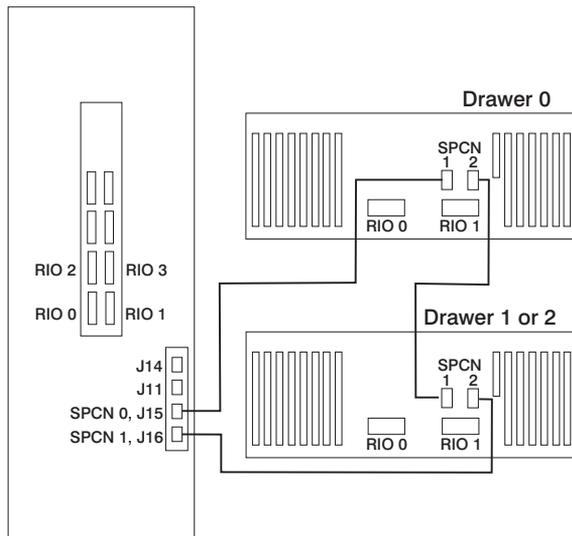
SPCN Cabling

The following illustrations provide cabling examples for all valid cabling configurations. Match your configuration to the correct illustration and connect your SPCN cables as shown.

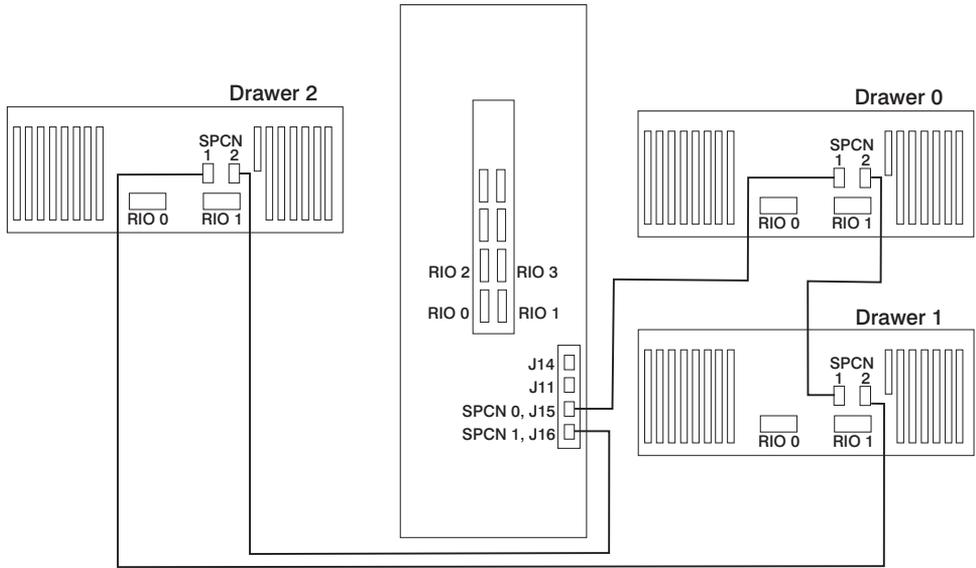
System Rack Attached to One I/O Drawer



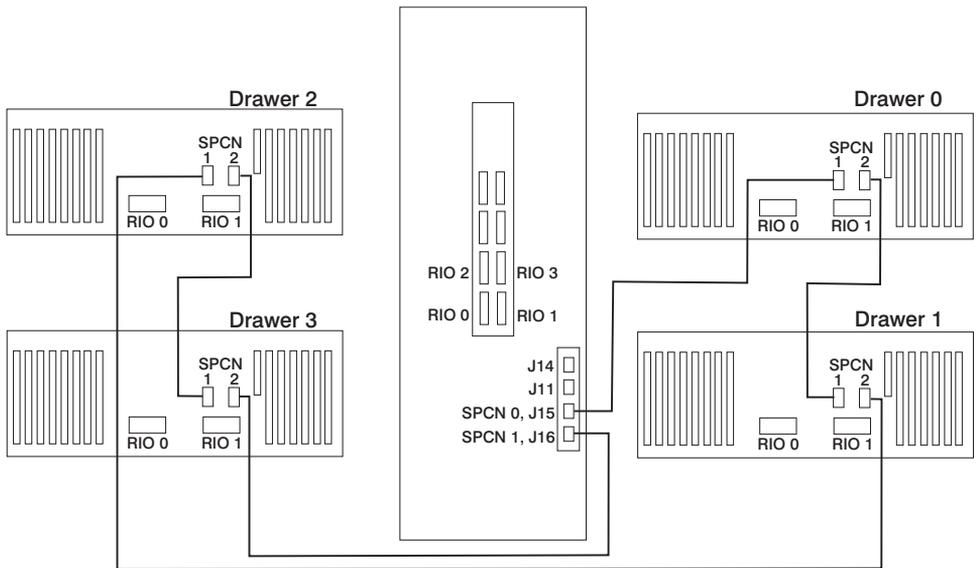
System Rack Attached to Two I/O Drawers



System Rack Attached to Three I/O Drawers



System Rack Attached to Four I/O Drawers



Models S80 and S85 Power Overview

The models S80 and S85 power is provided to each rack type by independent power supplies and distribution cabling. Both the system racks require 200 to 240 V ac power connections. The system rack and the I/O rack have independent power distribution systems.

System Rack Power

The power enters the processor system rack as 200-240 V ac. The line cord enters the ac box, which contains two components; one is the ac filter and distribution assembly, and the other supplies standby power to some system components. Standby power is supplied to the operator panel interface and the System Power Control Network (SPCN).

The filtered 200-240 V ac is then sent to the four (five on fully configured systems) system bulk power supplies. The supplies are coupled together and provide an N+1 level of redundancy for protection. N+1 refers to the fact that because the supplies are coupled to a common distribution bus, if one of the supplies fails, the system will not fail. The bulk supplies provide a positive 29-volt output, which is fed to the system regulator located above the bulk supplies and to the system blowers.

The system blowers maintain the system temperature within the strict guidelines required in an N+1 arrangement. Each blower can be powered off individually so that a blower can be removed and replaced without turning off the system power. The blowers only require +29 V dc.

The system regulators provide 2.5 V dc and 3.3 V dc to the system.

I/O Rack Power

The I/O rack power-distribution network is shown in the illustration found under “I/O Drawer Cabling” on page 41.

Power enters the I/O rack as 200-240 V ac through a power cable assembly and terminates on a power distribution bus (PDB). The PDB has six individual ac outlets, each capable of eight amps at 200-240 V ac, which are overload-protected and resettable. Each I/O drawer is supplied from one ac outlet of the PDB through a special “Y” cable. The “Y” cable draws power from a single PDB outlet and provides a standard ac plug to each of the two power supplies used in each I/O drawer. Two I/O drawers are allowed in each rack, but other type drawers can be installed in addition to the two I/O drawers.

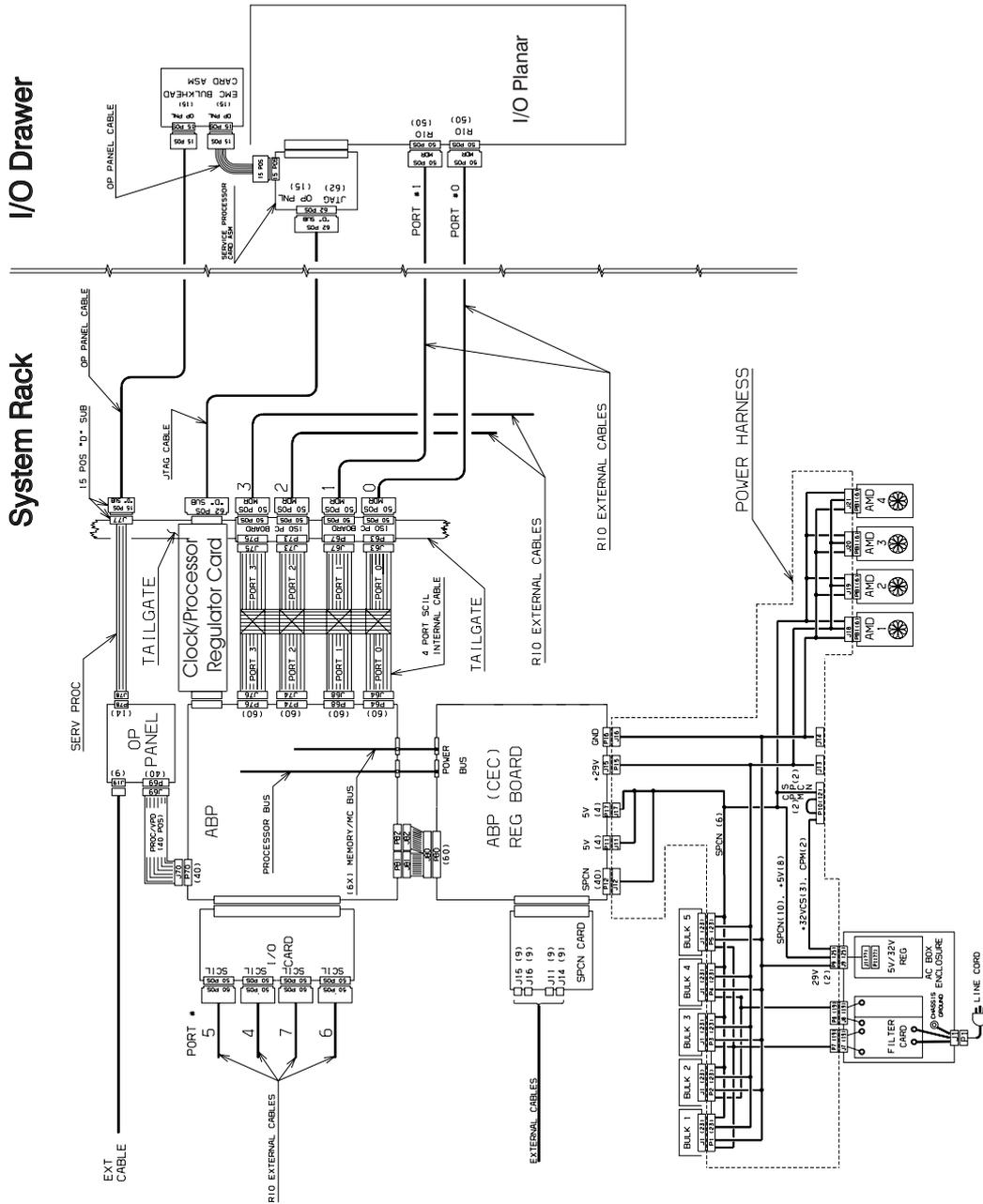
Ten EIA-unit I/O drawers have two redundant power supplies. One of these power supplies is capable of providing the necessary voltages and currents independently of the other. The left and right power supply output voltages are connected together and monitored by the power distribution board contained in the 10 EIA-unit I/O drawer.

The left and right power supplies are hot-pluggable and may be changed one-at-a-time while the system is operational. Each power supply provides 5 V dc, 3.3 V dc, 12 v dc, and 5 V dc standby.

The 5 V dc standby power is provided by both power supplies and connected together on the I/O planar directly because the power supplies contain overload protection against one supply shorting the other. Standby power of +5 V dc is provided to a portion of the I/O planar, which is part of the system SPCN logic. This consists of several components, including a logic chip, ROM, SRAM, and transceivers. The service processor is not on standby power. Both power supplies provide +12 V dc to the fans in the drawer to ensure sufficient cooling if one of the supplies fails. However, the short-circuit prevention is on the I/O planar to protect against inadvertent shorts in one line, causing the +12 V dc to fail completely.

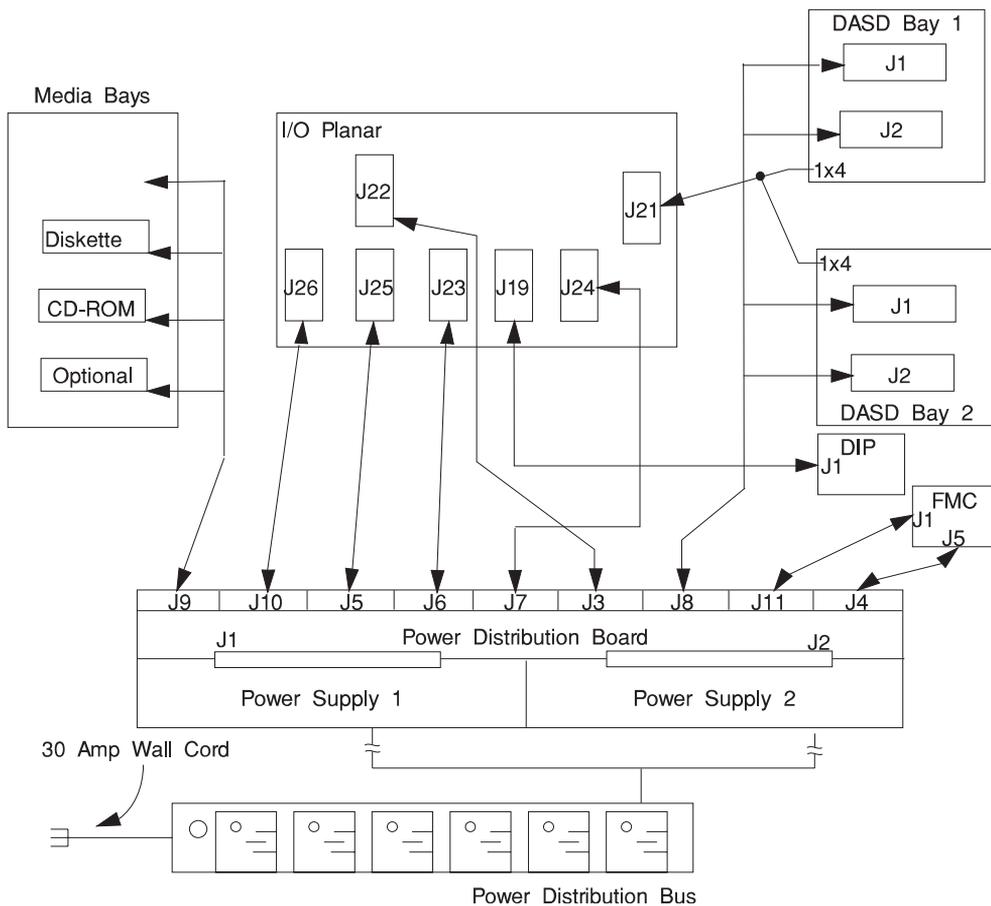
Models S80 and S85 Cabling

The following illustration shows the internal cabling for the models S80 and S85.

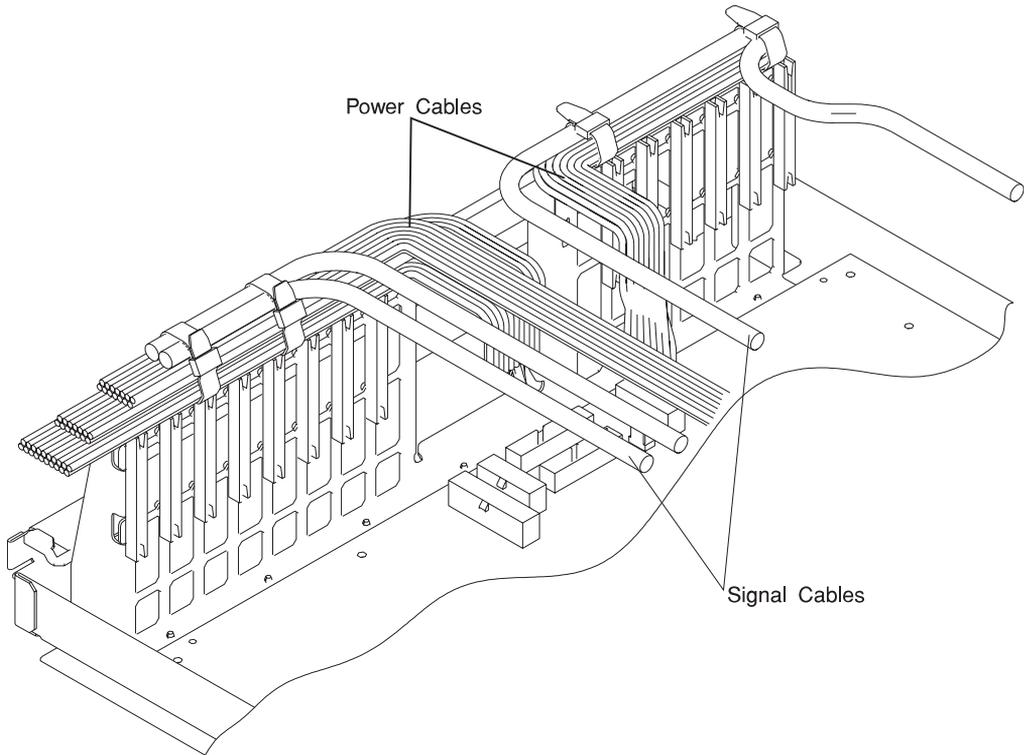


I/O Drawer Cabling

The following illustration shows the routing for power cables in the 10 EIA-unit I/O drawer.



10 EIA-Unit I/O Drawer Cable Routing



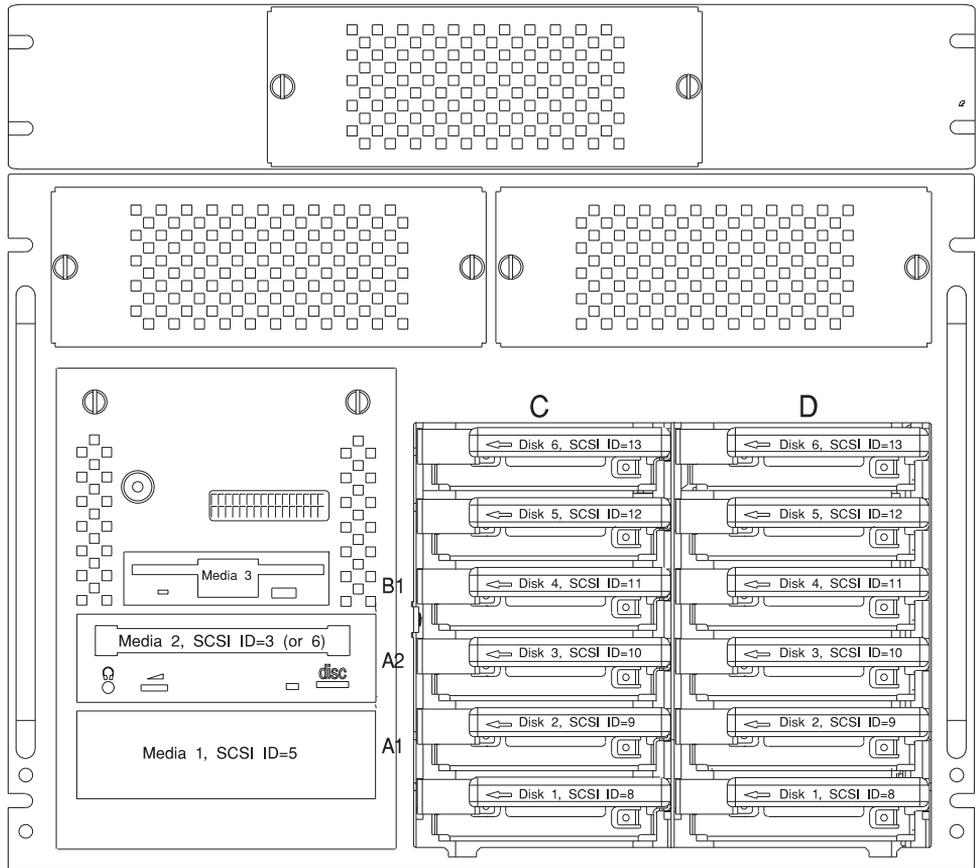
Attention: Take care to route power and signal cables on the top of the I/O adapter support. To keep the air-entry cutouts open in the drawer and to help prevent adapters from overheating, retain the cables with unlocking wire ties as shown.

SCSI IDs and Bay Locations

The following illustrations show the SCSI IDs for media and disk drives. The SCSI IDs for media devices installed in bank A at the factory are set using jumpers on the drives when they are installed. The SCSI IDs are set as shown in the following illustration.

The SCSI IDs for the hot-swap disk drives installed in banks C and D are set when the drive is installed. There are no SCSI jumpers to set; the SCSI ID is controlled by the position in which the drive is installed.

10 EIA-Unit I/O Drawer SCSI IDs



Note: The SCSI IDs shown for media indicate how installed devices are set when shipped from the factory.

Location Codes

This system unit uses physical location codes in conjunction with AIX location codes to provide mapping of the failing field replaceable units. The location codes are produced by the system unit's firmware and AIX.

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 location code is an alphanumeric string of variable length, consisting of a series of location identifiers, separated by a dash (-), or slash (/), or a pound sign (#) character. The series is hierarchical; that is, each location identifier in the string is a physical or logical child of the one preceding it.

- The - (dash) separator character represents a normal structural relationship where the child is a separate physical package and it plugs into (or is connected to) the parent. For example, P1-C1 is a processor card (C1) plugged into a planar (P1), or P1-M1 is a memory card (M1) plugged into a planar (P1).
- The / (slash) separator character separates the base location code of a function from any extended location information. A group of logical devices can have the same base location code because they are all on the same physical package, but may require extended location information to describe the connectors they support. For example, P2/S1 describes the location of the serial port 1 controller and its connector (S1), which is located on planar P2 (its base location code), but the / indicates that further devices can be connected to it at the external S1 serial connector. The keyboard controller and its connector likewise have location code P2/K1, which means they have the same base location code (P2) as serial port 1, but a different external connector. In contrast, the location code P2-K1 actually points to the device connected to connector K1; that is, the keyboard. The location code P2/Z1 indicates an integrated SCSI controller which drives connector Z1, while location codes of P2-Z1-... point to the actual SCSI bus and devices.
- The # (pound sign) separator character indicates a cable connection between a connector and parent.

The following are examples:

- P1-C1 identifies processor card C1 plugged into planar P1.
- P1-M1 identifies memory card M1 plugged into planar P1.
- P2/S1 identifies serial port 1 controller on I/O board P2 or the connector for serial port 1.
- P1-K1 identifies a keyboard attached to connector K1 on planar P1.
- P2/Z1 identifies an integrated SCSI port controller on planar P2 which drives connector Z1.
- P2-Z1-... points to the actual SCSI bus and devices attached to Z1.

- 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). Location codes therefore uniquely identify multiple adapters on individual PCI cards.
- For pluggable ISA adapters, CD is equal to the order of the ISA cards defined/configured either by SMIT or the ISA Adapter Configuration Service Aid.
- For an integrated ISA adapters, CD is equal to a unique code identifying the ISA adapter. In most cases, this code is equal to the adapter's physical location code. In cases where a physical location code is not available, CD will be FF.

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

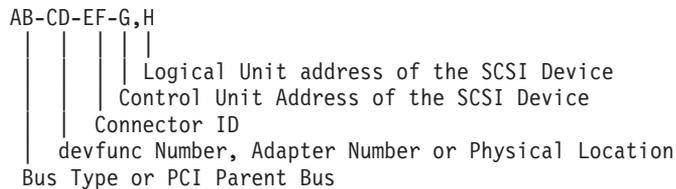
GH is used to identify a port, device, or FRU. For example:

- For async, 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 an 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/Drives

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



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 displayed by AIX are as follows:

- First processor card plugged into planar 1:

P1-C1

- Second memory card in planar P1:
P1-M2
- Memory DIMM 12 on second memory card plugged into planar P1:
P1-M2.12

Examples of AIX location codes displayed are as follows:

- Integrated PCI adapter:

10-80	Ethernet
10-60	Integrated SCSI Port 1 (internal)
10-88	Integrated SCSI Port 2 (external)

- Pluggable PCI adapters:

20-58 to 20-5F	Any PCI card in slot 1
20-60 to 20-67	Any PCI card in slot 2
10-68 to 10-6F	Any PCI card in slot 3
10-70 to 10-77	Any PCI card in slot 4
10-78 to 10-7F	Any PCI card in slot 5

- Integrated ISA adapters:

01-D1	Diskette adapter
01-R1	Parallel port adapter
01-S1	Serial port 1 adapter
01-S2	Serial port 2 adapter
01-S3	Serial port 3 adapter
01-K1	Keyboard adapter

- Device attached to SCSI controller:

10-60-00-4,0	Device attached to integrated SCSI Port 1
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AIX and Physical Location Code Reference Tables

The following tables contain location codes that are used to identify functional units in the models S80 and S85 systems. Each table below shows the locations for a physical part of the system.

System Rack

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
System Rack		U1	00-00		
System Backplane		U1.1-P1	00-00		
Memory Controller		U1.1-P1	00-00	On System Backplane	
Operator Panel		U1.1-P1-L1			
Processor Regulator 21	M04	U1.1-P1-V1			
Processor Regulator 22	M07	U1.1-P1-V2			
I/O Hub Card	M17	U1.1-P1-X1	00-00	On System Backplane	
RIO Port 0 Connector/Cable		U1.1-P1-X1/Q1			
RIO Port 1 Connector/Cable		U1.1-P1-X1/Q2			
RIO Port 2 Connector/Cable		U1.1-P1-X1/Q3			
RIO Port 3 Connector/Cable		U1.1-P1-X1/Q4			
R1 Memory Card Quad A, Front	M01	U1.1-P1-M1	00-00	System Backplane	
R1 Memory Card Quad A, Front	M02	U1.1-P1-M2	00-00	System Backplane	
R1 Memory Card Quad A, Front	M03	U1.1-P1-M3	00-00	System Backplane	
R1 Memory Card Quad B, Front	M08	U1.1-P1-M4	00-00	System Backplane	
R1 Memory Card Quad B, Front	M09	U1.1-P1-M5	00-00	System Backplane	
R1 Memory Card Quad B, Front	M10	U1.1-P1-M6	00-00	System Backplane	
Clock/Processor Regulator 23 Rear	M19	U1.1-P1-X2	00-00	System Backplane	

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
Processor Card 0 Type 1, Front	M05	U1.1-P1-C1		System Backplane	
Processor Card 0 All Cache		U1.1-P1-C1	00-00	On Processor Card 0	
Processor Card 0 Processor 0		U1.1-P1-C1	00-00	On Processor Card 0	
Processor Card 0 Processor 1		U1.1-P1-C1	00-01	On Processor Card 0	
Processor Card 0 Processor 2		U1.1-P1-C1	00-02	On Processor Card 0	
Processor Card 0 Processor 3		U1.1-P1-C1	00-03	On Processor Card 0	
Processor Card 0 Processor 4		U1.1-P1-C1	00-04	On Processor Card 0	
Processor Card 0 Processor 5		U1.1-P1-C1	00-05	On Processor Card 0	
Processor Card 1 Type 2, Rear	M18	U1.1-P1-C2		System Backplane	
Processor Card 1 All Cache		U1.1-P1-C2	00-00	On Processor Card 1	
Processor Card 1 Processor 6		U1.1-P1-C2	00-06	On Processor Card 1	
Processor Card 1 Processor 7		U1.1-P1-C2	00-07	On Processor Card 1	
Processor Card 1 Processor 8		U1.1-P1-C2	00-08	On Processor Card 1	
Processor Card 1 Processor 9		U1.1-P1-C2	00-09	On Processor Card 1	
Processor Card 1 Processor 10		U1.1-P1-C2	00-10	On Processor Card 1	
Processor Card 1 Processor 11		U1.1-P1-C2	00-11	On Processor Card 1	
R1 Memory Card Quad B, Rear	M11	U1.1-P1-M7	00-00	System Backplane	
R1 Memory Card Quad C, Rear	M12	U1.1-P1-M8	00-00	System Backplane	
R1 Memory Card Quad C, Rear	M13	U1.1-P1-M9	00-00	System Backplane	
R1 Memory Card Quad C, Rear	M14	U1.1-P1-M10	00-00	System Backplane	
R1 Memory Card Quad C, Rear	M15	U1.1-P1-M11	00-00	System Backplane	

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
R1 Memory Card Quad D, Rear	M20	U1.1-P1-M12	00-00	System Backplane	
R1 Memory Card Quad D, Rear	M21	U1.1-P1-M13	00-00	System Backplane	
R1 Memory Card Quad D, Rear	M22	U1.1-P1-M14	00-00	System Backplane	
R1 Memory Card Quad D, Rear	M23	U1.1-P1-M15	00-00	System Backplane	
R1 Memory Card Quad A, Rear	M24	U1.1-P1-M16	00-00	System Backplane	
Processor Card 2 Type 2, Front	M06	U1.1-P1-C3		System Backplane	
Processor Card 2 All Cache		U1.1-P1-C3	00-00	On Processor Card 2	
Processor Card 2 Processor 12		U1.1-P1-C3	00-12	On Processor Card 2	
Processor Card 2 Processor 13		U1.1-P1-C3	00-13	On Processor Card 2	
Processor Card 2 Processor 14		U1.1-P1-C3	00-14	On Processor Card 2	
Processor Card 2 Processor 15		U1.1-P1-C3	00-15	On Processor Card 2	
Processor Card 2 Processor 16		U1.1-P1-C3	00-16	On Processor Card 2	
Processor Card 2 Processor 17		U1.1-P1-C3	00-17	On Processor Card 2	
Processor Card 3 Type 2, Rear	M16	U1.1-P1-C4		System Backplane	
Processor Card 3 All Cache		U1.1-P1-C4	00-00	On Processor Card 3	
Processor Card 3 Processor 18		U1.1-P1-C4	00-18	On Processor Card 3	
Processor Card 3 Processor 19		U1.1-P1-C4	00-19	On Processor Card 3	
Processor Card 3 Processor 20		U1.1-P1-C4	00-20	On Processor Card 3	
Processor Card 3 Processor 21		U1.1-P1-C4	00-21	On Processor Card 3	
Processor Card 3 Processor 22		U1.1-P1-C4	00-22	On Processor Card 3	
Processor Card 3 Processor 23		U1.1-P1-C4	00-23	On Processor Card 3	
Power Backplane		U1.1-P2			

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
Regulator Card Front	R01	U1.1-P2-V1		Power Backplane	
Regulator Card Front	R02	U1.1-P2-V2		Power Backplane	
Regulator Card Front	R03	U1.1-P2-V3		Power Backplane	
Regulator Card Front	R04	U1.1-P2-V4		Power Backplane	
Regulator Card Front	R05	U1.1-P2-V5		Power Backplane	
Regulator Card Front	R06	U1.1-P2-V6		Power Backplane	
Regulator Card Front	R07	U1.1-P2-V7		Power Backplane	
Regulator Card Front	R08	U1.1-P2-V8		Power Backplane	
Regulator Card Front	R09	U1.1-P2-V9		Power Backplane	
Regulator Card Front	R10	U1.1-P2-V10		Power Backplane	
SPCN Card Rear	R21	U1.1-P2-X1		Power Backplane	
Blower 1 Sense 1		U1.1-P2-X1/F1		On SPCN Card	
Blower 2 Sense 2		U1.1-P2-X1/F2		On SPCN Card	
Blower 3 Sense 3		U1.1-P2-X1/F3		On SPCN Card	
Blower 4 Sense 4		U1.1-P2-X1/F4		On SPCN Card	
Blower 1 Front	B01	U1.2-F1		Power Harness, J18	
Blower 2 Front	B02	U1.2-F2		Power Harness, J19	
Blower 3 Rear	B03	U1.2-F3		Power Harness, J20	
Blower 4 Rear	B04	U1.2-F4		Power Harness, J21	
Bulk Power Supply 1 Front	P01	U1.2-V1		Power Harness, P01	
Bulk Power Supply 2 Front	P02	U1.2-V2		Power Harness, P02	
Bulk Power Supply 3 Front	P03	U1.2-V3		Power Harness, P03	
Bulk Power Supply 4 Front	P04	U1.2-V4		Power Harness, P04	

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
Bulk Power Supply 5 Front	P05	U1.2-V5		Power Harness, P05	
ac Power Rear and 5 v standby ac Box	A01	U1.2-V7		Power Harness, P1, P7, P8, P9	

I/O Drawer 0 Locations

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
I/O drawer 0 (of 0 to 3)		U0.1			
I/O Planar		U0.1-P1			
RIO Controller 0		U0.1-P1	00-00		
PCI Controller 1		U0.1-P1	00-f850-0000		
PCI slot 1		U0.1-P1-I1	20-58 or 20-58 to 20-5F or 2B-XX	I/O Planar J13, 64 bit slot	PCI Controller 1
PCI slot 2		U0.1-P1-I2	20-60 or 20-60 to 20-67 or 2C-XX	I/O Planar J4, 32 bit slot	PCI Controller 1
PCI slot 3		U0.1-P1-I3	20-68 or 20-68 to 20-6F or 2D-XX	I/O Planar J5, 32 bit slot	PCI Controller 1
PCI slot 4		U0.1-P1-I4	20-70 or 20-70 to 20-77 or 2E-XX	I/O Planar J6, 32 bit slot	PCI Controller 1
PCI Controller 0		U0.1-P1	00-f840-0000		
PCI slot 5		U0.1-P1-I5	10-58 or 10-58 to 10-5F or 1B-XX	I/O Planar J14, 64 bit slot	PCI Controller 0
PCI slot 6		U0.1-P1-I6	10-60 or 10-60 to 10-67 or 1C-XX	I/O Planar J7, 32 bit slot	PCI Controller 0
PCI slot 7		U0.1-P1-I7	10-68 or 10-68 to 10-6F or 1D-XX	I/O Planar J8, 32 bit slot	PCI Controller 0
PCI slot 8 Service Processor		U0.1-P1-X1	10-70 or 10-70 to 10-77 or 1E-XX (not used by AIX)	I/O Planar J9, 32 bit slot	PCI Controller 0
TOD		U0.1-P1-X1	Not used by AIX	On Service Processor	
BOOT		U0.1-P1-X1	Not used by AIX	On Service Processor	

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
JTAG		U0.1-P1-X1	Not used by AIX	On Service Processor	
VDISK		U0.1-P1-X1	Not used by AIX	On Service Processor	
NVRAM		U0.1-P1-X1	Not used by AIX	On Service Processor	
PCI slot 8, Service Processor ISA Bridge		U0.1-P1-X1	10-78 or 10-78 to 10-7f or 1F-XX (not used by AIX)	I/O Planar J9, 32 bit slot	PCI Controller 0
PCI slot 8 Real Time Clock (RTC)		U0.1-P1-X1	Not used by AIX	On Service Processor	I/O ASIC SIO
PCI slot 8 Timer		U0.1-P1-X1	Not used by AIX	On Service Processor	I/O ASIC SIO
Interrupt Controller		U0.1-P1-X1	Not used by AIX	On Service Processor	I/O ASIC
DMA Controller		U0.1-P1-X1	Not used by AIX	On Service Processor	I/O ASIC
Diskette Controller and Connector		U0.1-P1-X1/D1	01-D1	On Service Processor	
Diskette Drive		U0.1-P1-X1-D1	01-D1-00-00	On Service Processor	
Keyboard Mouse Controller and Connector		U0.1-P1-X1/K1	01-K1	On Service Processor	
Keyboard		U0.1-P1-X1-K1	01-K1-00-00	On Service Processor	
Mouse Controller and Connector		U0.1-P1-X1/O1	01-K1-01	On Service Processor	
Mouse		U0.1-P1-X1-O1	01-K1-01-00	On Service Processor	
Parallel Port		U0.1-P1-X1/R1	01-R1	On Service Processor	
Serial Port 1		U0.1-P1-X1/S1	01-S1	On Service Processor	
Serial Port 2		U0.1-P1-X1/S2	01-S2	On Service Processor	
system rack Operator Panel Cable				Service Processor J17	
PCI Controller 3		U0.1-P1	00-f870-0000		

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
PCI Slot 9		U0.1-P1-I9	40-58 or 40-58 to 40-5F or 4B-XX	I/O Planar J15, 64 Bit slot	PCI Controller 3
PCI Slot 10		U0.1-P1-I10	40-60 or 40-60 to 40-67 or 4C-XX	I/O Planar J16, 64 Bit slot	PCI Controller 3
PCI Controller 2		U0.1-P1	00-f860-0000		
PCI Slot 11		U0.1-P1-I11	30-58 or 30-58 to 30-5F or 3B-XX	I/O Planar J10, 32 Bit slot	PCI Controller 2
PCI Slot 12		U0.1-P1-I12	30-60 or 30-60 to 30-67 or 3C-XX	I/O Planar J11, 32 Bit slot	PCI Controller 2
PCI Slot 13		U0.1-P1-I13	30-68 or 30-68 to 30-6f or 3D-XX	I/O Planar J12, 32 Bit slot	PCI Controller 2
PCI Slot 14		U0.1-P1-I14	30-70 or 30-70 to 30-77 or 3E-XX	I/O Planar J17, 64 Bit slot	PCI Controller 2
Local ASIC Control Chip		U0.1-P1	30-78		
Local ASIC Control Chip		U0.1-P1	30-79		
Thermal Sensor		U0.1-P1		On I/O Planar	
RIO 0 Connector		U0.1-P1/Q1		I/O drawer planar, J1	system rack
RIO 1 Connector		U0.1-P1/Q2		I/O drawer planar J2	system rack
Speaker		U0.1-P1-X1-Q1		I/O planar J27	
Left power supply (10 EIA-unit I/O drawer when viewed from rear)		U0.1-V1		PDB J1	
Right power supply (10 EIA-unit I/O drawer when viewed from rear)		U0.1-V2		PDB J2	

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
I/O drawer indicator panel card (10 EIA-unit I/O drawer)		U0.1-L1		I/O planar, J19 (10 EIA-unit I/O drawer)	Cable to I/O planar
Fan Monitoring Card		U0.1-X2			Cable to PDB card
DASD Fan Assembly (two-fan assembly on left power supply when viewed from rear) (10 EIA-unit I/O drawer)		U0.1-F1 U0.1-F2		Fan Monitoring Card J5	Fan Monitoring Card
DASD Fan Assembly (two-fan assembly on right power supply when viewed from rear) (10 EIA-unit I/O drawer)		U0.1-F3 U0.1-F4		Fan Monitoring Card J5	Fan Monitoring Card
I/O drawer left blower (10 EIA-unit I/O drawer)		U0.1-F5		Fan Monitoring Card J2	Fan Monitoring Card
I/O drawer right blower (10 EIA-unit I/O drawer)		U0.1-F6		Fan Monitoring Card J4	Fan Monitoring Card
I/O drawer center blower (10 EIA-unit I/O drawer)		U0.1-F7		Fan Monitoring Card J3	Fan Monitoring Card
Interface (Bulkhead) Card		U0.1-P1-Q3		I/O Planar J3	
Power Distribution Board (10 EIA-unit I/O drawer)		U0.1-X3			J22 to I/O Planar

I/O Drawer 1 Locations

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
I/O drawer 1 (of 0 to 3)		U0.2			
I/O Planar		U0.2-P1			
RIO Controller 1		U0.2-P1	00-00		
PCI Controller 5		U0.2-P1	00-f8D0-0000		
PCI slot 1		U0.2-P1-I1	60-58 or 60-58 to 60-5F or 6B-XX	I/O Planar J13, 64 bit slot	PCI Controller 5
PCI slot 2		U0.2-P1-I2	60-60 or 60-60 to 60-67 or 6C-XX	I/O Planar J4, 32 bit slot	PCI Controller 5
PCI slot 3		U0.2-P1-I3	60-68 or 60-68 to 60-6F or 6D-XX	I/O Planar J5, 32 bit slot	PCI Controller 5
PCI slot 4		U0.2-P1-I4	60-70 or 60-70 to 60-7f or 6E-XX	I/O Planar J6, 32 bit slot	PCI Controller 5
PCI Controller 4		U0.2-P1	00-f8C0-0000		
PCI slot 5		U0.2-P1-I5	50-58 or 50-58 to 50-5F or 5B-XX	I/O Planar J14, 64 bit slot	PCI Controller 4
PCI slot 6		U0.2-P1-I6	50-60 or 50-60 to 50-67 or 5C-XX	I/O Planar J7, 32 bit slot	PCI Controller 4
PCI slot 7		U0.2-P1-I7	50-68 or 50-68 to 50-6f or 5D-XX	I/O Planar J8, 32 bit slot	PCI Controller 4
PCI slot 8		U0.2-P1-I8	50-70 or 50-70 to 50-77 or 5E-XX	I/O Planar J9, 32 bit slot	PCI Controller 4
PCI Controller 7		U0.2-P1	00-f8f0-0000		
PCI Slot 9		U0.2-P1-I9	80-58 or 80-58 to 80-5F or 8B-XX	I/O Planar J15, 64 Bit slot	PCI Controller 7

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
PCI Slot 10		U0.2-P1-I10	80-60 or 80-60 to 80-67 or 8C-XX	I/O Planar J16, 64 Bit slot	PCI Controller 7
PCI Controller 6		U0.2-P1	00-f8e0-0000		
PCI Slot 11		U0.2-P1-I11	70-58 or 70-58 to 70-5F or 7B-XX	I/O Planar J10, 32 Bit slot	PCI Controller 6
PCI Slot 12		U0.2-P1-I12	70-60 or 70-60 to 70-77 or 7C-XX	I/O Planar J11, 32 Bit slot	PCI Controller 6
PCI Slot 13		U0.2-P1-I13	70-68 or 70-68 to 70-6f or 7D-XX	I/O Planar J12, 32 Bit slot	PCI Controller 6
PCI Slot 14		U0.2-P1-I14	70-70 or 70-70 to 70-77 or 7E-XX	I/O Planar J17, 64 Bit slot	PCI Controller 6
Local ASIC control chip		U0.2-P1	70-78		
Local ASIC control chip		U0.2-P1	70-79		
Thermal Sensor		U0.2-P1		On I/O Planar	
RIO 0 Connector		U0.2-P1/Q1		I/O Planar J1	
RIO 1 Connector		U0.2-P1/Q2		I/O Planar J2	
Left Power Supply (10 EIA-Unit I/O Drawer when viewed from rear)		U0.2-V1		PDB J1	
Right Power Supply (10 EIA-Unit I/O Drawer when viewed from rear)		U0.2-V2		PDB J2	
I/O Drawer Indicator Panel Card (10 EIA-Unit I/O Drawer)		U0.2-L1		I/O drawer Plana, J19	Cable to I/O Planar
Fan Monitoring Card		U0.2-X2			Cable to PDB card

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
DASD Fan Assembly (two-fan assembly on left power supply when viewed from rear) (10 EIA-Unit I/O Drawer)		U0.2-F1 U0.2-F2		Fan Monitoring Card J5	Fan Monitoring Card
DASD Fan Assembly (two-fan assembly on right power supply when viewed from rear) (10 EIA-Unit I/O Drawer)		U0.2-F3 U0.2-F4		Fan Monitoring Card J5	Fan Monitoring Card
I/O Drawer Left Blower (10 EIA-Unit I/O Drawer)		U0.2-F5		Fan Monitoring Card J2	Fan Monitoring Card
I/O Drawer Right Blower (10 EIA-Unit I/O Drawer)		U0.2-F6		Fan Monitoring Card J4	Fan Monitoring Card
I/O Drawer Center Blower (10 EIA-Unit I/O Drawer)		U0.2-F7		Fan Monitoring Card J3	Fan Monitoring Card
Interface (Bulkhead) Card		U0.2-P1-Q3		I/O Planar J3	
Power Distribution Board (10 EIA-Unit I/O Drawer)		U0.2-X3			J22 to I/O Planar

I/O Drawer 2 Locations

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
I/O drawer 2 (of 0 to 3)		U0.3			
I/O Planar		U0.3-P1			
RIO Controller 2		U0.3-P1	00-00		
PCI Controller 9		U0.3-P1	00-f950-0000		
PCI slot 1		U0.3-P1-I1	A0-58 or A0-58 to A0-5F or AB-XX	I/O Planar J13, 64 bit slot	PCI Controller 9
PCI slot 2		U0.3-P1-I2	A0-60 or A0-60 to A0-67 or ac-XX	I/O Planar J4, 32 bit slot	PCI Controller 9
PCI slot 3		U0.3-P1-I3	A0-68 or A0-68 to A0-6f or AD-XX	I/O Planar J5, 32 bit slot	PCI Controller 9
PCI slot 4		U0.3-P1-I4	A0-70 or A0-70 to A0-77 or AE-XX	I/O Planar J6, 32 bit slot	PCI Controller 9
PCI Controller 8		U0.3-P1	00-f940-0000		
PCI slot 5		U0.3-P1-I5	90-58 or 90-58 to 90-5F or 9B-XX	I/O Planar J14, 64 bit slot	PCI Controller 8
PCI slot 6		U0.3-P1-I6	90-60 or 90-60 to 90-67 or 9C-XX	I/O Planar J7, 32 bit slot	PCI Controller 8
PCI slot 7		U0.3-P1-I7	90-68 or 90-68 to 90-6f or 9D-XX	I/O Planar J8, 32 bit slot	PCI Controller 8
PCI slot 8		U0.3-P1-I8	90-70 or 90-70 to 90-77 or 9E-XX	I/O Planar J9, 32 bit slot	PCI Controller 8
PCI Controller 11		U0.3-P1	00-f970-0000		
PCI Slot 9		U0.3-P1-I9	C0-58 or C0-58 to C0-5F or CB-XX	I/O Planar J15, 64 Bit slot	PCI Controller 9

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
PCI Slot 10		U0.3-P1-I10	C0-60 or C0-60 to C0-67 or CC-XX	I/O Planar J16, 64 Bit slot	PCI Controller 9
PCI Controller 10		U0.3-P1	00-f960-0000		
PCI Slot 11		U0.3-P1-I11	B0-58 or B0-58 to B0-5F or BB-XX	I/O Planar J10, 32 Bit slot	PCI Controller 10
PCI Slot 12		U0.3-P1-I12	B0-60 or B0-60 to B0-67 or BC-XX	I/O Planar J11, 32 Bit slot	PCI Controller 10
PCI Slot 13		U0.3-P1-I13	B0-68 or B0-68 to B0-6f or BD-XX	I/O Planar J12, 32 Bit slot	PCI Controller 10
PCI Slot 14		U0.3-P1-I14	B0-70 or B0-70 to B0-77 or BE-XX	I/O Planar J17, 64 Bit slot	PCI Controller 10
Local ASIC Control Chip		U0.3-P1	B0-78		
Local ASIC Control Chip		U0.3-P1	B0-79		
Thermal Sensor		U0.3-P1		On I/O Planar	
RIO 0 Connector		U0.3-P1/Q1		I/O Planar J1	
RIO 1 Connector		U0.3-P1/Q2		I/O Planar J2	
Left Power Supply (10 EIA-Unit I/O Drawer when viewed from rear)		U0.3-V1		PDB J1	
Right Power Supply (10 EIA-Unit I/O Drawer when viewed from rear)		U0.3-V2		PDB J2	
I/O Drawer Indicator Panel Card (10 EIA-Unit I/O Drawer)		U0.3-L1		I/O Drawer Planar, J19	Cable to I/O Planar
Fan Monitoring Card		U0.3-X2			Cable to PDB card

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
DASD Fan Assembly (two-fan assembly on left power supply when viewed from rear) (10 EIA-Unit I/O Drawer)		U0.3-F1 U0.3-F2		Fan Monitoring Card J5	Fan Monitoring Card
DASD Fan Assembly (two-fan assembly on right power supply when viewed from rear) (10 EIA-Unit I/O Drawer)		U0.3-F3 U0.3-F4		Fan Monitoring Card J5	Fan Monitoring Card
I/O Drawer Left Blower (10 EIA-Unit I/O Drawer)		U0.3-F5		Fan Monitoring Card J2	Fan Monitoring Card
I/O Drawer Right Blower (10 EIA-Unit I/O Drawer)		U0.3-F6		Fan Monitoring Card J4	Fan Monitoring Card
I/O Center Blower (10 EIA-Unit I/O Drawer)		U0.3-F7		Fan Monitoring Card J3	Fan Monitoring Card
Interface (Bulkhead) Card		U0.3-P1-Q3		I/O Planar J3	
Power Distribution Board (10 EIA-Unit I/O Drawer)		U0.3-X3			J22 to I/O Planar

I/O Drawer 3 Locations

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
I/O drawer 3 (of 0 to 3)		U0.4			
I/O Planar		U0.4-P1			
RIO Controller 3		U0.4-P1	00-00		
PCI Controller 13		U0.4-P1	00-f9D0-0000		
PCI slot 1		U0.4-P1-I1	E0-58 or E0-58 to E0-5F or EB-XX	I/O Planar J13, 64 bit slot	PCI Controller 13
PCI slot 2		U0.4-P1-I2	E0-60 or E0-60 to E0-67 or EC-XX	I/O Planar J4, 32 bit slot	PCI Controller 13
PCI slot 3		U0.4-P1-I3	E0-68 or E0-68 to E0-6f or ED-XX	I/O Planar J5, 32 bit slot	PCI Controller 13
PCI slot 4		U0.4-P1-I4	E0-70 or E0-70 to E0-77 or EE-XX	I/O Planar J6, 32 bit slot	PCI Controller 13
PCI Controller 12		U0.4-P1	00-f9c0-0000		
PCI slot 5		U0.4-P1-I5	D0-58 or D0-58 to D0-5F or DB-XX	I/O Planar J14, 64 bit slot	PCI Controller 12
PCI slot 6		U0.4-P1-I6	D0-60 or D0-60 to D0-67 or DC-XX	I/O Planar J7, 32 bit	PCI Controller 12
PCI slot 7		U0.4-P1-I7	D0-68 or D0-68 to D0-6f or DD-XX	I/O Planar J8, 32 bit	PCI Controller 12
PCI slot 8		U0.4-P1-I8	D0-70 or D0-70 to D0-77 or DE-XX	I/O Planar J9, 32 bit	PCI Controller 12
PCI Controller 15		U0.4-P1	00-f9f0-0000		
PCI Slot 9		U0.4-P1-I9	G0-58 or G0-58 to G0-5F or GB-XX	I/O Planar J15, 64 Bit	PCI Controller 15

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
PCI Slot 10		U0.4-P1-I10	G0-60 or G0-60 to G0-67 or GC-XX	I/O Planar J16, 64 Bit	PCI Controller 15
PCI Controller 14		U0.4-P1	00-f9E0-0000		
PCI Slot 11		U0.4-P1-I11	F0-58 or F0-58 to F0-5F or FB-XX	I/O Planar J10, 32 Bit	PCI Controller 14
PCI Slot 12		U0.4-P1-I12	F0-60 or F0-60 to F0-67 or FC-XX	I/O Planar J11, 32 Bit	PCI Controller 14
PCI Slot 13		U0.4-P1-I13	F0-68 or F0-68 to F0-6f or FD-XX	I/O Planar J12, 32 Bit	PCI Controller 14
PCI Slot 14		U0.4-P1-I14	F0-70 or F0-70 to F0-77 or FE-XX	I/O Planar J17, 64 Bit	PCI Controller 14
Local ASIC control chip		U0.4-P1	F0-78		PCI Controller 14
Local ASIC control chip		U0.4-P1	F0-79		PCI Controller 14
Thermal Sensor		U0.4-P1		On I/O Planar	
RIO 0 Connector		U0.4-P1/Q1		I/O Planar J1	
RIO 1 Connector		U0.4-P1/Q2		I/O Planar J2	
Left Power Supply (10 EIA-Unit I/O Drawer when viewed from rear)		U0.4-V1		PDB J1	
Right Power Supply (10 EIA-Unit I/O Drawer when viewed from rear)		U0.4-V2		PDB J2	
I/O Drawer Indicator Panel Card (10 EIA-Unit I/O Drawer)		U0.4-L1		I/O drawer Plana, J19	Cable to I/O Planar
Fan Monitoring Card		U0.4-X2			Cable to PDB card

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
DASD Fan Assembly (two-fan assembly on left power supply when viewed from rear) (10 EIA-Unit I/O Drawer)		U0.4-F1 U0.4-F2		Fan Monitoring Card J5	Fan Monitoring Card
DASD Fan Assembly (two-fan assembly on right power supply when viewed from rear) (10 EIA-Unit I/O Drawer)		U0.4-F3 U0.4-F4		Fan Monitoring Card J5	Fan Monitoring Card
I/O Drawer Left Blower (10 EIA-Unit I/O Drawer)		U0.4-F5		Fan Monitoring Card J2	Fan Monitoring Card
I/O Drawer Right Blower (10 EIA-Unit I/O Drawer)		U0.4-F6		Fan Monitoring Card J4	Fan Monitoring Card
I/O Drawer Center Blower (10 EIA-Unit I/O Drawer)		U0.4-F7		Fan Monitoring Card J3	Fan Monitoring Card
Interface (Bulkhead) Card		U0.4-P1-Q3		I/O Planar J3	
Power Distribution Board (10 EIA-Unit I/O Drawer)		U0.4-X3			J22 to I/O Planar

SCSI Device Locations

FRU Name	Slot Name	Location Code	AIX Location Code	Physical Connection	Logical Connection
SCSI Adapter x=drawer number y=PCI slot number z=connector		U0.x-P1-ly/Zz	AB-CD Where AB-CD identifies the adapter's slot		Bus ID 15
Media Device (Bay A1 or A2) When connected to PCI adapter in slot U0.x-P1-ly x=drawer number y=PCI slot number z=connector		U0.x-P1-ly-Zz-Ai	AB-CD-00-15, 0 Where AB-CD identifies the adapter's slot		Bus ID 15
SCSI Backplane, Bank C or D When connected to PCI adapter in slot U0.x-P1-ly x=drawer number y=PCI slot number z=connector		U0.x-P1-ly-Zz-Bb	AB-CD-00-15, 0 Where AB-CD identifies the adapter's slot		Bus ID 15
DASD in Bays 1 through 6 When connected to PCI adapter in slot U0.x-P1-ly x=drawer number y=PCI slot number z=connector		U0.x-P1-ly-Zz-Bb.1 through Bb.6 or U0.x-P1-ly-Zz-A8 through A13	AB-CD-00-G, 0 Where AB-CD identifies the adapter's slot and G identifies the SCSI Bus ID 8 through 13		Bus ID 8 through 13

Specifications

This section contains specifications for the models S80 and S85 system. The system rack, I/O rack, and the I/O drawers each have separate sections.

Models S80 and S85 System Rack

The mechanical packaging, cooling, power supply, and environmental requirements for the system rack are shown in the following table:

Dimensions			
Height	1577 mm	62.0 in.	
Width	567 mm	22.3 in.	
Depth	1041 mm	40.9 in.	
Weight			
Minimum (Configuration dependent)	400 kg	880 lbs.	
Electrical			
Power source loading (maximum in kVA)	2.129KVA		
Voltage range (V ac)	200 to 240		
Frequency (hertz)	50 - 60		
Thermal output (maximum)	6904 BTU/hr		
Power requirements (maximum)	2023 watts		
Power factor	0.92 to 0.98		
Inrush current ³	43 amps		
Maximum altitude	2135 m (7000 ft.)		
Temperature Range ^{4,5,6}	Operating	Non-Operating	
	10 to 37.8°C (50 to 100°F)	1 to 60°C (34 to 140°F)	
Humidity (Noncondensing) Wet Bulb Requirements ⁵	Operating	Non-Operating	
	8 to 80% 23°C (73°F)	8 to 80% 23°C (73°F)	
Noise Emissions ^{1,2}	Operating	Idle	
	L _{WA} d	7.0 bels	7.0 bels
	L _{pAm}	N/A	N/A
	<L _{pA} > _m	N/A	N/A
	Impulsive or prominent discrete tones	No	No
Clearances Install/Air Flow Service	Maintenance of a proper service clearance should allow proper air flow. See "System Service Clearances" on page 70.		

1. See "Noise Emission Notes" on page 71 for definitions of noise emission positions.
2. Noise emissions data for models S80 and S85 system is based on a system with the doors closed.
3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.
4. The upper limit of the dry bulb temperature must be derated 1 degree C per 137M (450 ft.) above 1295M (4250 ft.)
5. The upper limit of the wet bulb temperature must be derated 1 degree C per 274M (882 ft.) elevation above 1370M (4500 ft.)
6. The use of the PCI SSA Multi-Initiator/RAID EL in the models S80 and S85 10 EIA I/O Drawer limits the system usage to a 28°C (82°F) environment maximum.

Models S80 and S85 I/O Rack

Dimensions		
Height	1577 mm	62.0 in.
Width	650 mm	25.5 in.
Depth	1019 mm	40.1 in.
Weight¹ (Base Rack)	159 kg	349 lbs.
Electrical	(see specifications for drawers or enclosures)	
Temperature Range	(see specifications for drawers or enclosures)	
Humidity Requirements	(see specifications for drawers or enclosures)	
Noise Emissions	(see specifications for drawers or enclosures)	
Clearances	Maintenance of a proper service clearance should allow proper air flow.	
Install/Air Flow	See "System Service Clearances" on page 70.	
Service		
1. Configuration dependent, base weight plus weight of drawers.		

10 EIA-Unit I/O Drawer Specifications

Table 1. 10 EIA-Unit I/O Drawer Specifications

Dimensions		
Height	440.0 mm	17.3 in.
Width	443.2 mm	17.5 in.
Depth	843.2 mm	33.2 in.
Weight		
Minimum Configuration	89 kg	195 lbs.
Maximum Configuration	93 kg	205 lbs.
Electrical		
Power source loading typical in kVA	ac 0.4	
Power source loading maximum in kVA	1.0	
Voltage range (V ac)	200 to 240 (autoranging)	
Frequency (hertz)	50 / 60	
Thermal output (typical)	1228 BTU/hr	
Thermal output (maximum)	3071 BTU/hr	
Power requirements (typical)	360 watts	
Power requirements (maximum)	900 watts	
Power factor	0.9	
Inrush current ³	170 amps	
Maximum altitude	2135m (7000 ft.)	
Temperature Range		
	Operating 10 to 40°C (50 to 104°F)	Non-Operating 10 to 52°C 50 to 125.6°F
Humidity (Noncondensing)		
Without tape drive	8 to 80%	8% to 80%
With tape drive	20 to 80%	20 to 80%
Wet Bulb		
Without tape drive	27°C (80°F)	27°C (80°F)
With tape drive	23°C (73°F)	27°C (80°F)
Noise Emissions^{1,2}		
$L_{WA,d}$	Operating 5.9 bels	Idle 5.3 bels
$L_{pA,m}$	N/A	N/A
$\langle L_{pA} \rangle_m$	N/A	N/A
Impulsive or prominent discrete tones	No	No
Clearances		
Install/Air Flow	Maintenance of a proper service clearance should allow proper air flow.	
Service	See "System Service Clearances" on page 70	
<p>1. See "Noise Emission Notes" on page 71 for definitions of noise emission positions.</p> <p>2. Noise emissions data for the I/O drawer are based on the I/O drawer mounted in a rack. See "Models S80 and S85 I/O Rack" on page 68.</p> <p>3. Inrush currents occur only at initial application of power. No inrush occurs during normal power off-on cycle.</p>		

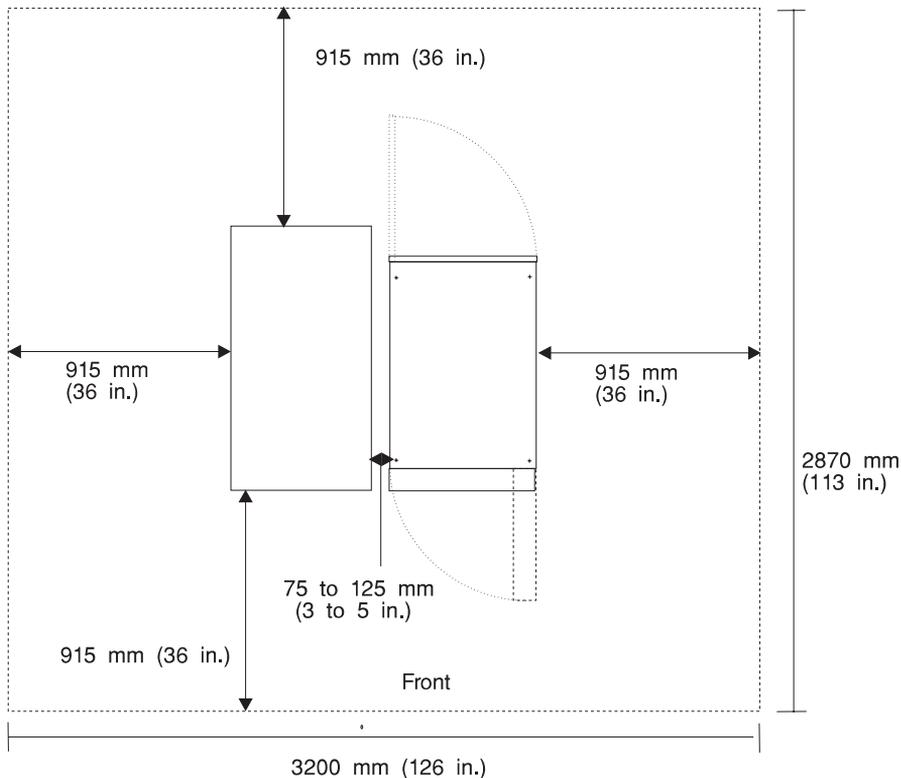
System Service Clearances

The amount of space needed by the units during service is indicated by the dotted line in the following illustration.

For multiple racks placed side by side, the left and right clearances apply only to the leftmost and rightmost rack.

Note: If you are planning to install an models S80 and S85 in an RS/6000 SP system environment, refer to *RS/6000 SP Planning Volume 1, Hardware and Physical Environment*, order number GA22-7280, for system-planning information.

Rack Configuration:



Note: Rack units are large and heavy and are not easily moved. Because maintenance activities require access at both the front and back, allow for extra room. The footprint in the preceding illustration shows the radius of the swinging doors on the I/O rack. The minimum space required is indicated on the illustration.

Noise Emission Notes

1. $L_{WA,d}$ is the declared sound power emission level for a production series of machines.
2. $L_{pA,m}$ is the mean value of the sound pressure emission levels at the operator position (if any) for a production series of machines.
3. $\langle L_{pA} \rangle_m$ is the mean value of the space-averaged sound pressure emission levels at the one-meter positions for a production series of machines.
4. N/A = Not Applicable (no operator position).
5. All measurements are made in accordance with ISO DIS 779 and reported in conformance with ISO DIS 7574/4.

External AC Power Cables

To avoid electrical shock, a power cable with a grounded attachment plug is provided. Use only properly grounded outlets.

Power cables used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA). These power cords consist of the following:

- Electrical cables, type ST
- Attachment plugs complying with National Electrical Manufacturers Association (NEMA) L6-30P
- Appliance couplers complying with International Electrotechnical Commission (IEC) Standard 320, Sheet C13 and C14

Power cables used in other countries consist of the following:

- Electrical cables, Type HD21 or HD22
- Attachment plugs approved by the appropriate testing organization for the specific countries where they are used
- Appliance couplers complying with the International Electrotechnical Commission (IEC) Standard 320, Sheet C13 and C14

Refer to "Power Cables" on page 584 for information about replacement power cables.

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 the safe operation of the equipment.
- 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 correction of any unsafe condition is the responsibility of the owner of the system.

Perform the following checks:

1. Check the covers for sharp edges and for damage or alterations that expose the internal parts of the system unit.
2. Check the covers for proper fit to the system unit. They should be in place and secure.
3. Ensure that the rack stabilizer is installed and securely attached to the rack.
4. Perform the appropriate power-off procedures.
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 unit.
9. Check the voltage label on the back of the system unit to ensure that it matches the voltage at the outlet.
10. Check the external power cable for damage.
11. With the external power cable connected to the system unit, check for 0.1 ohm or less resistance between the ground lug on the external power cable plug and the metal frame.
12. 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 and the metal frame of the device.
13. Close the doors.
14. Perform the appropriate power-on procedures.

Chapter 2. Introduction to Diagnostics

models S80 and S85 systems use an integrated set of software diagnostic procedures to facilitate system maintenance. This book, and the *Diagnostics Information for Multiple Bus Systems*, are the basis of the diagnostic procedures for models S80 and S85 servers. In particular, chapters 3, 4, 5, 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 4GB of memory or greater have access to a 4mm or 8mm tape drive for submission of system dump information if required. This function can be accomplished through locally attached or network-attached devices, as appropriate.

Maintenance Analysis Procedures (MAPs)

Maintenance Analysis Procedures (MAPs) are used to guide the trained service person through the complex multi-rack models S80 and S85 server. These MAPs are the entry point for all isolation and error recovery procedures. models S80 and S85 servers 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
- Problem Determination MAP
- Power MAP
- Minimum Configuration MAP

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

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

The Problem Determination MAP provides a structured analysis method to get an error code if one is not provided by the customer, or if diagnostics cannot be loaded.

The Power MAP deals with isolation of components and cables to diagnose a power problem. Power problems can be related to powering up and down the system (including the I/O racks), or power failures that occur after power is turned on.

The Minimum Configuration 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.

Error Codes

models S80 and S85 servers use multiple sets of error codes which are referred to throughout this book (primarily in Chapters 4, 5 and 6). These codes are a blend of traditional error codes and codes generated by newly integrated software used in models S80 and S85 servers. Understanding the definition and relationships of these codes is important to the service personnel who are installing or maintaining models S80 and S85 servers.

Codes that can display on the operator panel or in error logs are as follows:

Checkpoints	Checkpoints display on the operator panel during the initial program load (IPL) of the system. Checkpoints indicate the progress of the IPL.
Error Codes	Error codes display on the operator panel if the system firmware detects an error during IPL or during normal operation.
SRN	Service request number (SRN) is usually a 6-digit number representing a specific failure of a specific item. SRNs are displayed on the system operator panel.
SRC	System reference codes (SRC) are a sequence of codes that are used to identify status and describe a failure. Failures can result from hardware, software, or firmware. SRCs display on the system operator panel. SRCs primarily deal with items pertinent to the system rack and its associated hardware, software, and firmware.

Displaying and Using SRCs

SRCs automatically display on the system operator panel with operator panel “Function 11.” The four leftmost characters displayed describe the reference code identifier. The four rightmost characters are the unit reference code. An SRC can consist of up to 36 bytes of information. You can view other words of the SRC by using the increment or decrement functions on the operator panel.

Functions 11 and 13 through 19 are valid SRC data words. Word 19 provides the CCIN number which identifies the specific failing memory or processor card in the system rack. With this information, the service representative can identify the failing FRU and order the correct part. The SRC types can be identified by the first digit after the 11-3 in Function 11. The valid reference code identifiers for models S80 and S85 systems are listed below.

0000	Hardware-reported error. A system problem resulted from a hardware problem.
1XXX	Hardware-reported error. A system problem resulted from a hardware problem.
A1XX	Attention or action required. The system is waiting for a user action.
B006	Machine check or internal problem detected by firmware. A firmware program detected either a software or a hardware error.
B1XX	Machine check or internal problem detected by firmware. A firmware program detected either a software or a hardware error.

- B4xx** Machine check or internal problem detected by firmware. A firmware program detected either a software or a hardware error.
- C1XX** IPL status. Status SRCs indicate the progression of the IPL.
- C3XX** IPL status. Status SRCs indicate the progression of the IPL.
- D1XX** General system status. Status SRCs indicate the status of system functions when the console is not available.

IPL Checkpoints and Error Codes

models S80 and S85 servers provide checkpoints and error codes to display during system initial program load (IPL). These checkpoints and error codes are unique to particular instances and to hardware, software, and firmware components of the system. The sets of checkpoints and error codes are listed below:

- Three-digit SRN of the form 101-xxx
- Eight-digit checkpoint in SRC format of the form C1XX-xxxx
- Eight-digit checkpoint in SRC format of the form C3XX-xxxx
- Four-digit checkpoints of the form E0XX
- Four-digit checkpoints of the form E1XX
- Four-digit checkpoints of the form E4XX
- Four-digit checkpoints of the form E5XX

Checkpoints can become error codes if the system fails to advance past the point at which the code is presented. SRNs are listed in *Diagnostic Information for Multiple Bus Systems*. “Chapter 4. Checkpoints” on page 135 in this book contains a list of the checkpoints. Each entry provides a description of the event and the recommended action if the system fails to advance.

FRU Isolation

For a list of error codes and recommended actions for each code, see “Chapter 5. Error Code to FRU Index” on page 157. These actions can refer to “Chapter 10. Models S80 and S85 Parts” on page 535, “Chapter 3. Maintenance Analysis Procedures (MAPs)” on page 79, or provide informational message and directions. If a replacement part is indicated, the part name is included. The respective AIX and physical location codes are listed per each occurrence as required. Locations codes are listed under “AIX and Physical Location Code Reference Tables” on page 48.

To determine part numbers and view component diagrams, see “Chapter 10. Models S80 and S85 Parts” on page 535. 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 make up models S80 and S85 systems. System rack components are listed first, then I/O rack, and then accessories.

Electronic Service Agent

Service support for the models S80 and S85 can be enhanced through the use of the application program, Electronic Service Agent. This application provides a number of advantages for the models S80 and S85 customer including automatic error reporting and analysis without customer intervention. The Electronic Service Agent kit is shipped with the models S80 and S85 server and includes the following:

- Electronic Service Agent program on diskette
- Appropriate modem for remote communication
- Applicable cables
- *Electronic Service Agent User's Guide*, for Electronic Service Agent.

See the *Electronic Service Agent User's Guide*, for more details on Electronic Service Agent.

Using the Service Processor and Electronic Service Agent

The service processor and electronic service agent features protect users against unnecessary system downtime by keeping support personnel (both internal and external) aware of any unexpected changes in the system environment. In combination, the two features provide a flexible solution to automated system maintenance.

Service Processor

The service processor runs on its own power boundary and continually monitors hardware attributes, the AIX operating system, and the environmental conditions within the system. Any system failure that prevents the system from returning to an operational state (a fully functional AIX operating system) is reported by the service processor. The service processor is controlled by firmware and does not require the AIX operating system to be operational to perform its tasks. If any system failures are detected, the service processor can take predetermined corrective actions. The methods of corrective actions are as follows:

- Surveillance
- Call Home
- AIX operating system monitoring

Surveillance is a function in which the service processor monitors the system through heartbeat communication with the system firmware. The *heartbeat* is a periodic signal that the firmware can monitor. During system startup, the firmware surveillance monitor is automatically enabled to check for heartbeats from the firmware. If a heartbeat is not detected within a default period, the service processor cycles the system power and attempts to restart until the system either restarts successfully, or a predetermined retry threshold is reached. In the event the service processor is unsuccessful in bringing the system online (or in the event that the user asked to be alerted to any service processor-assisted restarts), the system can call home to report the error.

The call home function can be initialized to call either a service center telephone number, a customer administration center, or a digital pager telephone number. The service processor can be configured to stop at the first successful call to any of the numbers listed, or can be configured to call every number provided. If connected to the

service center, the service processor transmits the relevant system information (the system's serial number and model type) and service request number (SRN). If connected to a digital pager service, the service processor inputs a customer voice telephone number defined by the customer. An established sequence of digits or the telephone number to a phone near the failed system could be used to signal a system administrator to a potential system failure.

During normal operations, the service processor can also be configured to monitor the AIX operating system. If AIX does not respond to the service processor heartbeat, the service processor assumes the operating system is hung. The service processor can automatically initiate a restart and, if enabled, initiate the call home function to alert the appropriate people to the system hang. Enabling operating system surveillance also affords AIX the means to detect any service processor failures and report those failures to the electronic service agent application.

Unlike the electronic service agent, the service processor cannot be configured in a client/server environment where one system can be used to manage all dial-out functionality for a set of systems.

Prior to installing the service processor feature, ensure that you have the latest levels of service processor microcode and system firmware. You also need a properly configured modem. For more information on configuring a modem, see "Modem Configuration Menu" on page 461.

Electronic Service Agent

The electronic service agent is a software extension to the AIX operating system that monitors the system while the AIX operating system is running. The electronic service agent monitors and analyzes all recoverable system failures, and, if needed, can automatically place a service call to a service center (without user intervention).

The service center receives the machine type/serial number, host name, SRN, and a problem description. The service center analyzes the problem report and, if warranted, dispatches a service person to the customer site. The service center also determines if any hardware components need to be ordered prior to the service person's arrival.

The electronic service agent code also gives the user the option to establish a single system as the problem-reporting server. A single system, accessible over the user network, can be used as the central server for all the other systems on the local area network (LAN) that are running the electronic service agent application. If the electronic service agent application on a remote client decides a service request needs to be placed, the client forwards the information to the electronic service agent server who dials the service center telephone number from its locally attached modem. In this scenario, the user only needs to maintain a single analog line for providing call-out capabilities for a large set of servers.

When used in a scalable parallel (SP) environment, a client/server type implementation is configured. The electronic service agent client code runs on each of the SP nodes. The server component runs on the control workstation. In the event of any system failures, the relevant information is transmitted to the control workstation through the

integrated Ethernet. After it is alerted to the system failure, the control workstation initiates actions to prepare and send the service request.

A modem is required for enabling automated problem-reporting to the IBM service center. Configuration files for several types of modems are included as part of the electronic service agent package. Refer to “Modem Configuration Menu” on page 461 for more information on configuring your modem.

Chapter 3. Maintenance Analysis Procedures (MAPs)

Entry MAP

Use the following table to determine your starting point.

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 is captured in NVRAM for your use in fixing the problem. The AIX error log and SMIT are only available when diagnostics are run from the hard drive.

Notes:

1. When an eight-digit error code is displayed on the operator panel, additional error codes can sometimes be obtained by looking at the system reference codes in functions 11 to 19. See “Appendix C. Operator Panel Function Codes” on page 595 for more information about viewing functions 11 to 19 and note any additional codes that are available. After checking for additional codes, return here and continue with this MAP.
2. Licensed programs frequently rely on network configuration, and system information stored on the VPD module on the operator panel control assembly. If the MAPs indicate that the operator panel control assembly should be replaced, see “Appendix E. System Vital Product Data” on page 613. If additional help is needed, contact technical support. If recovery is not possible, notify the customer or system administrator that new keys for licensed programs may be required.
3. If a network adapter is replaced, the network administrator must be notified so that the client IP addresses used by the server 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 server that addresses this system is updated.

Symptom	Starting Point
You have a problem that does not prevent the system from booting and all I/O drawer indicator panels are functional.	Go to the Fast Path MAP in the <i>Diagnostic Information for Multiple Bus Systems</i> .
You have a problem that does not prevent the system from booting and an I/O drawer indicator panel is not functioning.	Replace the following parts one at a time in the I/O drawer with the non-functioning indicator panel. <ol style="list-style-type: none">1. Drawer indicator panel card2. Drawer indicator panel3. Drawer indicator panel cable.
You do not have a symptom.	Go to MAP 0020 in the <i>Diagnostic Information for Multiple Bus Systems</i>
You have an SRN.	Go to the Fast Path MAP in the <i>Diagnostic Information for Multiple Bus Systems</i> .

Symptom	Starting Point
The system stops and a 3-digit number is displayed in the operator panel display.	Record SRN 101-xxx, where xxx is the 3-digit number displayed in the operator panel display, then go to the Fast Path MAP in the <i>Diagnostic Information for Multiple Bus Systems</i> .
The system will not boot.	Go to "Quick Entry MAP".

Quick Entry MAP

Quick Entry MAP Table of Contents

Problem Description	Page No.
Service Actions	80
8-Digit Error Codes	80
System Stops With an 8-Digit Number Displayed	80
System Stops With a 4-Digit Number Displayed	81
There Appears to be a Display Problem (Distortion, Blurring, Etc.)	81
Power and Cooling Problems	81
Flashing 888 in Operator Panel Display	81
Other Symptoms or Problems	82

Symptom	Action
Service Actions	
You have parts to exchange or a corrective action to perform.	<ol style="list-style-type: none"> Go to the <i>Removal and Replacement Procedures</i>. Go to the <i>Repair Checkout Procedure</i> in the <i>Diagnostic Information for Multiple Bus Systems</i>.
You need to verify that a part exchange or corrective action corrected the problem.	Go to the <i>Repair Checkout Procedure</i> in the <i>Diagnostic Information for Multiple Bus Systems</i> .
You need to verify correct system operation.	Go to the <i>System Checkout Procedure</i> in the <i>Diagnostic Information for Multiple Bus Systems</i> .
8-Digit Error Codes	
You have an 8-digit error code displayed.	Look up the error code in the table in "Chapter 5. Error Code to FRU Index" on page 157.
You have a series of 8-digit error codes displayed, all beginning with the digits "C1" or "C3". The codes may appear to be repeating.	Go to "Chapter 4. Checkpoints" on page 135.
System Stops With an 8-Digit Number Displayed	

Symptom	Action
The system stops with an 8-digit error code displayed when booting.	Record the error code. Go to "Chapter 5. Error Code to FRU Index" on page 157.
System Stops With a 4-Digit Number Displayed	
The system stops with a 4-digit error code and the first digit is "E."	Go to "Chapter 4. Checkpoints" on page 135.
The system stops with a 4-digit error code and the first digit is not "E."	Take the last 3 digits and put 101- on the left to make an SRN. Go to <i>Diagnostic Information for Multiple Bus Systems</i> .
There Appears to be a Display Problem (Distortion, Blurring, Etc.)	
All display problems.	<ol style="list-style-type: none"> 1. If using a graphics display: <ol style="list-style-type: none"> a. Go to the <i>Problem Determination Procedures</i> for the display. b. If you do not find a problem, replace the display adapter. c. If you do not find a problem, suspect the I/O planar. Go to "MAP 1540: Minimum Configuration" on page 117. 2. If using an ASCII terminal: <ol style="list-style-type: none"> a. Make sure that the ASCII terminal is connected to S1. b. If problems persist, go to the <i>Problem Determination Procedures</i> for the terminal. c. If you do not find a problem, replace the service processor card. d. If you do not find a problem, suspect the I/O planar. Go to "MAP 1540: Minimum Configuration" on page 117.
Power and Cooling Problems	
You cannot power on the system.	Go to "MAP 1520: Power" on page 88.
The power light does not come on or stay on. (both the operator panel Power-on LED and the I/O drawers indicator panel power LEDs do not come on or stay on).	Go to "MAP 1520: Power" on page 88.
An I/O rack or a rack mounted unit will not power on.	Go to "MAP 1520: Power" on page 88.
You have a power problem or there is an SRC in function 5 (05-1xxx-xxxx).	Go to "MAP 1520: Power" on page 88.
The system attention LED on the operator panel is on but there is no SRC displayed in function 11-3 on the control panel.	Go to "MAP 1520: Power" on page 88.
Flashing 888 in Operator Panel Display	
A flashing 0888 or 888 is displayed in the operator panel display.	Go to the Fast Path MAP in the <i>Diagnostic Information for Multiple Bus Systems</i> .

Symptom	Action
Other Symptoms or Problems	
The operator panel displays only the yellow background light. Fans and blowers are off.	The service processor (SP) 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" refer to the device mnemonics (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 155.
The system stops and all of the POST indicators are displayed on the system console. The term "POST indicators" refer to the device mnemonics (words Memory, Keyboard, Network, SCSI, and Speaker) that appear on the system console during the power-on self-test (POST).	Go to "MAP 1540: Minimum Configuration" on page 117 to isolate the problem.
The system stops and the message STARTING SOFTWARE PLEASE WAIT... is displayed on the system console.	Go to "Chapter 4. Checkpoints" on page 135.
The system does not respond to the password being entered or the system login prompt is displayed when booting in service mode.	<ol style="list-style-type: none"> 1. If the password is being entered from a keyboard attached to the system, then the keyboard or its controller may be faulty. In this case, replace these parts in the following order: <ol style="list-style-type: none"> a. Keyboard cable b. Keyboard c. Service Processor card 2. If the password is being entered from an ASCII terminal, then use the <i>Problem Determination Procedures</i> for the ASCII terminal. Make sure the ASCII terminal is connected to S1. If the problem persists, replace the service processor card.
No codes are displayed on the operator panel within a few seconds of turning on the system. The operator panel is blank before the system is powered on.	<p>Reseat the operator panel cable.</p> <p>If problem not resolved, replace in order:</p> <ol style="list-style-type: none"> 1. Operator Panel Assembly. Update the VPD information in the new operator panel. 2. Service processor card (See notes on 79.)

Symptom	Action
<p>The SMS configuration list or Boot sequence selection menu shows more SCSI devices attached to a controller/adaptor than are actually attached.</p>	<p>A device may be set to use the same SCSI bus ID as the control adapter. Note the ID being used by the controller/adaptor (this can be checked and/or changed via an SMS utility), and verify that no device attached to the controller is set to use that ID.</p> <p>If settings do not appear to be in conflict:</p> <ol style="list-style-type: none"> 1. Replace the SCSI cable. 2. Replace the device. 3. Replace the SCSI adapter <p>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 change the ID of the SCSI controller or adapter with the System Management Services.</p>
<p>The System Management Services menu is displayed.</p>	<p>The device or media you are attempting to boot from may be faulty.</p> <ol style="list-style-type: none"> 1. Check the SMS error log for any errors. To check the error log: <ul style="list-style-type: none"> • 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 "MAP 1540: Minimum Configuration" on page 117.
<p>You suspect a cable problem.</p>	<p>Go to the <i>Adapters, Devices, and Cable Information for Multiple Bus Systems</i>.</p>
<p>All other problems.</p>	<p>Go to "MAP 1020: Problem Determination" on page 84.</p>

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 *Diagnostic Information for Multiple Bus Systems*.

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 457).

Be prepared to record code numbers and use those numbers in the course of analyzing a problem. Go to “Step 1020-1” on page 85.

The service processor may have been set by the user to monitor server operations and to attempt recoveries. You may wish to disable these actions while you diagnose and service the system. If the system was set up according to the recommendations of the *Enterprise Server S80 pSeries 680 Model S85 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 may use that same Service Aid to restore the settings at the end 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 table below, you may wish to disconnect the modem to prevent incoming signals that could cause the model S80 and S85 to power on.

Following are the service processor settings of your interest. The service processor menus are described in “Chapter 7. Service Processor Menus” on page 447.

Surveillance	From the service processor Setup Menu, go to the Surveillance Setup Menu and disable surveillance.
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.

Step 1020-1

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

Note: You are asked questions regarding the operator panel display. You are also asked to perform certain actions based on displayed POST indicators. Please be observant of these conditions.

1. Power off the system. Refer to “Powering Off the System” on page 492.
2. Power on the system. Refer to “Powering On the System” on page 493
3. Insert the diagnostic CD-ROM into the CD-ROM drive.
4. When the Keyboard indicator is displayed (the word Keyboard), press the 5 key on the system console.
5. Enter a password, if requested.
6. Wait until the diagnostics are loaded or the system appears to stop.
7. Find your symptom in the following table; then follow the instructions given in the Action column.

Symptom	Action
The system stopped and a code is displayed on the operator panel.	Go to the “Entry MAP” on page 79.
The system stops with a prompt to enter a password.	Enter the password. You are not allowed to 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 <i>Diagnostic Information for Multiple Bus Systems</i> .
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 88.
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 indicate a Service Mode IPL of the diagnostic programs. If this was the case, start over at the beginning of this Step. Note: Perform the systems 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 86.
The system does not respond when the password is entered.	Go to “Step 1020-2” on page 86.

Symptom	Action
The system stopped and a POST indicator is displayed on the system console and an eight-digit error code is not displayed.	<p>If the POST indicator represents:</p> <ol style="list-style-type: none"> 1. Memory, go to "MAP 1540: Minimum Configuration" on page 117. 2. Keyboard <ol style="list-style-type: none"> a. Replace the keyboard cable. b. Replace the keyboard. c. Replace the service processor card. d. Go to "MAP 1540: Minimum Configuration" on page 117 3. Network, go to "MAP 1540: Minimum Configuration" on page 117. 4. SCSI, go to "MAP 1540: Minimum Configuration" on page 117. 5. Speaker <ol style="list-style-type: none"> a. Replace the speaker. b. Replace the service processor card. c. Go to "MAP 1540: Minimum Configuration" on page 117
The System Management Services menu is displayed	Go to "Step 1020-4" on page 87.
All other symptoms.	If you were directed here from the Entry MAP, go to "MAP 1540: Minimum Configuration" on page 117. Otherwise, find the symptom in the "Entry MAP" on page 79.

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.). Identify by the size of the Enter key. The Enter key is in only one horizontal row of keys.	Record error code M0KBD001; then go to "Step 1020-3" on page 87.
Type 102 keyboard (W.T.). Identify by the size of the Enter key. The Enter key extends into two horizontal rows.	Record error code M0KBD002; then go to "Step 1020-3" on page 87.
Type 106 keyboard. (Identify by the Japanese characters.)	Record error code M0KBD003; then go to "Step 1020-3" on page 87.
ASCII terminal keyboard	Go to the documentation for this type of ASCII terminal and continue 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 157.

Note: If the eight-digit error code is not listed in “Chapter 5. Error Code to FRU Index” on page 157, 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 CEREAADME file (by using the Service Hints service aid).

Note: Information about service aids can be found in *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) is displayed, press the 1 key on the system console.
3. When the System Management Services menus appear, check the error log for any errors.
 - a. Choose 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 157 and do the listed action.
 - e. If no recent error is logged in the error log, go to “MAP 1540: Minimum Configuration” on page 117.

MAP 1520: Power

This procedure is used to locate power problems in the system rack or I/O 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 communication lines.

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.

CAUTION:

This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect two power supply cords before servicing.

CAUTION:

Energy hazard, remove power before servicing. Disconnect two power supply cords.

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

Symptom	Action
Power Problems	
You have been directed here by the SRC tables, the SRC is 00002222.	Go to "I/O Rack Becomes Powered On, But A Rack-Mounted Unit Does Not Become Powered On" on page 97.
The system attention LED on the operator panel is on; there may or may not be an error code displayed on the operator panel.	In addition to function 11, error codes can also appear in function 5. Look at function 5 and record the error code shown. Go to "(1xxx) System Power Control Network (SPCN) Reference Codes" on page 189 and find the reference code.
System rack does not become powered on	Go to "Cannot Power On System Rack (No Error Code)" on page 90.
I/O drawer does not become powered on (I/O rack Power light at the power distribution bus is not on).	Go to "Cannot Power On I/O Rack (No Error Code)" on page 95.
I/O racks became powered on, but one or more rack-mounted units do not become powered on (no error code).	Go to "I/O Rack Becomes Powered On, But A Rack-Mounted Unit Does Not Become Powered On" on page 97
The system rack, I/O rack, or a rack mounted unit does not become powered off.	Go to "System Rack, I/O Rack, or Rack-Mounted Unit Cannot Be Powered Off" on page 100.
You have been directed here by the SRC tables, the SRC is 1xxx1200.	Go to "The SRC Table Directed You Here and the SRC is 1xxx1200" on page 102.
You have been directed here by the SRC tables, the SRC is 1xxx120y, where y=1-6.	Go to "The SRC Table Directed You Here and the SRC is 1xxx120y or 1xxx140y" on page 105.
You have been directed here by the SRC tables, the SRC is 1xxx140y, where y=1-6.	Go to "The SRC Table Directed You Here and the SRC is 1xxx120y or 1xxx140y" on page 105.
You have been directed here by the SRC tables, the SRC type is 1xxx, and the reference code is 6018, 6118, 6218, 6318, 631A, 633A, 6518, 6618, 6718, 671A, 6A18, 6x38 or CE19.	Go to "Regulator Problem Isolation" on page 110.
You have been directed here by the SRC tables, the SRC is 1xxx640x.	Go to "Power Good Problem Isolation" on page 112.
You have been directed here by the SRC tables, the SRC type is 1xxx, and the reference code is 7201 or 7300.	Go to "AC Box Problem Isolation" on page 114.

Cannot Power On System Rack (No Error Code)

To correct the power-on problem, perform this procedure until the problem is corrected and you can power on the system.

The following steps are for the system rack, unless other instructions are given.

1. Attempt to power on the system (see “Powering Off and Powering On the System” on page 492).

Does the system power on?

Yes Go to step 12 of this procedure.

No Go to step 2 of this procedure.

2. **Is the background light for the Data display on the operator panel on?**

Note: The background light is a dim (yellow) light in the Data area on the control panel.

Yes Go to step 8 of this procedure.

No Go to step 3 of this procedure.

- 3.

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

Perform the following:

- a. Disconnect the ac power cable from the customer’s ac power source.
- b. Use a multimeter to measure the ac voltage at the customer’s ac power source.

Note: There is one ac power cable for each system rack or I/O rack.

Disconnect all the ac power cables and measure the ac voltage at all ac power outlets before answering the following question.

Is the ac voltage from 200 V ac to 240 V ac?

No Perform the following:

- 1) Inform the customer that the ac voltage at the ac power outlet is not correct.
- 2) Reconnect the ac power cables to the power source when the ac voltage at the power source is correct.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 4 of this procedure.

4. **Are all circuit breakers reset at the I/O rack power distribution bus (PDB)?**
- No** Reset the popped circuit breaker.
- This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.
- Yes** Go to step 5 of this procedure.
5. **Are the ac power cables from the ac box to the customer's ac power outlet connected and seated correctly at both ends?**
- No** Perform the following:
- Connect the ac power cables correctly at both ends. Set the circuit breakers to the Off position while disconnecting cables, then back to the On position.
 - Go to step 1 of this procedure.
- Yes** Go to step 6 of this procedure.
- 6.

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

Perform the following:

- Disconnect the ac power cables from the ac box.

Note: Set the circuit breakers to the Off position while disconnecting cables, then back to the On position.

- Use a multimeter to measure the ac voltage at the ac box end of the power cables.

Is the ac voltage from 200 V ac to 240 V ac?

No Perform the following:

- Exchange the ac power cable.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

- Go to step 1 of this procedure.

Yes Go to step 7 of this procedure.

7. Perform the following:
- Disconnect the ac power cable from the customer's ac power outlet

Note: Disconnect all other ac power cables.

- Exchange one of the following FRUs:
 - System rack operator panel card
 - SPCN card
 - System unit operator panel cable
 - System unit SPCN system rack to I/O rack cable

- 5) ac box
 - 6) System unit backplane
 - c. Reconnect the ac power cables to the power source.
 - d. Attempt to power on the system.
 - e. If the system powers on, the FRU you exchanged is the failing item.
If the system does not power on, repeat steps 7a through 7e of this procedure and exchange the next FRU in the list.
 - f. If the system does not power on after exchanging all the FRUs in the list, ask your next level of support for assistance.
8. Perform the following:
- a. Power off the system.
 - b. Attempt to power on the system.

Does the system power on?

No Go to step 7 of this procedure.

Yes Go to step 9 of this procedure.

9. Perform the following:
- a. Power off the system.
 - b. Display the selected IPL mode on the system unit operator panel.

Is the selected mode the same mode the customer was using when the power-on failure occurred?

No Go to step 10 of this procedure.

Yes Go to step 14 of this procedure.

10. Perform the following:
- a. Power off the system.
 - b. Select the mode on the system unit operator panel the customer was using when the power-on failure occurred.
 - c. Attempt to power on the system.

Does the system power on?

No Go to step 14 of this procedure.

Yes Go to step 11 of this procedure.

11. Exchange system unit operator panel card (see "System Rack Removal and Replacement Procedures" on page 493). Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

12. Perform the following:
 - a. Power off the system.
 - b. Display the selected IPL mode on the system unit control panel.

Function/Data	Description
01 _ _ _ _ _	Use increment or decrement button and scroll to function 01.
01 _ _ _ A _ _	Press ENTER to enter function 01 Selected IPL Type display. Valid types, which appear in the sixth character position of the Function/Data display, are A, B.

Is the selected mode the same mode the customer was using when the power-on failure occurred?

No Go to step 13 of this procedure.

Yes Go to step 14 of this procedure.

13. Perform the following:
 - a. Power off the system.
 - b. Select the mode on the system unit operator panel the customer was using when the power-on failure occurred.
 - c. Attempt to power on the system.

Does the system power on?

No Exchange the system unit operator panel card (see “System Rack Removal and Replacement Procedures” on page 493).

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 14 of this procedure.

14. **Is an eight-digit error code displayed on the system rack operator panel?**

No Go to step 15 of this procedure.

Yes Go to “Entry MAP” on page 79.

15. **Is the Power-on LED (on the operator panel) on continuously?**

Note: The Power-on LED blinks during a normal power-on sequence. It should not blink for more than 1 minute.

No Go to step 16 of this procedure.

Yes Go to step 17 of this procedure.

16. Perform the following:
 - a. Disconnect the ac power cable from the customer's power source.
 - b. Exchange one of the following FRUs:
 - 1) SPCN card
 - 2) ac box
 - 3) System-rack operator-panel card
 - c. Reconnect the ac power cable to the power source.
 - d. Attempt to power on the system.
 - e. If the system powers on, the FRU you exchanged is the failing item.
If the system does not power on, repeat steps 16a through 16e of this procedure and exchange the next FRU in the list.
 - f. If the system does not power on after exchanging all the FRUs in the list, ask your next level of support for assistance.

This ends the procedure.

17. **Have all of the racks and units on the system become powered on?**

No Return to "MAP 1520: Power" on page 88.

Yes Go to step 18 of this procedure.

18. Continue the IPL.

Does the IPL complete successfully?

No Go to "Entry MAP" on page 79.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Cannot Power On I/O Rack (No Error Code)

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Starting from J15 or J16 on the system unit (refer to “System Rack Locations Rear” on page 18 for location), go to the first I/O rack in the I/O rack interconnect cable sequence on which the PDB Power On light is off.
- 3.

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

Use a multimeter to measure the ac voltage at the customer’s ac power outlet.

Is the ac voltage from 200 V ac to 240 V ac?

No Inform the customer that the ac voltage at the power outlet is not correct.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 4 of this procedure.

4. **Is the ac power cable from the I/O rack PDB to the customer’s ac power outlet connected and seated correctly at both ends?**

No Connect the ac power cables correctly at both ends.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 5 of this procedure.

5.

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

Perform the following:

- a. Disconnect the ac power cable from the I/O rack PDB.
- b. Use a multimeter to measure the ac voltage at the I/O rack end of the ac power cable.

Is the ac voltage from 200 V ac to 240 V ac?

No Exchange the mainline ac power cable.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 6 of this procedure.

6. Replace the PDB.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

I/O Rack Becomes Powered On, But A Rack-Mounted Unit Does Not Become Powered On

If you have a problem powering on a drawer in an I/O rack, examine all the I/O drawer Indicator Panels to attempt to isolate the problem I/O drawer. See “I/O Drawer Indicator Panel” on page 30 for more information.

1. **Are all circuit breakers reset at the I/O rack PDB?**

No Reset the tripped circuit breaker.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 2 of this procedure.

2. **Are all the ac power cables seated firmly and connected from the I/O rack PDB to the I/O drawer (one end to a PDB outlet, the other two ends of the cable(s) to the two separate dc power supplies of the same I/O drawer)?**

No Fix the connection.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 3 of this procedure.

3. Perform the following:

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

- a. Disconnect the ac power cable from each power supply on each I/O drawer that fails to power on.
- b. Use a multimeter to measure the ac voltage at the I/O drawer end of the ac power cables.

Is the ac voltage from 200 V ac to 240 V ac?

No Exchange the ac power cable(s)

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 4 of this procedure.

4. **Is a primary I/O drawer in the I/O rack not powering on?**

Note: The primary I/O drawer is the only I/O drawer with a Service processor card in Slot 8.

No Go to step 8 on page 98.

Yes Go to step 5 on page 98.

5. Replace the following, one at a time, turning off the power before replacement and attempting to power on after replacement:
 - a. Service processor card
 - b. Power distribution card
 - c. Drawer indicator panel
 - d. Fan monitoring card
 - e. Both power supplies
 - f. I/O planar
6. **Does the I/O drawer power on?**

No Go to step 13 on page 99.

Yes Go to step 7.
7. **Are all I/O drawers powered on (green LEDs are on for both supplies in each I/O drawer)?**

Note: The I/O drawer requires two identical power supplies to be installed. Ten minutes of operation on one power supply is allowed for the I/O drawer for service.

No A secondary drawer will not power on. Go to step 8.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*
8. **Are all SPCN cables from and to the secondary I/O drawer(s) connected properly and firmly seated?**

No Go to step 22 on page 99.

Yes Go to step 9.
9. **Is only one secondary I/O drawer not powering on?**

No Go to step 23 on page 99.

Yes Go to step 17 on page 99.
10. Replace the following:
 - a. Power distribution card
 - b. Drawer indicator panel
 - c. Fan monitoring card
 - d. Both power supplies
 - e. I/O planar.
11. **Does the I/O drawer power on?**

No Go to step 15 on page 99.

Yes Go to step 12.
12. Go to step 7.

13. **Have you replaced all parts in the list in step 5 on page 98?**
 - No** Go to step 5 on page 98 and try the next part in the list.
 - Yes** Go to step 14.
14. Ask your next level of support for assistance.
This ends the procedure.
15. **Have you replaced all parts in the list in step 10 on page 98?**
 - No** Go to step 10 on page 98 and try the next part in the list.
 - Yes** Go to step 16.
16. Go to step 14.
17. **Does the I/O drawer have only one power supply with the LED not continuously on?**
 - No** Go to step 20.
 - Yes** Go to step 18.
18. Replace the power supply with the LED that is not on continuously.
19. Go to step 11 on page 98.
20. Replace all the SPCN cables connected to the failing I/O drawer.
21. Go to step 11 on page 98.
22. Connect all the SPCN cables properly.
This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.
23. **Are all the SPCN cables from the primary I/O drawer connected properly and firmly seated?**
 - No** Go to step 22.
 - Yes** Go to step 24.
24. Replace the SPCN cables from the primary I/O drawer.
25. Go to step 11 on page 98.

System Rack, I/O Rack, or Rack-Mounted Unit Cannot Be Powered Off

This procedure analyzes a failure of the normal command and operator panel procedures to power off the system or an I/O rack

If you have a problem powering off a drawer in an I/O rack, examine all I/O drawer indicator panels to attempt to isolate to the problem I/O drawer. See “I/O Drawer Indicator Panel” on page 30 for more information.

Attention: To prevent loss of data, ask the customer to verify that no interactive jobs are running before you perform this procedure.

1. Is the power-off problem on the system rack?

No Go to step 3 of this procedure.

Yes Go to step 2.

2. Ensure that the SPCN cables that connect the racks are connected and seated correctly at both ends.

Does the I/O rack power off, and is the power-good LED off (or flashing for all power supplies in the I/O drawers), for all the power supplies in all the drawers (the power supply power-good LED can be seen from the rear of the I/O drawer)?

No Go to step 4 of this procedure.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

3. Refer to "Powering Off and Powering On the System" on page 492 to power off the system, then return here and answer the following question.

Does the system rack power off, and is the Power On light off?

No Go to step 4 of this procedure.

Yes The system is not responding to normal power-off procedures, which could indicate a Licensed Internal Code problem.

Ask your next level of support for assistance.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

4. Disconnect the ac power cables.
5. Exchange the following FRUs in the system rack or the I/O rack one at a time (see "System Rack Removal and Replacement Procedures" on page 493):

If the system rack is failing:

- a. Operator panel
- b. SPCN card
- c. ac module
- d. Operator panel cable

If an I/O rack is failing:

- a. SPCN system rack to I/O rack cable
- b. Service processor card in I/O rack.
- c. I/O planar in primary I/O drawer.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

The SRC Table Directed You Here and the SRC is 1xxx1200

The power system in the system rack is failing.

Attention: The ac power cable *must* be disconnected from the system rack before removing or installing regulators R04, R05, or R06.

1. Perform the following:
 - a. Power off the system.
 - b. Remove regulator assemblies R01, R02, and R07 through R10 from the system rack. Do not remove R04, R05, and R06.
 - c. Power on the system.

Is SRC 1xxx1200 displayed?

No Go to step 15 on page 104.

Yes Go to step 2.

2. Perform the following:
 - a. Power off the system.
 - b. Remove one of the blowers from the system rack not previously removed during this procedure.
 - c. Power on the system.

Is SRC 1xxx1200 displayed?

No The blower you removed in this step is failing, replace the blower.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 3.

3. **Have you removed all the blowers one at a time?**

No Go to step 4.

Yes Install all blowers and go to step 5.

4. Perform the following:
 - a. Power off the system.
 - b. Install the blower that was removed in step 2.
 - c. Go to step 2.
5. Perform the following:
 - a. Power off the system.
 - b. Remove all except one of the bulk power supplies from the system rack.
 - c. Power on the system.

Is SRC 1xxx1200 displayed?

No Go to step 12 on page 104.

Yes Go to step 6.

6. Perform the following:

- a. Power off the system.
- b. Remove the only bulk power supply installed.
- c. Install one of the other bulk power supplies that was removed in step 5 on page 102.
- d. Power on the system.

Is SRC 1xxx1200 displayed?

No The bulk power supply that was just removed in this step is failing, replace the bulk power supply.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 7.

7. Perform the following:
 - a. Power off the system.
 - b. Disconnect the ac power cables from the system rack.
 - c. Remove regulator assembly R04.
 - d. Reconnect the ac power cable to the system rack.
 - e. Power on the system.

Is SRC 1xxx1200 displayed?

No Regulator assembly R04 is failing, replace regulator assembly R04.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 8.

8. Perform the following:
 - a. Power off the system.
 - b. Remove the ac power cable from the system rack.
 - c. Remove regulator assembly R05.
 - d. Reconnect the ac power cable to the system rack.
 - e. Power on the system.

Is SRC 1xxx1200 displayed?

No Regulator assembly R05 is failing, replace regulator assembly R05.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 9.

9. Perform the following:
 - a. Power off the system.
 - b. Remove the ac power cable from the system rack.
 - c. Remove regulator assembly R06.
 - d. Reconnect the ac power cable to the system rack.

e. Power on the system.

Is SRC 1xxx1200 displayed?

No Regulator assembly R06 is failing, replace regulator assembly R06.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 10.

10. Perform the following:
 - a. Power off the system.
 - b. Exchange the SPCN card.
 - c. Power on the system.

Is SRC 1xxx1200 displayed?

No The SPCN card that was exchanged in this step is the failing item. Leave the new SPCN in the system rack.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 11.

11. Replace the system backplane assembly.
12. Perform the following:
 - a. Power off the system.
 - b. Install one of the bulk power supplies that was removed in step 5 on page 102.
 - c. Power on the system.

Is SRC 1xxx1200 displayed?

No Go to step 13.

Yes The bulk power supply you installed in this step is failing, replace the bulk power supply.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

13. Have you installed all the bulk power supplies that were removed in step 5 on page 102?

No Repeat step 12.

Yes Go to step 14.

14. Install all units removed in this procedure.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

15. Perform the following:
 - a. Power off the system.
 - b. Install one of the regulator assemblies that was removed in step 1 on page 102.

- c. Remove all the bus load (processor and memory cards, do not remove the clock card).
- d. Power on the system.

Is SRC 1xxx1200 displayed?

No Go to step 16.

Yes The regulator assembly you just installed is failing, replace the regulator assembly.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

16. **Have you installed all the regulators that were removed in step 1 on page 102?**

No Go to step 15 on page 104.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

This ends the procedure.

The SRC Table Directed You Here and the SRC is 1xxx120y or 1xxx140y

A power regulator card in the system rack is failing.

1. Perform the following:

Attention: The ac power cable *must* be disconnected from the system rack before removing or installing regulator assemblies R04, R05, or R06.

Is SRC 1xxx140x displayed?

No Go to step 2.

Yes Go to step 23 on page 108.

2. **Is SRC 1xxx1201 displayed?**

No Go to step 6 on page 106.

Yes Go to step 3.

3. Perform the following:

- a. Power off the system.
- b. Remove the load cards (memory cards M01-M03, M08-M10, M11-M15, M20-M24, and processors at M05, M06, M16, and M18).
- c. Power on the system.

Does the system power on?

No Go to step 23 on page 108.

Yes Go to step 4.

4. Perform the following:

- a. Power off the system.
- b. Install one of the Mxx load cards that was removed in step 3.

c. Power on the system.

Does the system power on?

No The last card that was installed in step 4 on page 105 of this procedure is failing, replace the failing card.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 5.

5. **Have all the Mxx load cards been installed?**

No Repeat step 4 on page 105.

Yes This ends the procedure.

6. **Is SRC 1xxx1202 displayed?**

No Go to step 10.

Yes Go to step 7.

7. Perform the following:

- a. Power off the system.
- b. Remove the load cards M05, M06, M16, M18, and M19.
- c. Power on the system.

Does the system power on?

No Go to step 23 on page 108.

Yes Go to step 8.

8. Perform the following:

- a. Power off the system.
- b. Install one of the Mxx load cards that was removed in step 7.
- c. Power on the system.

Does the system power on?

No The last card that was installed in step 8 is failing, replace the failing card.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 9.

9. **Have all the Mxx load cards been installed?**

No Repeat step 8.

Yes This ends the procedure.

10. **Is the SRC 1xxx1203?**

No Go to step 13 on page 107.

Yes Go to step 11.

11. Perform steps 23 on page 108 through 25 on page 109 and then return here.

Did performing steps 23 on page 108 through 25 on page 109 resolve SRC 1xxx1203?

No Go to step 12.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

12. Replace the system backplane assembly.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

13. **Is the SRC 1xxx1204?**

No Go to step 15.

Yes Go to step 14.

14. Perform steps 23 on page 108 through 25 on page 109 and then return here.

Did performing steps 23 on page 108 through 25 on page 109 resolve SRC 1xxx1204?

No Go to step 15.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*

15. **Is the SRC 1xxx1205?**

No Go to step 19 on page 108.

Yes Go to step 16.

16. Perform the following:

- a. Power off the system.
- b. Remove cards M01-M03, M08-M10, M11-M15, and M20-M24.
- c. Power on the system.

Does the system power on?

No Go to step 23 on page 108.

Yes Go to step 17.

17. Perform the following:

- a. Power off the system.
- b. Install one of the Mxx load cards that was removed in step 16.
- c. Power on the system.

Does the system power on?

No The last card that was installed in step 17 is failing, replace the failing card.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 18.

18. **Have all the Mxx load cards been installed?**

No Repeat step 17 on page 107.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*

19. **Is the SRC 1xxx1206?**

No Go to "Entry MAP" on page 79.

Yes Go to step 20.

20. Perform the following:

- a. Power off the system.
- b. Remove cards M01-M03, M08-M10, M11-M15, and M20-M24.
- c. Power on the system.

Does the system power on?

No Go to step 23.

Yes Go to step 21.

21. Perform the following:

- a. Power off the system.
- b. Install one of the Mxx load cards that was removed in step 20.
- c. Power on the system.

Does the system power on?

No The last card that was installed in step 21 is failing, replace the failing card.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 22.

22. **Have all the Mxx load cards been installed?**

No Repeat step 21.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

23. Perform the following:

- a. Power off the system.
- b. See the table at the end of this procedure to identify the possible failing regulators.
- c. Remove one of the possible failing regulators and install a new regulator card.
- d. Power on the system.

Does the system power on?

No Go to step 24 on page 109.

Yes The regulator assembly you removed in this step is failing, replace the regulator assembly.

This ends the procedure.

24. Have you swapped all the regulator card assemblies?

No Go to step 25.

Yes **This ends the procedure.** Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

25. Perform the following:

- a. Power off the system.
- b. Remove the new regulator assembly and install the original regulator assembly.
- c. Go to step 23 on page 108 to test another regulator assembly.

Reference Code	The Possible Failing Regulators are:
1201, 1401	R01, R02, R06-R10 Programmable Regulator Assembly
1202, 1402	R01, R02, R06-R10 Programmable Regulator Assembly
1203, 1204, 1403, 1404	R04, R05, R06 Memory Regulator Assembly
1205, 1206, 1405, 1406	R01, R02, R06-R10 Programmable Regulator Assembly

Regulator Problem Isolation

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

Attention: The ac power cable *must* be disconnected from the system rack before removing or installing regulators R04, R05, and R06.

1. Power off the system.
2. Disconnect all cards in the system rack except the SPCN card, regulator assemblies, and the clock card.

Attention: To prevent overheating problems, do not remove any card completely from the card enclosure unless you install an airflow card in its place.

Note: Disconnect the cards by pulling them out about one inch.

3. Power on the system.

Does a regulator SRC occur?

No Go to step 8 on page 111.

Yes Go to step 4.

4. Perform the following:
 - a. Power off the system.
 - b. If the SRC identifies the failing regulator, start with that regulator.
 - c. Remove one of the regulators and install a new regulator.
 - d. Power on the system.

Does a regulator SRC occur?

No The regulator assembly that was removed in this step is failing, replace the regulator assembly.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 5.

5. Perform the following:
 - a. Power off the system.
 - b. Remove the new regulator assembly that you just installed and install the original regulator assembly.
 - c. Remove a different regulator (not previously removed) and install a new regulator.
 - d. Power on the system.

Does a regulator SRC occur?

No The regulator assembly that was removed in this step is failing, replace the regulator assembly.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 6.

6. Repeat step 5 on page 110 until a new regulator assembly has been installed in all possible positions. Then continue with the next step.
7. Exchange the following FRUs, one at a time, until the problem is corrected:
 - a. SPCN card
 - b. System backplane assembly

If the system has the same SRC after exchanging all the FRUs in this procedure, ask your next level of support for assistance.

This ends the procedure.

8. **Do you have an SRC other than a regulator SRC?**

No Go to 9.

Yes A different SRC or reference code occurred. Use the new SRC or reference code and go to "Entry MAP" on page 79.

9. Perform the following:
 - a. Power off the system.
 - b. Install one of the cards you removed in step 2 on page 110.
 - c. Power on the system.

Does a regulator SRC occur?

No Go to 10.

Yes Power off the system.

Exchange the last card installed.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

10. Repeat step 9 until all of the cards have been installed.

If a regulator SRC exists after completing this procedure, ask your next level of support for assistance.

This ends the procedure.

Power Good Problem Isolation

Attention: The ac power cable **must** be disconnected from the system rack before removing or installing regulators R04, R05, or R06.

1. Perform the following:
 - a. Power off the system.
 - b. Exchange the SPCN card.
 - c. Power on the system.

Does SRC 1xxx640x continued to be displayed?

No The SPCN card that was removed is failing, replace the SPCN card.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 2.

2. Perform the following:
 - a. Power off the system.
 - b. Remove one of the regulators in position R01, R02, R04-R10 and install a new regulator assembly.

Note: There are three part numbers associated with the regulators at these locations.

- c. Power on the system.

Is SRC 1xxx640x displayed?

No The regulator assembly that was removed in this step is failing, replace the failing regulator assembly.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 3.

3. Perform the following:
 - a. Power off the system.
 - b. Remove the new regulator that was installed in step 2 and replace it with the original regulator.
 - c. Remove one of the untested regulators from position R01, R02, or R04-R10 and install a new regulator assembly.
 - d. Power on the system.

Is SRC 1xxx640x displayed?

No The regulator assembly that was removed in this step is failing, replace the failing regulator assembly.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 4.

4. Repeat step 3 on page 112 until a new regulator has been installed in positions R01, R02, and R04-R10. Then continue with the next step.

5. Remove the processor cards from the system rack.

Attention: To prevent overheating problems, do not remove any card completely from the card enclosure unless you install an airflow card in its place.

6. Power on the system.

Is SRC 1xxx640x displayed?

No Go to step 7.

Yes Exchange the system backplane assembly in the system rack.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

7. Perform the following:

- a. Power off the system.
- b. Install one of the cards you removed in step 5.
- c. Power on the system.

Is SRC 1xxx640x displayed?

No Go to step 8.

Yes Power off the system.

Replace the last card installed.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

8. Repeat step 7 until all cards have been reinstalled.

This ends the procedure.

AC Box Problem Isolation

A bulk power supply with a blinking or unlit light (LED) is an indication of a failure.

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

Attention: The ac power *must* be disconnected from the system rack before removing or installing regulator assemblies R04, R05, or R06.

1. Perform the following:
 - a. Power off the system.
 - b. Disconnect all regulators assemblies by sliding them partially out of the enclosure.
 - c. Power on the system.

Does a power supply reference code occur?

No Go to step 12 on page 116 of this procedure.

Yes Go to step 2.

2. Perform the following:
 - a. Power off the system.
 - b. Remove one of the blowers from the system rack that was not previously removed during this procedure.
 - c. Power on the system.

Does a power supply reference code occur?

No The blower you removed in this step is failing, replace the failing blower.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 3.

3. **Have you removed all the blowers one at a time?**

No Go to step 4.

Yes Install all the blowers and continue with step 5.

4. Perform the following:
 - a. Power off the system.
 - b. Install the blower that was removed in step 2 in the original location.
 - c. Go to step 2.
5. Perform the following:
 - a. Power off the system.
 - b. Remove all except one of the bulk power supplies from the system.
 - c. Power on the system.

Does a power supply reference code occur?

No Go to step 9 on page 115.

Yes Go to step 6.

6. Perform the following:
 - a. Power off the system.
 - b. Remove the bulk power supply that is installed.
 - c. Install one of the other bulk power supplies that was removed in step 5 on page 114.
 - d. Power on the system.

Does a power supply reference code occur?

No The bulk power supply you just removed in step 6 is failing, replace the bulk power supply.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 7.

7. Perform the following:
 - a. Power off the system.
 - b. Exchange the SPCN card.
 - c. Power on the system.

Does a power supply reference code occur?

No The SPCN card you exchanged is failing, replace the SPCN card.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes Go to step 8.

8. Exchange the system backplane assembly.

This ends the procedure.

9. Perform the following:
 - a. Power off the system.
 - b. Install one of the bulk power supplies that was removed in step 5 on page 114 of this procedure.
 - c. Power on the system.

Does a power supply reference code occur?

No Go to step 10.

Yes The bulk power supply you installed in this step is failing, replace the bulk power supply.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

10. **Have you installed all of the bulk power supplies that were removed in step 5 on page 114?**
 - No** Go to step 9.

Yes Go to step 11.

11. The problem is no longer present. You may have an intermittent problem.

This ends the procedure.

12. Perform the following:

- a. Power off the system.
- b. Install one of the regulator assemblies that were removed in step 1 on page 114.
- c. Remove all bus load (processor and memory cards) except the clock card and SPCN card.
- d. Power on the system.

Does a power supply reference code occur?

No Go to step 13.

Yes The regulator assembly you just installed is failing, replace the regulator assembly.

This ends the procedure. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

13. **Have you installed all the regulator assemblies that were removed in step 1 on page 114?**

No Go to step 12.

Yes **This ends the procedure.**

MAP 1540: Minimum Configuration

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.

Notes:

1. Be sure to unplug the power cable from the system rack and I/O rack before removing or installing service processor, CPU cards, memory cards, or I/O planar to avoid damage.
2. This MAP assumes that a CD-ROM drive is installed and connected to a SCSI adapter in slot 7 of the primary drawer, and a Diagnostics CD-ROM is available.
3. If a general access password or privileged-access password is installed, you are prompted to enter the password before the diagnostic CD-ROM can load.
4. The term "POST indicators" refer to the device mnemonics (words Memory, Keyboard, Network, SCSI, and Speaker) that appear on the system console during the power-on self-test (POST).
5. 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 service processor System Information Menu).
6. The service processor may have been set by the user to monitor server operations and to attempt recoveries. You may wish to 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.
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.

Step 1540-1

1. Ensure that the diagnostics and the operating system are shut down.
2. Insert the diagnostic CD-ROM into the CD-ROM drive.
3. Turn off the power.
4. Turn on the power.
5. When the Keyboard indicator is displayed (the word Keyboard), press the 5 key on the system console.
6. Enter the appropriate password when you are prompted to do so.

Is the Please define the System Console screen displayed?

- No** Go to "Step 1540-2".
- Yes** Go to "Step 1540-8" on page 121.

Step 1540-2

The system is unable to boot standalone diagnostics.

The boot attempts that follow will attempt to get the Please define system console prompt on the system console. Ignore any codes that may appear on the operator panel unless stated otherwise.

Did the action that sent you to MAP 1540 explicitly tell you to run the System Rack Minimum Configuration?

- No** Go to "Step 1540-9" on page 122.
- Yes** Go to "Step 1540-3" on page 119.

Step 1540-3

1. Turn off the power.
2. Disconnect the ac power cable from the rear of the system rack.
3. At the rear of the system rack, disconnect the following cards:
Attention: To prevent overheating problems, do not remove any electronic card completely from the card enclosure unless you install an airflow card in its place.
Disconnect the cards by pulling them out of the card enclosure about one inch.
 - a. Processor card at M18, if present.
 - b. Processor card at M16, if present.
 - c. Memory quad D at M20, M21, M22, and M23, if present.
 - d. Memory quad C at M12, M13, M14, and M15, if present.
 - e. Memory part of quad B at M11.
4. At the front of the system rack, remove the following:
 - a. Processor card at M06, if present.
 - b. Memory parts of quad B at M08, M09, and M10, if present.
5. With the system rack now configured with only memory Quad A and a single processor card at M05, connect the ac power cable to the system rack and turn on the power.
6. When the Keyboard indicator is displayed (the word Keyboard), press the 5 key on the system console.
7. Enter the appropriate password when you are prompted to do so.

Is the Please Define the System Console screen displayed?

- No** Go to “Step 1540-6” on page 120.
- Yes** Go to “Step 1540-4” on page 120.

Step 1540-4

1. Turn off the power.
2. Disconnect the ac power cable from the system rack.
3. Reconnect the cards in the following list one at a time. After each card is reconnected, continue in this step. Continue to reconnect the cards in the list until you have reconnected all the cards in the list.
 - a. Memory quad B at M08, M09, M10, and M11, if previously present.
 - b. Memory quad C at M12, M13, M14, and M15, if previously present.
 - c. Memory quad D at M20, M21, M22, and M23, if previously present.
 - d. Processor card at M18, if previously present.
 - e. Processor card at M06, if previously present.
 - f. Processor card at M16, if previously present.
4. Reconnect the ac power cable to the system rack.
5. Turn on the power.
6. When the keyboard indicator is displayed (the word Keyboard), press the 5 key on the system console.
7. Enter the appropriate password when you are prompted to do so.

Is the Please Define the System Console screen displayed?

- No** The card you just reconnected is defective, replace with new card. To verify any cards that remain disconnected, go to "Step 1540-5" and continue.
- Yes** Go to "Step 1540-5".

Step 1540-5

Have all cards in the list in step "Step 1540-4" been replaced with new or original cards:

- No** Go to "Step 1540-4".
- Yes** Go to "Step 1540-8" on page 121 to verify the I/O portion of the system.

Step 1540-6

1. Turn off the power.
2. Disconnect the ac power cable from the system rack.
3. Replace the processor card at M05 with a new processor card.
4. Connect the ac power cord to the system rack and turn on the power.

Is the Please Define the System Console screen displayed?

- No** Go to "Step 1540-7" on page 121.
- Yes** The processor card that you replaced is failing, replace the processor card. Go to "Step 1540-5".

Step 1540-7

1. Turn off the power.
2. Disconnect the ac power cable from the system rack.
3. Replace memory cards in quad A at M01, M02, M03, and M24 with memory cards previously removed, if any, or replace with new memory cards.
4. Connect the ac power cable to the system rack and turn on the power.

Is the Please Define the System Console screen displayed?

No Go to "Step 1540-9" on page 122.

Yes The memory cards you just replaced are failing, replace the memory cards. Go to "Step 1540-5" on page 120.

Step 1540-8

The system stopped with the Please define system console prompt appearing on the system console.

Standalone diagnostics can be booted.

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 Initial 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 console display.
4. Select **Advanced Diagnostic Routines**.
5. When the DIAGNOSTIC MODE SELECTION menu displays, select **System Verification**.
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. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Yes The boot attempts that follow will attempt to isolate any remaining I/O drawer problems with missing devices. Unless stated otherwise ignore any codes that may appear on the operator panel. A successful boot is one where the system displays Please Define the System Console prompt and displays all configured and connected devices in the System Verification Menu.

Go to "Step 1540-9" on page 122.

Step 1540-9

Look at the rear of the system rack, and locate the JTAG cable (connected to the rear of the system rack card position M19).

Follow the JTAG cable back to the service processor card located in the primary I/O drawer (PCI slot 8).

Are there any secondary I/O drawers attached to the system rack?

No Go to “Step 1540-40” on page 133.

Yes Go to “Step 1540-10”.

Step 1540-10

At least one secondary I/O drawer is attached to the system rack. Isolate the primary I/O drawer by performing the following steps:

Note: Before continuing, check the cabling from the system rack to I/O drawer(s) to ensure that the system is cabled correctly. Refer to “Cabling the System Rack and I/O Rack” on page 31 for valid configurations. Record the current cabling configuration and then continue with the following steps.

1. Turn the system power off.
2. At the system rack, swap cable connections at RIO port 0 and RIO port 1. The cable end that was connected to RIO port 1 should now be connected to RIO port 0.
3. At the primary I/O drawer, remove the cable connected to RIO port 1. Move the cable connected to RIO port 0 to RIO port 1.
4. From the system rack RIO port 0, follow the cable connected there to a secondary I/O drawer RIO port 1. Move the cable connection at this secondary I/O drawer RIO port 1 to the primary I/O drawer RIO port 0.
5. Verify that primary I/O drawer RIO port 0 is connected to system rack RIO port 0.
6. Verify that primary I/O drawer RIO port 1 is connected to system rack RIO port 1.
7. Verify that the primary I/O drawer SPCN port 1 is connected to system rack SPCN port 0.
8. Connect primary I/O drawer SPCN port 2 to system rack SPCN port 1.

Note: The primary I/O drawer should be cabled as shown in “Cabling the System Rack and I/O Rack” on page 31 for “System rack Attached to one I/O drawer” Be sure to examine both RIO cables and SPCN cables.

9. Disconnect ac power cables from remaining I/O drawer(s).

Attention: The I/O rack you are working on may have I/O drawers which are connected to other system racks or other third party drawers attached to the power distribution bus. To avoid removing power from drawers which are used by other systems, when you are instructed to unplug power from an I/O drawer, remove only the power distribution unit (PDU) side of the single ac cables connected to the I/O drawer in question.

10. All I/O drawers except the primary I/O drawer should now be physically disconnected from the system rack.

Go to “Step 1540-11”.

Step 1540-11

The primary I/O drawer is the only remaining I/O drawer connected to the system rack.

Turn on the power.

If the boot is not successful, the problem is in the primary I/O drawer.

Was the boot successful?

No Go to “Step 1540-12”.

Yes Go to “Step 1540-24” on page 128.

Step 1540-12

Perform the following to unconfigure the primary I/O drawer:

1. Turn off the power.
2. If you have not already done so, reset the service processor settings with the instructions in step 6 on page 117, then return here and continue.
3. Exit the service processor menus and remove the ac power cables from the system rack and the I/O drawer.

Attention: The I/O rack you are working on may have I/O drawers that are connected to other system racks or other third-party drawers attached to the power distribution bus. To avoid removing power from drawers that are used by other systems, when you are instructed to unplug power from an I/O drawer, remove only the PDU side of the single ac cables connected to the I/O drawer in question.

4. If a display adapter with keyboard and mouse connected to the primary I/O drawer is being used as the console, locate a stand-alone serial terminal (possibly a 3151) and connect it to the S1 serial port.
5. Remove the keyboard and mouse, if attached to the primary I/O drawer.
6. Leave the remaining external cables (RIO-port0, RIO-port1, SPCN-port0, SPCN-port1, JTAG-SP, and OPPanel) connected.
7. Disconnect the diskette drive cable from the diskette drive connector on the service processor card.
8. Plug in the ac power cables for the system rack and the I/O drawer. The operator panel should now display a blank yellow backlighted LED panel.

Are there any adapters in slots 1, 2, 3, or 4?

No Go to “Step 1540-13” on page 124.

Yes Go to “Step 1540-16” on page 124.

Step 1540-13

Are there any adapters in slots 5, 6, or 7?

No Go to "Step 1540-14".

Yes Go to "Step 1540-17" on page 125.

Step 1540-14

Are there any adapters in slots 9 or 10?

No Go to "Step 1540-15".

Yes Go to "Step 1540-18" on page 125.

Step 1540-15

Are there any adapters in slots 11, 12, 13, or 14?

No Go to "Step 1540-22" on page 126.

Yes Go to "Step 1540-19" on page 125.

Step 1540-16

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 1, 2, 3, and 4 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-13".

Yes Go to "Step 1540-20" on page 126.

Step 1540-17

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 5, 6, and 7 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-14" on page 124.

Yes Go to "Step 1540-20" on page 126.

Step 1540-18

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 9 and 10 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-15" on page 124.

Yes Go to "Step 1540-20" on page 126.

Step 1540-19

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 11, 12, 13, and 14 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-22" on page 126.

Yes Go to "Step 1540-20" on page 126.

Step 1540-20

If the boot was successful, the problem is with one of the adapter cards or devices that was removed or disconnected from the primary I/O drawer.

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.

Was the boot successful?

No Go to "Step 1540-21".

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 boot to be unsuccessful.

Step 1540-21

Replace the adapter that you just installed with a new adapter and retry.

Was the boot successful?

No The I/O planar is defective. Replace the I/O planar then continue below.

Yes The adapter was defective. Continue below.

Reinstall all remaining adapters and reconnect all devices. Return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-22

If boot is unsuccessful, turn off the power, disconnect the I/O drawer ac power cables, and replace the remaining parts listed in the table below one at a time. Reconnect the I/O drawer ac power cables, turn on the power, and check for a successful boot.

Symptom	Action
You have been directed to MAP 1540 by the SRC tables and the SRC is B4xx2470, B4xx4470, or B4xx6470.	<ol style="list-style-type: none">1. JTAG cable 3M2. RIO cable3. Service processor card4. Boot device SCSI card5. I/O planar6. Return to SRC B4xx2470, B4xx4470, or B4xx6470 and perform the last 2 steps.
You have been directed to MAP 1540 by the SRC tables and the SRC is B4xx457x, B4xx657x, or 4B00F002.	<ol style="list-style-type: none">1. I/O planar2. Service processor card3. Boot device SCSI card

Symptom	Action
You have been directed to MAP 1540 by the SRC tables and the SRC is B0061305 or B0061306.	<ol style="list-style-type: none"> 1. Service processor card 2. I/O planar
You have been directed to MAP 1540 for any other reason.	<ol style="list-style-type: none"> 1. Boot device SCSI card 2. Boot device SCSI cable 3. Service processor card 4. I/O planar 5. Drawer indicator panel 6. Fan monitoring card 7. Both power supplies 8. Power distribution board.

Was the boot successful?

- No** Reinstall the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the boot to be successful.
- If you have replaced all the items listed above and the boot is not successful, 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 1540-23” on page 128.

Step 1540-23

If the boot is successful:

1. Turn off the power.
2. The item just replaced has fixed the problem.
3. If a display adapter with keyboard and mouse were used, reinstall the display adapter card, keyboard and mouse.
4. Reconnect the diskette drive cable to the service processor card.
5. Plug in all adapters that were previously removed but not reinstalled.
6. Reconnect the I/O drawer ac power cables that were previously disconnected.

Reconfigure the system to its original condition. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-24

If the boot is successful, the problem is with a remaining secondary I/O drawer. Turn off the power.

Is the primary I/O drawer the only drawer connected at this time?

No Go to "Step 1540-25".

Yes Reconnect the second I/O drawer in the configuration that you recorded earlier in this MAP.

Note: The I/O drawers should be cabled as shown in "Cabling the System Rack and I/O Rack" on page 31 under "System Rack Attached to two I/O drawers". Be sure examine both RIO cables and SPCN cables.

Step 1540-25

The last I/O drawer reconnected was a secondary I/O drawer. If the power is on, Turn off the power. Reconnect the next I/O drawer in the configuration you recorded earlier in this MAP.

Note: The I/O drawers should be cabled as shown in "Cabling the System Rack and I/O Rack" on page 31. Be sure examine both RIO cables and SPCN cables.

Go to "Step 1540-26".

Step 1540-26

Turn on the power.

Is the boot successful?

No Go to "Step 1540-27" on page 129.

Yes Go to "Step 1540-26a" on page 129.

Step 1540-26a

Is there another I/O drawer to connect?

NO The problem has changed. Call your next level of support.

YES Go to “Step 1540-25” on page 128.

Step 1540-27

The boot is not successful. The problem is in the last secondary I/O drawer that was connected. Do the following steps to deconfigure this secondary I/O drawer.

1. Turn off the power.
2. Unplug the ac power cables for the system rack and the I/O drawer.
3. Leave the external cables (RIO-port0, RIO-port1, SPCN-port0, SPCN-port1) connected.
4. Plug in the ac power cables for the system rack and the I/O drawer. The operator panel should now display a blank yellow backlighted LED panel.
5. Go to “Step 1540-28”.

Step 1540-28

Are there any adapters in slots 1, 2, 3, or 4?

No Go to “Step 1540-29”.

Yes Go to “Step 1540-32” on page 130.

Step 1540-29

Are there any adapters in slots 5, 6, 7, or 8?

No Go to “Step 1540-30”.

Yes Go to “Step 1540-33” on page 130.

Step 1540-30

Are there any adapters in slots 9 or 10?

No Go to “Step 1540-31”.

Yes Go to “Step 1540-34” on page 130.

Step 1540-31

Are there any adapters in slots 11, 12, 13, or 14?

No Go to “Step 1540-38” on page 132.

Yes Go to “Step 1540-35” on page 131.

Step 1540-32

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 1, 2, 3, and 4 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-29" on page 129.

Yes Go to "Step 1540-36" on page 131.

Step 1540-33

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 5, 6, 7, and 8 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-30" on page 129.

Yes Go to "Step 1540-36" on page 131.

Step 1540-34

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 9 and 10 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-31" on page 129.

Yes Go to "Step 1540-36" on page 131.

Step 1540-35

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 11, 12, 13, and 14 that are not attached to the boot device.
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.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.

Was the boot successful?

No Go to "Step 1540-38" on page 132.

Yes Go to "Step 1540-36".

Step 1540-36

If the boot was successful, the problem is with one of the adapter cards or devices that was removed or disconnected from the I/O drawer.

1. Turn off the power.
2. Replace one adapter or device that was removed. Use the original adapter cards in their original slots when reinstalling adapters.
3. Turn on the power.

Was the boot successful?

No Go to "Step 1540-37".

Yes Reinstall the next adapter or device and return to number 1 in this step. Continue repeating this process until an adapter or device causes the boot to be unsuccessful.

Step 1540-37

Replace the adapter or device that you just installed with a new adapter or device, and retry.

Was the boot successful?

No The I/O planar is defective, replace the I/O planar and continue below.

Yes The adapter or device was defective, continue below.

Reinstall all remaining adapters and reconnect all devices. Return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-38

If boot is unsuccessful, turn off the power and replace the remaining parts, (listed in the following table) in this drawer, one at a time. Turn on the power and check for a successful boot.

Symptom	Action
You have been directed to MAP 1540 by the SRC tables and the SRC is B4xx2470, B4xx4470, or B4xx6470.	1. I/O planar
You have been directed to MAP 1540 by the SRC tables and the SRC is NOT B4xx2470, B4xx4470, or B4xx6470.	1. I/O planar 2. Drawer indicator panel 3. Fan monitoring card 4. Both power supplies 5. Power distribution board.

Was the boot successful?

No Reinstall the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the boot to be successful.

If you have replaced all the items listed above and the boot is not successful, 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 1540-39".

Step 1540-39

If the boot is successful:

1. Turn off the power.
2. The item just replaced has fixed the problem.
3. Plug in all adapters that were previously removed but not reinstalled.
4. Reconnect the I/O drawer ac cables that were previously disconnected. Ensure the circuit breakers are set to the On position.

Reconfigure the system to its original condition. Go to "Map 0410: Repair Checkout" in the *Diagnostic Information for Multiple Bus Systems*.

Step 1540-40

The primary I/O drawer is the only I/O drawer that was connected to the system rack.

Note: Before continuing, check the cabling from the system rack to I/O drawers to ensure that the system is cabled correctly. Refer to “Cabling the System Rack and I/O Rack” on page 31 for valid configurations. Record the current cabling configuration and then continue with the following steps.

1. Turn the system power off.
2. At the system rack, swap cable connections at RIO port 0 and RIO port 1. The cable end that was connected to RIO port 0 should now be connected to RIO port 1. The cable end that was connected to RIO port 1 should now be connected to RIO port 0.
3. At the primary I/O drawer, swap cable connections at RIO port 0 and RIO port 1. The cable end that was connected to RIO port 0 should now be connected to RIO port 1. The cable end that was connected to RIO port 1 should now be connected to RIO port 0.
4. Verify that primary I/O drawer RIO port 0 is connected to the system rack RIO port 0.
5. Verify that primary I/O drawer RIO port 1 is connected to the system rack RIO port 1.
6. Verify that primary I/O drawer SPCN port 2 is connected to the system rack SPCN port 0.
7. Connect the primary I/O drawer SPCN port 2 to the system rack SPCN port 1.

Note: The primary I/O drawer should be cabled as shown in “Connecting RIO and SPCN Cables” on page 32 for “System Rack Attached to One I/O Drawer.” Be sure examine both RIO cables and SPCN cables.

8. Turn on the power.

Was the boot successful?

No Go to “Step 1540-12” on page 123.

Yes The RIO cable currently connected to the system rack RIO port 1 is defective. Replace it. Reconfigure the system to its original condition. Go to MAP 410: Repair Checkout in *Diagnostic Information for Multiple Bus Systems*.

Chapter 4. Checkpoints

Checkpoints are displayed on the operator panel when the system is going through powering on and the initial program load (IPL). This chapter explains the IPL flow of the system and provides a table that lists checkpoints that you may see during IPL.

IPL Flow

The IPL process starts when the power is turned on. The IPL process is comprised of four phases as defined below:

- **Phase 1: Service Processor Initialization**

Represents the time from system power-on (8-digit checkpoints on the operator panel) to the point that E0xx (4-digit checkpoints on the operator panel) checkpoints are displayed.

Note: Service processor menus can be accessed at the end of this phase.

- **Phase 2: Hardware Initialization by Service Processor**

Represents the time between the first 8-digit checkpoint after phase 1 to the point when the operator panel is first cleared (display is blank).

- **Phase 3: System Firmware initialization**

Represents the time from the end of phase 2 to the first appearance of 0000 (4-digit checkpoint on the operator panel). During this phase 4-digit checkpoints of the form Eyxx are displayed where y is not 0 (zero) and x can be any number in the range 0-F (hexadecimal).

- **Phase 4: AIX Boot**

Represents the time from the end of phase 3 until the time when the operator panel is cleared again. AIX login prompt follows shortly thereafter.

The following table outlines the IPL phases from power-on to the AIX login prompt, matching the phases to corresponding operator panel checkpoints for a typical system boot. Also listed are the approximate boot times for each phase, along with their dependencies for each phase.

Note: The table below lists the major checkpoints only.

Phase #	Checkpoints on Operator Panel	Time in phase (minutes)	Major contributors to time in phase
Phase 1	Power-on C1yx 1xxx C1yx 80xx C3yx xxxx E0xx	3 to 4	Number of I/O drawers
Phase 2	C3yx xxxx (blank)	1 to 4 (Fast) 5 to 15+ (Slow)	Fast/Slow boot setting Amount of memory Number of processors
Phase 3	Eyxx 0000	3 to 9+	Number of I/O drawers Number of bootable adapters
Phase 4	0000 (blank)	2 - 30+	Number of SSA drives Number of Adapters Number of Async sessions Number of SCSI devices Amount of memory

Checkpoints enable users and service personal 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. See the “System Information Menu” on page 457 for information on how to access the service processor error log.

Note: Go to “MAP 1540: Minimum Configuration” on page 117 for any of the following checkpoint hang conditions. If mentioned as an action, remember to run the system-rack minimum configuration:

- A four-digit code in the range of E001 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 have either four blank characters followed by the letter E, or eight characters that begin with the letter C. If your system hangs with a checkpoint displayed that begins with four blank characters and a character other than E, go to the *Diagnostic Information for Multiple Bus Systems*.

Use the table below to determine where to find the checkpoint.

Symptom	Action
You have a code that begins with four blank characters followed by the letter E.	This is a checkpoint listed in this section. Go to “Service Processor Checkpoints” on page 140 or “Firmware Checkpoints” on page 142 to find the checkpoint.
You have a code that begins with four blank characters followed by any character other than E.	Refer to the <i>Diagnostic Information for Multiple Bus Systems</i> manual.
You have an 8-character checkpoint that begins with C1xx or C3xx.	Go to “System Processor Checkpoints” on page 138

System Processor Checkpoints

If you replace FRUs or perform an action, and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 117 unless otherwise indicated in the tables.

If you replace FRUs or perform an action, and the problem is corrected, go to MAP 410: Repair Checkout in *Diagnostic Information for Multiple Bus Systems* unless otherwise indicated in the tables.

The following table lists checkpoints that are displayed during the system processor IPL.

Reference Code (IPL SRC)	Description/Function Performed	Action/ Possible Failing FRU
C1yx 1xxx	Service processor ROS IPL in progress	Go to “MAP 1540: Minimum Configuration” on page 117
C1yx 1006	Service processor ROS loading RAM from service processor-directed device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1007	Service processor ROS retrying attempt to load RAM from service processor-directed device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1008	Service processor ROS attempting to load RAM from non-service processor-directed device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1009	Service processor ROS retrying attempt to load RAM from non-service processor-directed device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1016	Service processor ROS attempting to load RAM from service processor default device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1018	Service processor ROS attempting to load RAM from non-service processor default device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1019	Service processor ROS retrying attempt to load RAM from non-service processor default device	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 100C	Service processor ROS IPL complete, branch to RAM loader	Go to “MAP 1540: Minimum Configuration” on page 117; follow the MAP steps to perform the system rack minimum configuration.

Reference Code (IPL SRC)	Description/Function Performed	Action/ Possible Failing FRU
C1yx 1030	Loading service processor system firmware from service processor device	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 1050	Loading service processor system firmware from non-service processor device	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 2001	Service processor setting up to test and load system processor	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 2002	Service processor testing system processor and main storage	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 2003	Service processor loading system processor	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C100 2034	Firmware (system) initialized, control passed to system processor	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C1yx 2050	Service processor waiting for load source device	Go to "MAP 1540: Minimum Configuration" on page 117
C1yx 2060	Service processor started a read command from load source	Go to "MAP 1540: Minimum Configuration" on page 117
C1yx 2090	Service processor completed a read command from load source	Go to "MAP 1540: Minimum Configuration" on page 117
C1yx 80xx	Service processor/operator panel communication in progress	Go to "MAP 1540: Minimum Configuration" on page 117
C1yx 805x	Service processor loading operator panel firmware	Go to "MAP 1540: Minimum Configuration" on page 117
C1yx 8C5x	VPD table data transferring from the operator panel to the service processor.	Go to "MAP 1540: Minimum Configuration" on page 117
C1yx B1xx	Basic assurance test completed on service processor	Go to "MAP 1540: Minimum Configuration" on page 117
C100 D009	Firmware (system) running initialization	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.
C3yx xxxx	System processor or main storage diagnostic in progress	Go to "MAP 1540: Minimum Configuration" on page 117; follow the MAP steps to perform the system rack minimum configuration.

Service Processor Checkpoints

If you replace FRUs or perform an action, and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 117 unless otherwise indicated in the tables.

If you replace FRUs or perform an action, and the problem is corrected, go to MAP 410: Repair Checkout in *Diagnostic Information for Multiple Bus Systems* unless otherwise indicated in the tables.

Service processor checkpoints are in the range E010 to E0FF. The message **OK** indicates successful service processor testing and initialization. Firmware checkpoints are listed in “Firmware Checkpoints” on page 142.

Table 2. Service processor Checkpoints

Checkpoint	Description	Action/ Possible Failing FRU
E010	Starting service processor self-tests	<ol style="list-style-type: none"> 1. Service processor card. Location: U0.1-P1-X1 AIX Location Code: 10-70 or 10-70 to 10-77 1E-xx 2. I/O planar in primary drawer. Location: U0.1-P1
E012	Beginning to set up service processor heaps	Service processor card. Location: U0.1-P1-X1
E020	Configuring CMOS	<ol style="list-style-type: none"> 1. I/O planar in primary drawer. Location: U0.1-P1 2. Service processor card. Location: U0.1-P1-X1
E021	Configuring NVRAM	<ol style="list-style-type: none"> 1. I/O planar in primary drawer. Location: U0.1-P1 2. Service processor card. Location: U0.1-P1-X1
E040	Configuring service processor I/O	<ol style="list-style-type: none"> 1. Loose or missing JTAG cable from service processor to system rack 2. Service processor card. Location: U0.1-P1-X1 3. I/O planar in primary drawer. Location: U0.1-P1
E042	Configuring modem on serial port 1	<ol style="list-style-type: none"> 1. Modem. 2. Service processor card. Location: U0.1-P1-X1 3. I/O planar in primary drawer. Location: U0.1-P1 4. Go to “Entry MAP” on page 79.

Table 2. Service processor Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E043	Configuring modem on serial port 2	<ol style="list-style-type: none"> 1. Modem. 2. Service processor card. Location: U0.1-P1-X1 3. I/O planar in primary drawer. Location: U0.1-P1 4. Go to "Entry MAP" on page 79.
E04F	Modem configuration successful	Re-IPL. Read progress indicators from last system boot to learn which process had requested modem configuration. The service processor (now hung) has returned to that process. Check the service processor and AIX error logs.
E070	Service processor is calling the service center	Be patient while the call is in progress. If hung at this checkpoint, check the modem, telephone system, and service center. Check the service processor and AIX error logs.
E071	Service processor is calling system administration	Be patient while the call is in progress. If hung at this checkpoint, check the modem, telephone system, and system administration. Check the service processor and AIX error logs.
E072	Service processor is calling the pager	Be patient while the call is in progress. If hung at this checkpoint, check the modem and the telephone system. Check the service processor and AIX error logs.
E075	Entering service processor menus Note: Before replacing any parts, ensure the S1 and S2 ports either have no cables attached or the cables are only attached to TTY or modem devices. These ports/cables should not be attached to another system or drawer.	<ol style="list-style-type: none"> 1. Exit service processor menus 2. Service processor card. Location: U0.1-P1-X1 3. I/O planar in primary drawer. Location: U0.1-P1 4. Go to "Entry MAP" on page 79.
E07A	Waiting for keystroke from local console	<ol style="list-style-type: none"> 1. Press a key 2. Wait a few seconds for timeout
E07B	Waiting for keystroke from remote console	<ol style="list-style-type: none"> 1. Press a key 2. Wait a few seconds for timeout
E07F	Service processor exiting from session with local or remote terminal.	
E080	Service processor flash update in progress	Be patient. If hung at this checkpoint, check the service processor and AIX error logs.

Table 2. Service processor Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E081	Service processor flash update completed	If hung at this checkpoint, check the service processor and AIX error logs.
E082	Service processor promoting flash from side B to side A.	The could take several minutes. Be patient; if hung at this checkpoint, check the service processor and AIX error logs.
E090	Changing the system processor configuration.	If hung at this checkpoint, check the service processor error log.
E0EF	End of service processor reporting	Service processor card. Location: U0.1-P1-X1

Note: If you receive a four-digit code in the range of E0xx that is not listed in the preceding table, go to “MAP 1540: Minimum Configuration” on page 117.

Firmware Checkpoints

Firmware uses progress codes (checkpoints) in the range of E1xx 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 140.

If you replace FRUs or perform an action, and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 117 unless otherwise indicated in the tables.

If you replace FRUs or perform an action, and the problem is corrected, go to MAP 410: Repair Checkout in *Diagnostic Information for Multiple Bus Systems* unless otherwise indicated in the tables.

Table 3. Firmware Checkpoints

Checkpoint	Description	Action/ Possible Failing FRU
E100	Reserved	See the note on page136.
E101	Create RTAS node	See the note on page136.
E102	Load/Init RTAS	See the note on page136.
E103	Set memory refresh (composite img)	See the note on page136.
E104	Set memory refresh (recovery block)	See the note on page136.
E105	Transfer control to operating system (normal boot).	See “Boot Problems” on page 155. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E108	Run recovery block base memory (test 2K), set stack	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E109	Copy CRC verification code to RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E10A	Load RTAS device tree	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E10B	Set RTAS device properties	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E10C	Jump to CRC verification code in RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E10D	Compute composite image CRC	See the note on page136.
E10E	Jump back to ROM	See the note on page136.
E10F	Transfer control to Open firmware	See the note on page136.
E110	Turn off cache; check if composite image CRC is valid	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E111	Good CRC - jump to composite image	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E112	Bad CRC - initialize base memory, stack	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E113	Bad CRC - copy uncompressed recovery block code to RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E114	Bad CRC - jump to code in RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E115	Bad CRC - turn on cache	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E116	Bad CRC - copy recovery block data section to RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E117	Bad CRC - Invalidate and flush cache, set TOC	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E118	Bad CRC - branch to high-level recovery control routine.	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E119	Initialize base memory, stack	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E11A	Copy uncompressed recovery block code to RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E11B	Jump to code in RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E11C	Turn on cache	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E11D	Copy recovery block data section to RAM	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E11E	Invalidate and flush cache, set TOC	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E11F	Branch to high-level control routine.	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E120	Initialize I/O and early memory block	See the note on page136.
E121	Initialize service processor	See the note on page136.
E125	Clear PCI devices command reg, go forth	See the note on page136.
E126	Check valid image - start	See the note on page136.
E127	Check valid image - successful	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E128	Disable interrupts, set int vectors for open firmware	See the note on page136.
E129	Validate target RAM address	See the note on page136.
E12A	Copy ROM to RAM, flush cache	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E12B	Set multi-processor operational parameters	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E12C	Set multi-processor CPU node characteristics	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E12D	Park secondary processors in parking lot	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E12E	Primary processor sync	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E12F	Unexpected return from open firmware (system lockup)	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E130	Build device tree	See the note on page136.
E131	Create root node	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E132	Create CPUs node	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E133	Create L2 cache node	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E134	Create memory node	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E135	Create memory DIMM node	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E136	Test memory	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E137	Create openprom node	See the note on page136.
E138	Create options node	See the note on page136.
E139	Create aliases node and system aliases	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E13A	Create packages node	See the note on page136.
E140	Operating system load	See the note on page136.
E149	Create boot mgr node	See the note on page136.
E14C	Create terminal-emulator node	See the note on page136.
E14D	Loading boot image	See "Boot Problems" on page 155.
E14E	Create client interface node/directory	See the note on page136.
E14F	NVRAM initialization	See the note on page136.
E150	Create host (primary) PCI controller node	See the note on page136.
E151	Probing primary PCI bus	See the note on page136.
E152	Probing for adapter FCOD; evaluate if present	See the note on page136.
E153	End adapter FCODE probe/evaluate	See the note on page136.
E154	Create PCI bridge node	See the note on page136.
E155	Probing PCI bridge secondary bus	See the note on page136.
E156	Create PCI ethernet node	See the note on page136.
E15A	Create 64-bit host (primary) PCI controller node	See the note on page136.
E15B	Transferring control to operating system (service mode boot)	See "Boot Problems" on page 155.
E15C	Probe primary 64-bit MPIC bus	See the note on page136.
E15D	Create host PCI controller node	See the note on page136.
E15E	Create multi-processor IC node	See the note on page136.
E15F	Adapter VPD probe	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E160	CPU node VPD creation	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E161	Create memory VPD	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E162	SP node VPD creation	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E163	Create CPU VPD	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E164	Create PCI graphic node (P9)	See the note on page136.
E165	Create planar-clock VPD	See the note on page136.
E166	Create CEC VPD	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E167	Create 7 EIA-unit I/O drawer VPD	See the note on page136.
E168	Create PCI graphic node (S3)	See the note on page136.
E169	Create 10 EIA-unit I/O drawer VPD	See the note on page136.
E170	Start of PCI bus Probe	See the note on page136.
E171	Executing PCI-Delay function	See the note on page136.
E172	First pass PCI device probe	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E174	Establishing host connection	<p>If the system is not connected to an active network or if the target server is inaccessible (which can also result from incorrect IP parameters being supplied), the system will still attempt to boot. Because time-out durations are necessarily long to accommodate retries, the system may appear to be hung.</p> <p>Restart the system and access the firmware SMS utilities. In the utilities, check:</p> <ul style="list-style-type: none"> • Is the intended boot device correctly specified in the boot list? • Are the IP parameters correct? • Verify the network connection (network could be down). • Have network administrator verify the server configuration for this client. • Attempt to “ping” the target server using the SMS “Ping” utility.
E175	BootP request	Refer to checkpoint E174.
E176	TFTP file transfer	See the note on page136.
E177	Transfer failure due to TFTP error condition	See the note on page136.
E178	Create PCI token ring node	See the note on page136.
E17B	Processor bus speed check	<ol style="list-style-type: none"> 1. I/O planar 2. See the note on page136.
E180	Service processor command setup	See the note on page136.
E181	Send drawer data to I/O planar	See the note on page136.
E182	Request 10 EIA-unit I/O drawer I/O planar VPD	See the note on page136.
E183	Service processor Post	See the note on page136.
E184	Request 10 EIA-unit I/O drawer drawer interface panel VPD	See the note on page136.
E185	Add 10 EIA-unit I/O drawer drawer interface panel VPD to NVRAM and device tree	See the note on page136.
E186	Request PS1 VPD	See the note on page136.
E187	Add PS1 VPD to NVRAM and device tree	See the note on page136.
E188	Request PS2 VPD	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E189	Add PS2 VPD to NVRAM and device tree	See the note on page136.
E18A	Request fan monitoring card VPD	See the note on page136.
E18B	Add fan monitoring card VPD to NVRAM and device tree	See the note on page136.
E18C	VPD and data communications with I/O planar complete	See the note on page136.
E190	Create ISA node	See the note on page136.
E191	Create ISA reserved node	See the note on page136.
E193	Initialize Super I/O	See the note on page136.
E196	Probe ISA bus	See the note on page136.
E199	Reboot after flash	Try to boot system a second time. If this does not work, replace the I/O planar. See the note on page136.
E19B	Create service processor node	See the note on page136.
E19C	Create tablet node	See the note on page136.
E19D	Create NVRAM node	See the note on page136.
E19E	Real-time clock (RTC) initialization	Refer to error code 28030xxx in “Firmware/POST Error Codes” on page 159.
E1AD	See description of checkpoint E1DE	See the note on page136.
E1B0	Create lpt node	See the note on page136.
E1B1	Create serial node	See the note on page136.
E1B2	Create audio node	See the note on page136.
E1B3	Create 8042 node	1. Replace the service processor card. Location: U0.1-P1-X1 AIX Location Code: 10-70 or 10-70 to 10-77 1E-xx 2. Go to “MAP 1540: Minimum Configuration” on page 117.
E1B6	Probe for (ISA) keyboard	1. Replace keyboard 2. Replace the service processor card. Location: U0.1-P1-X1 AIX Location Code: 10-70 or 10-70 to 10-77 1E-xx 3. Replace the I/O planar. Location: U0.1-P1 4. Go to “MAP 1540: Minimum Configuration” on page 117.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E1BA	Enable L2 cache	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1BB	Set cache parms for burst	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1BC	Set cache parms for 512KB	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1BD	Probe for (ISA) mouse	<ol style="list-style-type: none"> 1. Replace mouse 2. Replace the service processor card. Location: U0.1-P1-X1 AIX Location Code: 10-70 or 10-70 to 10-77 1E-xx 3. Replace the I/O planar. Location: U0.1-P1 4. Go to "MAP 1540: Minimum Configuration" on page 117.
E1BE	Create op panel node	See the note on page136.
E1BF	Create pwr mgmt node	See the note on page136.
E1C0	Create ISA ethernet node	See the note on page136.
E1C4	Build ISA timer chip node	See the note on page136.
E1C5	Create ISA interrupt controller (pic) node	See the note on page136.
E1C6	Create DMA node	See the note on page136.
E1D0	Create PCI SCSI node	See the note on page136.
E1D3	Create (* wildcard *) SCSI block device node (SD)	See the note on page136.
E1D4	Create (* wildcard *) SCSI byte device node (ST)	See the note on page136.
E1DB	Create floppy controller (FDC) node	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E1DC	Dynamic console selection.	<p>If a console is attached but nothing is displayed on it, follow the steps associated with "All display problems" in the Entry MAP tables.</p> <p>If selection screen(s) can be seen on the terminals and the appropriate key on the input device associated with the desired display or terminal is pressed within 60 seconds, but there is no response to the keystroke:</p> <ul style="list-style-type: none"> • If selecting the console with a keyboard attached to the system, replace the keyboard. If replacing the keyboard does not fix the problem, replace the service processor card Location: U0.1-P1-X1. • If selecting the console with an ASCII terminal, suspect the ASCII terminal. Use the problem determination procedures for the terminal. Replace the service processor card if these procedures do not reveal a problem. Note: Terminal settings should be set to: <ul style="list-style-type: none"> – 9600 Baud – No Parity – 8 Data bits – 1 Stop bit <p>Location: U0.1-P1-X1</p>
E1DD	Early processor exception	See the note on page136.
E1DE	Alternating pattern of E1DE and E1AD is used to indicate a default catch condition before the firmware "checkpoint" word is available.	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1DF	Create diskette drive (disk) node	See the note on page136.
E1E0	Program flash	See the note on page136.
E1E1	Flash update complete	See the note on page136.
E1E2	Initialize System I/O	See the note on page136.
E1E3	PRReP boot image initialization.	See the note on page136.
E1E4	Initialize Super I/O with default values	See the note on page136.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E1E5	XCOFF boot image initialization	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1E6	Set up early memory allocation heap	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1E7	PE boot image initialization	See the note on page136. When performing MAP 1540, follow the MAP steps to perform the system rack minimum configuration.
E1E8	Initialize primary diskette drive (polled mode)	See the note on page136.
E1E9	ELF boot image initialization	See the note on page136.
E1F0	Start O.B.E.	See the note on page136.
E1F1	Begin selftest sequence on boot device(s). Begin SMS.	See the note on page136.
E1F2	Power-on password prompt.	Prompt should be visible on the system console. If a console is attached but nothing is displayed on it, go to the "Entry MAP" on page 79 with the symptom "All display problems."
E1F3	Privileged-access password prompt	Prompt should be visible on the system console. If a console is attached but nothing is displayed on it, go to the "Entry MAP" on page 79 with the symptom "All display problems."
E1F5	Build boot device list	See the note on page136.
E1F6	Determine boot device sequence	See the note on page136.
E1F7	No boot image located	See the note on page136.
E1FB	Scan SCSI bus for attached devices	See the note on page136.
E1FD	The operator panel will alternate between the code E1FD and another Exxx code, where Exxx is the point at which the error occurred.	If the Exxx is not listed in this table, go to "MAP 1540: Minimum Configuration" on page 117.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E440	Validate NVRAM, initialize partitions as needed	<ol style="list-style-type: none"> 1. Verify that the system firmware levels are at the current release levels, update as necessary. 2. Replace service processor card if problem persists. Location: U0.1-P1-X1 <p>See the note on page136.</p>
E441	Generate /options node NVRAM configuration variable properties	<ol style="list-style-type: none"> 1. Verify that the system firmware levels are at the current release levels, update as necessary. 2. Replace service processor card if problem persists. Location: U0.1-P1-X1 <p>See the note on page136.</p>
E442	Validate NVRAM partitions	<ol style="list-style-type: none"> 1. Verify that the system firmware levels are at the current release levels, update as necessary. 2. Replace service processor card if problem persists. Location: U0.1-P1-X1 <p>See the note on page136.</p>
E443	Generate NVRAM configuration variable dictionary words	<ol style="list-style-type: none"> 1. Suspect a system firmware problem if problem persists. Verify that the system firmware is at current release level, update downlevel system firmware. <p>See the note on page136.</p>
E500	Configure remote I/O subsystem	<ol style="list-style-type: none"> 1. Configure I/O subsystem 2. The appearance of this code indicates that the I/O subsystem configuration has started or progressed to the point where the code can be displayed. <p>See the note on page136.</p>

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E5xy (E511 - E5FF) Where x is not equal to 0, and y is not equal to 0.	Configure remote I/O subsystem components	<p>The E5xy (E511 to E5FF) codes are reserved for activities relating to configuration or testing of the I/O subsystem, or remote I/O subsystem. A hang at one of these codes implies that a severe error occurred during the programming of I/O subsystem registers or when interacting with adapters plugged into the system. The last two digits in the checkpoint can be used to help isolate the location of the I/O activity that caused the problem.</p> <p>“x” indicates the I/O drawer number. “y” indicates the PCI bus occurrence.</p> <p>If x=_, then the I/O drawer is:</p> <p>X = I/O drawer 1 = 0 2 = 1 3 = 2 4 = 3</p> <p>If y=_, then the PCI bus is:</p> <p>Y = PCI bus 1 = 0 2 = 1 3 = 2 4 = 3</p> <p>See “AIX and Physical Location Code Reference Tables” on page 48 in Chapter 1, for location codes.</p> <p>Using the information above, go to “MAP 1540: Minimum Configuration” on page 117.</p>
E600	SSA PCI adapter Open firmware has run successfully.	Replace the adapter. See note5 on page 157 for location code information related to this error.
E601	SSA PCI adapter BIST has started but failed to complete after four seconds.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
E602	SSA PCI adapter Open firmware has started.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
E603	SSA PCI adapter BIST has completed with an error.	Replace the adapter. See note 5 on page 157 for location code information related to this error.

Table 3. Firmware Checkpoints (continued)

Checkpoint	Description	Action/ Possible Failing FRU
E604	SSA PCI adapter BIST and subsequent POSTs have completed successfully.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
E605	SSA PCI adapter BIST has completed successfully but the subsequent POSTs have failed.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
E60E	SSA PCI adapter Open firmware about to exit (no stack corruption).	Replace the adapter. See note 5 on page 157 for location code information related to this error.
E60F	SSA PCI adapter Open firmware has run unsuccessfully.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
E6FF	SSA PCI adapter Open firmware about to exit (with stack corruption).	Replace the adapter. See note 5 on page 157 for location code information related to this error.

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 1540: Minimum Configuration” on page 117.

Boot Problems

Depending on the boot device, a checkpoint may be displayed on the operator panel 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 or code is displayed for an extended time, there may be a problem loading the boot image from the device. If booting from CD-ROM or tape, watch for activity on the drive’s LED indicator. A blinking LED indicates that the loading of either the boot image or additional information required by the operating system being booted is still in progress.

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.

- Try to boot and run diagnostics against the system, particularly against the intended boot device. If the diagnostics are successful, it may be necessary to perform an operating system-specific recovery process, or reinstall the operating system.
- If attempting to boot from a hard disk, CD-ROM, or tape drive:
 1. Try a different CD or tape (unless booting from hard disk).
 2. Verify correct SCSI bus termination.
 3. Replace SCSI cable.
 4. It is possible that another attached SCSI device is causing the problem.

Disconnect any other SCSI devices attached to the same controller as the one the boot device is attached to and retry the boot operation. If this is successful, one of the devices removed is causing the problem. Re-attach devices one by one, and retry the boot operation until the problem recurs. Then replace the device that caused the problem.

5. Replace SCSI adapter.
 6. Replace SCSI drive.
 7. It is possible that another installed adapter is causing the problem.
Remove all installed adapters except the one the boot device is attached to and the one that the CD-ROM drive is attached to. Try to boot the diagnostics from the CD-ROM drive, and run the diagnostics against the system.
If this is successful, reinstall adapters (and attached devices as applicable) that were removed, one at a time, and run the standalone diagnostics against the system.
 8. Replace the I/O drawer planar.
- If you replaced the indicated FRUs and the problem is still not corrected, or the preceding descriptions did not address your particular situation, go to “MAP 1540: Minimum Configuration” on page 117.

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, and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 117 unless otherwise indicated in the tables.

If you replace FRUs or perform an action, and the problem is corrected, go to MAP 410: Repair Checkout in *Diagnostic Information for Multiple Bus Systems* unless otherwise indicated in the tables.

Notes:

1. These error codes have as their first character the numbers 2, 4, or M. Codes that begin with other characters are listed in “Unit Reference Codes” on page 185.
2. Codes that begin with four blank characters followed by the letter E are part of the set of checkpoints listed in “Chapter 4. Checkpoints” on page 135. If you have a code that begins with four blanks followed by any character other than E, refer to the *Diagnostic Information for Multiple Bus Systems* manual.
3. Licensed programs frequently rely on network configuration, and system information stored on the VPD on the operator panel. If the MAPs indicate that the operator panel should 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.
4. If a network adapter is replaced, the network administrator must be notified so that the client IP addresses used by the server 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 server that addresses this system is updated.
5. Check the system error logs to determine the location code information associated with the error code that directed you to this note. Find the location code in the “AIX and Physical Location Code Reference Tables” on page 48 to determine the location of the failing device.

Refer to the “Display Error Log” on page 481 to display the error log and obtain the location code. If it is not possible to get to the System Management Services utility, display the error log using the service processor menus described in “Chapter 7. Service Processor Menus” on page 447.

To determine which I/O drawer is failing, you may find a status LED on an I/O drawer is indicating a fault. Check the status lights on the fronts of each installed I/O drawer to isolate failures to a single drawer. See “I/O Drawer Indicator Panel” on page 30 for the location and meaning of the lights (LEDs) on the I/O drawer indicator panel.

The following table is an index to the checkpoints, error codes, or System Reference Codes (SRC) that you may receive to help diagnose a failure. Locate the code you received and follow the instructions to determine your next step.

Table 4. Checkpoints, Error Codes, and SRC Index

First 4 characters of code	Type of Code	What You Should Do
0000	Operator Panel Reference Codes	Go to “(0000) Operator Panel Reference Codes” on page 187 and follow the instructions in the SRC table.
1xxx	System power control network (SPCN) reference codes	Go to “(1xxx) System Power Control Network (SPCN) Reference Codes” on page 189 and follow the instructions in the SRC table.
2xxx	Firmware error codes	Go to “Firmware/POST Error Codes” on page 159 and follow the instructions in the Firmware Error Codes tables.
4xxx	Service processor error codes	Go to “Firmware/POST Error Codes” on page 159 and follow the instructions in the Service processor Error Codes table.
A1xx	Service processor reference codes	Go to “(A1xx, B1xx) Service processor Reference Codes” on page 216 and follow the instructions in the SRC table.
B006	Common firmware reference codes	Go to “(B006) Common Firmware Reference Codes” on page 218 and follow the instructions in the SRC table.
B1xx	Service processor reference codes	Go to “(A1xx, B1xx) Service processor Reference Codes” on page 216 and follow the instructions in the SRC table.
B4xx	System processor reference codes	Go to “(B4xx) System Processor Reference Codes” on page 220 and follow the instructions in the SRC table.
C1xx	System processor checkpoints	These codes are checkpoints that display on the operator panel during IPL of the system. You may suspect that the IPL is not advancing correctly when the six rightmost characters do not change for two minutes. The IPL may take longer with more I/O units and main storage.
C3xx	IPL status checkpoints	These codes are checkpoints that display on the operator panel during IPL of the system. You may suspect that the IPL is not advancing correctly when the six rightmost characters do not change for two minutes. The IPL may take longer with more I/O units and main storage. Go to “Chapter 4. Checkpoints” on page 135 for information about these checkpoints.
D106 8000	AIX dump not enabled	Informational code
D182 3080	AIX dump in progress	Informational code
D1xx 8xxx	Power coming down	Informational code
D1xx xxxx	Service processor General Status SRCs	If you suspect a problem, ask your next level of support for assistance.
Mxxx	Problem Determination Generated Error Codes	Go to “Firmware/POST Error Codes” on page 159 and follow the instructions in the Firmware Error Codes tables.

Firmware/POST Error Codes

Attention: If you replace FRUs or perform an action, and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 117 unless otherwise indicated in the tables.

If you replace FRUs or perform an action, and the problem is corrected, go to MAP 410: Repair Checkout in *Diagnostic Information for Multiple Bus Systems* unless otherwise indicated in the tables.

Table 5. Firmware Error Codes.

Error Code	Description	Action/ Possible Failing FRU
20110xyy	I/O drawer power supply failure	<p>1. Replace power supply “y” in I/O drawer “xx”.</p> <p>If y=_, then the power supply is:</p> <p>y = power supply 3 = Both power supplies (10 EIA-unit I/O drawer) 2 = Reserved 1 = Reserved</p> <p>If xx=__, then the I/O drawer is:</p> <p>xx = I/O drawer 1 = 0 2 = 1 3 = 2 4 = 3</p> <p>See “AIX and Physical Location Code Reference Tables” on page 48, for location codes.</p> <p>2. Check ac power source to I/O drawer “xx”.</p> <p>xx = I/O drawer 1 = 0 2 = 1 3 = 2 4 = 3</p> <p>See “AIX and Physical Location Code Tables” in Chapter 1, for location codes.</p>

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
203w0xyz	<p>Remote I/O (RIO) configuration warning.</p> <p>This code indicates that an 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 drawers 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 drawers by the presence of fan motion.</p> <p>The following numbers may be used to help isolate the failing component.</p> <ul style="list-style-type: none"> • w = loop number. This is either 0 or 1 in a system with 2 RIO loops. • x = Always 0. • y is either 1, 2, 3, or 4 on a system with 2 loops. y indicates the nearest associated RIO port number on the system rack according to the following table: <p style="margin-left: 40px;">y = nearest RIO Port 1 = 0 2 = 1 3 = 2 4 = 3</p> <ul style="list-style-type: none"> • z = B, indicates a missing return line from the I/O drawer to the system rack. • z = C, indicates a missing link between two I/O drawers. • z = E, indicates an I/O drawer was found connected to RIO port 3 with no return to the system rack, and no I/O drawer 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 1540: Minimum Configuration” on page 117.
20A80000	Insufficient information to boot.	Verify the IP address.
20A80001	Client IP address is already in use by other network device	Change IP address.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
20A80002	Cannot get gateway IP address	Refer to Table 3 on page 142 using code E174 .
20A80003	Cannot get server hardware address	Refer to Table 3 on page 142 using code E174 .
20A80004	Bootp failed	Refer to Table 3 on page 142 using code E175 .
20A80005	File transmission (TFTP) failed.	Check network connection, try again.
20A80006	Boot image too large	Contact your next level of support for assistance.
20D00xxx	Unknown/unrecognized device	
20D0000F	Self-test failed on device, no error and/or location code information available	Refer to note 5 on page 157 to see if a location code is available for the device the error was reported against. 1. Replace device indicated by the location code (if available). 2. Go to "MAP 1540: Minimum Configuration" on page 117.
20D00010	Self-test failed on device, cannot locate package	Contact your service support representative for assistance.
20D00011	Firmware RTAS attempt to allocate memory failed.	Contact your next level of support for assistance.
20E00xxx	Security	
20E00001	Privileged-access password entry error.	The password has been entered incorrectly. Retry installing the password.
20E00004	Battery drained or needs replacement	1. Replace system rack operator panel battery Location: U1.1-P1-L1. 2. Replace system rack operator panel. (See notes on page 157.) 3. Replace I/O planar in primary drawer Location: U0.1-P1.
20E00009	Invalid password entered - system locked	The password has been entered incorrectly three times. Turn off, then turn on the system unit, then enter the password correctly.
20EE0xxx	Informational	
20EE0003	IP parameter requires 3 dots "."	Enter valid IP parameter. Example: 000.000.000.000
20EE0004	Invalid IP parameter	Enter valid IP parameter. Example: 000.000.000.000

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
20EE0005	Invalid IP parameter (>255)	Enter valid IP parameter. Example: 255.192.002.000
20EE0006	No recognized SCSI adapter present	This warning occurs when the selected SMS function cannot locate any SCSI adapter supported by the function. If a supported SCSI adapter is installed: 1. Replace SCSI adapter(s). 2. Replace the I/O drawer planar in drawer(s) containing SCSI adapter(s).
20EE0007	Keyboard not found	1. Plug in keyboard. 2. Replace service processor card; Location: U0.1-P1-X1.
20EE0008	No configurable adapters found in the system	This warning occurs when the selected SMS function cannot locate any devices/adapters supported by the function. If a supported device is installed: 1. Replace the device or adapter. (See notes on page 157.) 2. Replace the I/O drawer planar in the drawer(s) containing the device/adapter.
20EE0009	Unable to communicate with the service processor	1. Replace the service processor card. Location: U0.1-P1-X1. 2. Replace the I/O planar in primary drawer Location: U0.1-P1.
20EE000B	The system was not able to find an operating system on the device list that was attempted.	Modify the boot sequence (also known as boot list) to include devices that are known to contain a copy of the operating system. This can be accomplished by using the system management services 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.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
20EE000C	Pointer to the operating system found in nonvolatile storage.	<p>Values normally found in nonvolatile storage that point to the location of an operating system were not found. This can happen for two reasons:</p> <ul style="list-style-type: none"> • Either your installed operating system doesn't support storing the values <p>OR</p> <ul style="list-style-type: none"> • Some event occurred that caused the system to lose nonvolatile storage information (drainage or replacement of the battery). <p>If you are running AIX, this information can be reconstructed by running the bootlist command specifying the device that the operating system is installed on. Refer to your AIX documentation for the exact syntax and usage of the bootlist command.</p> <p>To boot the operating system so that the above- mentioned values can be reconstructed, power the system down and power it back up 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 boot list) to include devices that are known to contain a copy of the operating system. This can be accomplished by using the system management services 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.</p>

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
21A000xxx	SCSI device errors	<p>Notes:</p> <ol style="list-style-type: none"> 1. Before replacing any system components: <ol style="list-style-type: none"> a. Ensure that the controller and each device on the SCSI bus is assigned a unique SCSI ID. b. Ensure SCSI bus is properly terminated. c. Ensure SCSI signal and power cables are securely connected and not damaged. 2. 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.
21A00001	Test unit ready failed - hardware error	<p>Refer to the notes in error code 21A000xxx.</p> <ol style="list-style-type: none"> 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller.
21A00002	Test unit ready failed - sense data available	<p>Refer to the notes in error code 21A000xxx.</p> <ol style="list-style-type: none"> 1. Replace the media (removable media devices). 2. Replace the SCSI device.
21A00003	Send diagnostic failed	Refer to the notes in error code 21A000xxx. Replace the SCSI device.
21A00004	Send diagnostic failed - DevOfI cmd	Refer to the notes in error code 21A000xxx. Replace the SCSI device.
21E00xxx	SCSI tape	Refer to 21A00xxx for a description and repair action for the xxx value.
21ED0xxx	SCSI changer	Refer to 21A00xxx for a description and repair action for the xxx value.
21EE0xxx	Other SCSI device type	Refer to 21A00xxx for a description and repair action for the xxx value.
21F00xxx	SCSI CD-ROM	Refer to 21A00xxx for a description and repair action for the xxx value.
21F20xxx	SCSI read/write optical	Refer to 21A00xxx for a description and repair action for the xxx value.
22000001	PCI Ethernet BNC/RJ-45 or PCI Ethernet AUI/RJ-45 adapter internal wrap test failure	Replace the adapter. See note 5 on page 157 for location code information related to this error.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
22001001	10/100 Mbps Ethernet PCI adapter internal wrap test failure	Replace the adapter. See note 5 on page 157 for location code information related to this error.
22010001	PCI Auto LANstreamer Token Ring Adapter failed to complete hardware initialization.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
22011001	PCI token ring adapter failed to complete hardware initialization.	Replace the adapter. See note 5 on page 157 for location code information related to this error.
25A00001	Cache L2 controller failure	<ol style="list-style-type: none"> 1. Replace the processor card. See note 5 on page 157 for processor card location information. 2. Replace the system back plane assembly. Location: U1.1-P1.
25A10001	Cache L2 SRAM failure	<ol style="list-style-type: none"> 1. Replace the processor card. See note 5 on page 157 for processor card location information.
25A80xxx	NVRAM problems	<p>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 25A80000 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.</p> <p>If the error is persistent, replace the service processor card, Location: U0.1-P1-X1</p>
25A80000	Initialization failed, device test failed	Refer to Action under error code 25A80xxx.
25A80001	Init-NVRAM invoked; all of NVRAM initialized	Refer to Action under error code 25A80xxx.
25A80002	Init-NVRAM invoked; some data partitions may have been preserved.	Refer to Action under error code 25A80xxx.
25A80011	Data corruption detected; all of NVRAM initialized	Refer to Action under error code 25A80xxx.
25A80012	Data corruption detected; some data partitions may have been preserved.	Refer to Action under error code 25A80xxx.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
25A80100	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 25A80xxx.
25A80201	Unable to expand target partition - Saving configuration variable.	Refer to Action under error code 25A80xxx.
25A80202	Unable to expand target partition - Writing error log entry.	Refer to Action under error code 25A80xxx.
25A80203	Unable to expand target partition - Writing VPD data.	Refer to Action under error code 25A80xxx.
25A80210	Setenv/\$Setenv parameter error - name contains a null character.	Refer to Action under error code 25A80xxx.
25A80211	Setenv/\$Setenv parameter error - value contains a null character.	Refer to Action under error code 25A80xxx.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
25A80998	NVRAMRC script evaluation error - command line execution error	<p>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.</p> <ol style="list-style-type: none"> 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. <ol style="list-style-type: none"> a. Select the SCSI ID utility from the SMS menu(s). <ol style="list-style-type: none"> 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.
25A80999	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.
25B00001	Memory card error	Replace memory card. See note 5 on page 157 for memory card location code information.
25B00002	Memory card mismatch. One memory card in a quad does not match the other three memory cards in the quad.	Replace the mismatched memory card. The mismatched memory card is identified by its location code. See note 5 on page 157 for memory card location code information.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
25B00003	Multiple memory card mismatch. Multiple memory cards in a quad do not match the other memory cards in the quad.	Compare all memory cards in the quad. All four memory cards in the quad must match. Replace the memory cards that are not of the correct type. The mismatched memory cards are identified by their location codes. See note 5 on page 157 for memory card location code information.
26020001	Invalid PCI adapter vendor ID	<ol style="list-style-type: none"> 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 power supply. 7. Replace I/O board. Location: U0.1-P1. (See notes on page 157.)
26020002	Invalid PCI adapter device ID	<ol style="list-style-type: none"> 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 power supply. 7. Replace I/O board. Location: U0.1-P1. (See notes on page 157.)
26020003	Invalid PCI adapter class code	<ol style="list-style-type: none"> 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 power supply. 7. Replace I/O board (See notes on page 157.)

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
26020007	Failed to allocate bus resources to PCI adapter	<ol style="list-style-type: none"> 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 power supply. 7. Replace I/O board (See notes on page 157.)
26800Axy	MX-PCI bridge BIST Failure	<p>The problem is associated with bridge "y" in I/O drawer "x."</p> <p>Replace I/O drawer planar.</p> <p>"x" indicates the I/O drawer number.</p> <p>If x=_, then the I/O drawer is:</p> <p>x = I/O drawer 1 = 0 2 = 1 3 = 2 4 = 3</p> <p>See "AIX and Physical Location Code Reference Tables" on page 48 in Chapter 1, for location codes.</p>
26800Cxx	Machine check occurred.	<ol style="list-style-type: none"> 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 drawer planar. <p>See note 5 on page 157 for location code information related to this error.</p>

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
26800Dxx	Machine check occurred. Unable to isolate to a single device on a PCI bus. xx indicates the PCI bus number with the error.	<ol style="list-style-type: none"> 1. Refer to "Bus SRN to FRU Reference Table" on page 440 using PCI bus number xx to isolate the failing device. 2. Attempt to reboot the system in service mode; this preserves the AIX error log. If the reboot fails, attempt to reboot from the AIX diagnostics CD in the CD-ROM drive. If the reboot is successful, run diagnostics in problem determination mode to determine the cause of the failure. 3. Go to "MAP 1540: Minimum Configuration" on page 117.
28030xxx	Real time clock (RTC) errors	
28030001	RTC not updating - RTC initialization required	<p>Errors reported against the RTC 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.</p> <p>To set/restore the time and date, use the operating system facility.</p> <p>If the error is persistent:</p> <ol style="list-style-type: none"> 1. Replace the system rack operator panel battery. Location: U1.1-P1-L1. 2. Replace the service processor card;. Location: U0.1-P1-X1. 3. Replace the system rack operator panel. Location: U1.1-P1-L1.
28030002	Bad time/date values	<ol style="list-style-type: none"> 1. Set time and date. 2. Refer to Action under error code 28030001.
28030003	RTC not updating - not correctable	Replace the service processor card. Location: U0.1-P1-X1.
28030004	RTC operating mode parameters (for example, data mode) changed	<ol style="list-style-type: none"> 1. Set time and date. 2. Refer to Action under error code 28030001.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
28030005	RTC battery error	<ol style="list-style-type: none"> 1. Replace the system rack operator panel battery. Location: U1.1-P1-L1. Note: Password, time, and date need to be set. 2. Refer to Action under error code 28030001.
28A00337	Environmental condition, I/O planar over temperature.	<ol style="list-style-type: none"> 1. Check for cool air flow obstructions to the I/O drawer. 2. Replace I/O drawer planar. <p>See note 5 on page 157 for location code information related to this error.</p>
28A00340	Fan failure.	<ol style="list-style-type: none"> 1. Replace I/O drawer fans 2. Fan monitoring card 3. Fan cable 4. Indicator card 5. Planar-to-indicator card cable 6. Replace I/O drawer planar. <p>To identify failing I/O drawer location, see note 5 on page 157.</p>
28A00341	10 EIA-Unit I/O Drawer Right power supply EPOW.	<p>10 EIA-Unit I/O Drawer</p> <ol style="list-style-type: none"> 1. Right power supply. 2. Power distribution board. 3. I/O planar <p>To identify failing I/O drawer location, see note 5 on page 157.</p>
28A00342	10 EIA-Unit I/O Drawer Left power supply EPOW.	<p>10 EIA-Unit I/O Drawer</p> <ol style="list-style-type: none"> 1. Left power supply. 2. Power distribution board. 3. I/O planar <p>To identify failing I/O drawer location, see note 5 on page 157.</p>
28A00343	<p>System rack EPOW.</p> <p>This error can be caused by power outages. If the problem persists, perform the Action/Possible Failing FRU to correct the error.</p>	<ol style="list-style-type: none"> 1. Check SPCN cables from I/O Rack to system rack. 2. Replace SPCN card Location code: U1.1-P2-X1 3. Replace System Rack ac Box Location code: U1.2-V7 <p>If you have replaced all FRUs listed and the problem persists, call your next level of support for assistance</p>

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
28A00344	EPOW monitoring hardware is downlevel.	1. Replace I/O drawer planar. See note 5 on page 157 for location code information related to this error.
28A00345	Power supply EPOW. Both power supplies have failed.	1. Replace I/O drawer power supplies 1 and 2. 2. Replace I/O drawer planar. See note 5 on page 157 for location code information related to this error.
28A00346	Power supply EPOW. Only one power supply is present and it has failed.	1. Replace I/O drawer power supply. 2. Replace I/O drawer planar. See note 5 on page 157 for location code information related to this error.
28A00347	Environmental condition. One power supply and one fan has failed.	1. Replace failing power supply and failing fan in I/O drawer. 2. Replace I/O drawer planar. See note 5 on page 157 for location code information related to this error.
28A00348	Power supply EPOW. Loss of redundant power supply. Two power supplies are present and one has failed.	1. Replace I/O drawer failing power supply. 2. Replace I/O drawer planar. See note 5 on page 157 for location code information related to this error.
28A00350	Thermal I2C bus hang. Firmware cannot read the status of the thermal sensors. This error will prevent the system from booting.	Replace I/O drawer planar. To identify failing I/O drawer location, see note 5 on page 157.
28A00351	VPD I2C bus hang. Firmware cannot read the VPD in the indicated I/O drawer.	Replace I/O drawer planar. To identify failing I/O drawer location, see note 5 on page 157.
28A00352	FMC I2C bus hang. Firmware cannot read the status of the fan sensors. This error will prevent the system from booting.	1. Replace the fan monitoring card. 2. Replace the power distribution board. 3. Replace I/O drawer planar. To identify failing I/O drawer location, see note 5 on page 157.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
28A00353	PS1 I2C bus hang. Firmware cannot read the status of the first power supply.	<ol style="list-style-type: none"> 1. Replace power supply 1. 2. Replace the power distribution board. 3. Replace I/O drawer planar. <p>To identify failing I/O drawer location, see note 5 on page 157.</p>
28A00354	Drawer indicator panel I2C bus hang. Firmware cannot read the status of the drawer indicator panel.	<ol style="list-style-type: none"> 1. Replace the drawer indicator panel 2. Replace I/O drawer planar. <p>To identify failing I/O drawer location, see note 5 on page 157.</p>
28A00355	PS2 I2C bus hang. Firmware cannot read the status of the second power supply.	<ol style="list-style-type: none"> 1. Replace power supply 2. 2. Replace the power distribution board. 3. Replace I/O drawer planar. <p>To identify failing I/O drawer location, see note 5 on page 157.</p>
29000002	Keyboard/Mouse controller failed self-test	Replace the service processor card. Location: U0.1-P1-X1.
29A00003	Keyboard not present/detected	<ol style="list-style-type: none"> 1. Keyboard 2. Keyboard cable 3. Replace the service processor card. Location: U0.1-P1-X1.
29A00004	Keyboard stuck key detected	<ol style="list-style-type: none"> 1. Keyboard 2. Replace the service processor card. Location: U0.1-P1-X1.
29B00004	Mouse not present/detected	<ol style="list-style-type: none"> 1. Mouse 2. Replace the service processor card. Location: U0.1-P1-X1.
2B2xxx11	Processor is manually disabled.	Use the service processor menus to re-enable the processor and reboot the system.
2B200022	Processor is deconfigured by the system.	Replace the processor card at the location specified in the error log. See note 5 on page 157 for location code information related to this error.
2B2xxx31	Processor is failing POST	Replace the processor card at the location specified in the error log. See note 5 on page 157 for location code information related to this error.

Table 5. Firmware Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
2B200031	Processor is failing POST or is manually disabled.	<ol style="list-style-type: none"> 1. If the processor is not enabled, use the service processor menus to enable the processor. Then reboot the system. 2. If the processor is failing POST, replace the processor card at the location specified in the error log. <p>See note 5 on page 157 for location code information related to this error.</p>
2B200042	Unknown processor card	Remove the unknown processor card.
2BA00000	Service processor POST failure	<ol style="list-style-type: none"> 1. Replace the service processor card;. Location: U0.1-P1-X1. 2. Replace the I/O planar in primary drawer. Location: U0.1-P1.
2BA00012	Service processor reports self test failure	<ol style="list-style-type: none"> 1. Replace the service processor card;. Location: U0.1-P1-X1. 2. Replace the I/O planar in primary drawer. Location: U0.1-P1.
2BA00013	Service processor reports bad NVRAM CRC	If problem persists, replace service processor card;. Location: U0.1-P1-X1.
2BA00017	Service processor reports bad or low battery.	<ol style="list-style-type: none"> 1. Replace the system rack operator panel battery. Location: U1.1-P1-L1. 2. Replace the service processor card;. Location: U0.1-P1-X1.
2BA00041	Service processor VPD is corrupted.	Replace the service processor card;. Location: U0.1-P1-X1.
2BA00071	VPD data corrupted for processor card 0	Replace the processor card. See note 5 on page 157 for location code information related to this error.
2BA00072	VPD data corrupted for processor card 1	Replace the processor card. See note 5 on page 157 for location code information related to this error.
2BA00073	VPD data corrupted for processor card 2	Replace the processor card. See note 5 on page 157 for location code information related to this error.

Service Processor Error Codes

Attention: If you replace FRUs and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 117 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to “MAP 410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Table 6. Service Processor Error Codes.

Error Code	Description	Action/ Possible Failing FRU
40A00000	System firmware IPL surveillance interval exceeded.	<ol style="list-style-type: none"> 1. Surveillance mode control is from the service processor menus. Verify that the system firmware supports service processor surveillance. 2. System rack fault; go to “Entry MAP” on page 79. 3. I/O planar in primary drawer. Location: U0.1-P1 4. Service processor card. Location: U0.1-P1-X1 5. If the problem persists, call the support center for assistance.
40B00000	Operating system surveillance interval exceeded.	<ol style="list-style-type: none"> 1. Surveillance mode control is from the service processor menus. Verify that the operating system (OS) heartbeat utility is installed and has been activated. 2. Check for errors or unusual conditions that might prevent the OS from reporting heartbeat messages, such as system dump, machine check or checkstop error. Review the error logs. 3. System rack fault; go to “Entry MAP” on page 79. Location: U1 4. I/O planar in primary drawer. Location: U0.1-P1 5. Service processor card. Location: U0.1-P1-X1 6. If the problem persists, call the support center for assistance.

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F002	AIX terminated with fault information	Review operator panel for fault information. Note any additional refcodes (see "Functions 11 to 19 - System Reference Code" on page 603 for location). For each refcode, assemble a new SRC and look up the action in the "Chapter 5. Error Code to FRU Index" on page 157. If the problem has not been resolved after performing the action for a refcode, try the next refcode. Proceed to "MAP 1540: Minimum Configuration" on page 117 after all the actions for all the refcodes have been performed.
4B00F003	AIX terminated with no fault information	Review error logs, beginning with service processor.
4B00F004	NVRAM corrupted	Service processor card. Location: U0.1-P1-X1
4B00F007	System power control network (SPCN) fault	Review error logs, beginning with AIX.
4B00F008	Process runtime diagnostics (PRD) fault	Review error logs, beginning with AIX.
4B00F00A	PCI to ISA bridge fault	1. Service processor card. Location: U0.1-P1-X1 2. Go to "MAP 1540: Minimum Configuration" on page 117.
4B00F00B	Super I/O fault	Service processor card. Location: U0.1-P1-X1
4B00F00C	PCI to PCI bridge fault	1. I/O planar in primary drawer. Location: U0.1-P1 2. Go to "MAP 1540: Minimum Configuration" on page 117
4B00F00D	Super I/O fault	Service processor card. Location: U0.1-P1-X1
4B00F00E	Isolation processor fault	1. Service processor card. Location: U0.1-P1-X1 2. I/O planar in primary drawer. Location: U0.1-P1

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F00F	Call home fault	<ol style="list-style-type: none"> 1. Check modem power, modem connections, and modem configuration. Modem configuration can be checked using the service processor menus. 2. Telephone line problem 3. Remote system problem 4. Modem 5. Service processor card. Location: U0.1-P1-X1 6. I/O planar in primary drawer. Location: U0.1-P1
4B00F010	Service processor logged a fault	Review error logs, beginning with service processor, then AIX.
4B00F011	System cannot find boot record	Check boot device selections using SMS utilities. If unable to find the boot device, go to "MAP 1540: Minimum Configuration" on page 117.
4B00F100	Service processor database fault	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs.
4B00F101	FLASH update CRC fault	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs.
4B00F102	Memory allocation fault	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs.
4B00F103	Service processor initialization fault	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs.
4B00F104	System mode switch fault	System rack fault; go to "Entry MAP" on page 79. Location: U1
4B00F105	FLASH update fault	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. Other contributors to this condition include: <ol style="list-style-type: none"> 1. Bad update image. 2. Service processor card. Location: U0.1-P1-X1
4B00F106	FLASH update LID replacement fault	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. Other contributors to this condition include: <ol style="list-style-type: none"> 1. Bad update image. 2. Service processor card. Location: U0.1-P1-X1

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F107	Unsupported FLASH update command	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs.
4B00F108	Unsupported FLASH update state	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. If the problem continues, call the support center for assistance.
4B00F109	Modem on serial port 1 failed to configure	<ol style="list-style-type: none"> 1. Check modem power, modem connections, and modem configuration. Modem configuration can be checked using the service processor menus. 2. Service processor card. Location: U0.1-P1-X1
4B00F10A	Modem on serial port 2 failed to configure	<ol style="list-style-type: none"> 1. Check modem power, modem connections, and modem configuration. Modem configuration can be checked using the service processor menus. 2. Service processor card. Location: U0.1-P1-X1
4B00F10B	System firmware not loaded	<p>This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Loose or missing JTAG cable from service processor to system rack 2. System rack (run diagnostics on processors and memory) 3. Service processor card. Location: U0.1-P1-X1 4. If the problem continues, call the support center for assistance.
4B00F10C	Internal SP program transfer failed (RSP call)	<p>This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Loose or missing JTAG cable from service processor to system rack 2. System rack (run diagnostics on processors and memory) 3. Service processor card. Location: U0.1-P1-X1 4. If the problem continues, call the support center for assistance.

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F10D	PRD buffer in NVRAM full	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. If the problem continues, call the support center for assistance.
4B00F10E	NVRAM access failure	This message appears only in service processor error log. If it persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include: <ol style="list-style-type: none"> 1. Service processor card. Location: U0.1-P1-X1 2. If the problem continues, call the support center for assistance.
4B00F10F	Modem not detected	<ol style="list-style-type: none"> 1. Check modem power, modem connections, and modem configuration. Modem configuration can be checked using the service processor menus. 2. Service processor card. Location: U0.1-P1-X1
4B00F110	Call to service center failed	<ol style="list-style-type: none"> 1. Check modem connection and modem configuration. Modem configuration can be checked using the service processor menus. 2. Remote system problem 3. Telephone line problem 4. Remote host problem 5. Modem 6. Service processor card. Location: U0.1-P1-X1
4B00F111	Call to System Administrator failed	<ol style="list-style-type: none"> 1. Check modem connection and modem configuration. Modem configuration can be checked using the service processor menus. 2. Remote system problem 3. Telephone line problem 4. Remote host problem 5. Modem. 6. Service processor card. Location: U0.1-P1-X1

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F112	Call to Pager failed	<ol style="list-style-type: none"> 1. Check modem connection and modem configuration. Modem configuration can be checked using the service processor menus. 2. Remote system problem 3. Telephone line problem 4. Modem 5. Service processor card. Location: U0.1-P1-X1
4B00F114	Service processor TOD failed	Service processor card. Location: U0.1-P1-X1
4B00F115	SPCN buffer in NVRAM full	If this message persists, re-IPL to clear logs and reset programs. If the problem continues, call the support center for assistance.
4B00F116	Call for SPCN error data failed	<ol style="list-style-type: none"> 1. Check AIX error log 2. Run system diagnostics
4B00F117	Call for SPCN error data failed	<ol style="list-style-type: none"> 1. Check AIX error log 2. Run system diagnostics
4B00F118	Internal service processor program transfer failed (Get IPL mode)	<p>If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Loose or missing JTAG cable from service processor to system rack 2. System rack (run diagnostics on processors and memory) 3. Service processor card. Location: U0.1-P1-X1 4. If the problem continues, call the support center for assistance.
4B00F119	Internal service processor program transfer failed (switch IPL mode)	<p>If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Loose or missing JTAG cable from service processor to system rack 2. System rack (run diagnostics on processors and memory) 3. Service processor card. Location: U0.1-P1-X1 4. If the problem continues, call the support center for assistance.

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F11A	Internal service processor program transfer failed (copy side B to A)	<p>This message appears only in service processor error log. If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Loose or missing JTAG cable from service processor to system rack. 2. System rack (run diagnostics on processors and memory) 3. Service processor card. Location: U0.1-P1-X1 4. If the problem continues, call the support center for assistance.
4B00F11B	Operator panel response failure	<p>If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Service processor card. Location: U0.1-P1-X1 2. Operator Panel Location: U1.1-P1-L1
4B00F11D	Flash update LID (I/O drawer SPCN LID) replacement fault on all I/O drawers.	<p>This message appears only in the service processor error log. If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Bad update image. 2. Loose or missing SPCN cables. 3. Service processor Location: U0.1-P1-X1 4. I/O drawer planar(s) 5. System rack SPCN card Location code: U1.1-P2-X1
4B00F11E	Flash update LID (I/O drawer SPCN LID) replacement fault on at least one I/O drawer.	<p>This message appears only in the service processor error log. If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include:</p> <ol style="list-style-type: none"> 1. Bad update image. 2. Loose or missing SPCN cables 3. Service processor Location: U0.1-P1-X1 4. I/O drawer planar 5. System rack SPCN card Location code: U1.1-P2-X1

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
4B00F11F	System power control network (SPCN) read VPD access failed.	This message appears only in the service processor error log. If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include: <ol style="list-style-type: none"> 1. Loose or missing SPCN cables. 2. I/O drawer planar. 3. System rack SPCN card. Location code: U1.1-P2-X1 4. Service processor Location: U0.1-P1-X1
4B00F120	System power control network (SPCN) write VPD access failed.	This message appears only in the service processor error log. If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include: <ol style="list-style-type: none"> 1. Loose or missing SPCN cables. 2. I/O drawer planar. 3. System rack SPCN card. Location code: U1.1-P2-X1 4. Service processor Location: U0.1-P1-X1
4B00F121	Flash update LID (SPCN LID) replacement fault.	This message appears only in the service processor error log. If this message persists, re-IPL to clear logs and reset programs. Additional contributors to this condition include: <ol style="list-style-type: none"> 1. Bad update image. 2. Loose or missing SPCN cables. 3. Service processor Location: U0.1-P1-X1 4. I/O drawer planar. 5. System rack SPCN card. Location code: U1.1-P2-X1
4B00F122	Failed to change the system processor configuration.	<ol style="list-style-type: none"> 1. Check AIX error log 2. Run system diagnostics and look for processor card failure.
4B00F123	The system processor configuration has been changed.	<ol style="list-style-type: none"> 1. Check AIX error log 2. Run system diagnostics and look for processor card failure.
MOBT0000	The system hung during speaker POST. This error code is generated by the customer performing "Problem Determination" in the <i>Enterprise Server S80 pSeries 680 Model S85 User's Guide</i> .	Go to "MAP 1540: Minimum Configuration" on page 117.

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
M0BT001	The system hung during “Starting Software...”. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Go to “MAP 1540: Minimum Configuration” on page 117.
M0CON000	The system hung during SCSI POST. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Go to “MAP 1540: Minimum Configuration” on page 117.
M0KBD000	The system hung during keyboard POST. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	<ol style="list-style-type: none"> 1. Service processor Location Code: U0.1-P1-X1 2. Keyboard
M0KBD001	The system did not respond to a keyboard entry. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Type 101 keyboard.
M0KBD002	The system did not respond to a keyboard entry. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Type 102 keyboard.
M0KBD003	The system did not respond to a keyboard entry. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Kanji-type keyboard.
M0MEM002	The system hung during memory POST. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Go to “MAP 1540: Minimum Configuration” on page 117.
M0NET000	The system hung during network POST. This error code is generated by the customer performing “Problem Determination” in the <i>Enterprise Server S80 pSeries 680 Model S85 User’s Guide</i> .	Go to “MAP 1540: Minimum Configuration” on page 117.

Table 6. Service Processor Error Codes. (continued)

Error Code	Description	Action/ Possible Failing FRU
M0PS0000	Power Failure. This error code is generated by the customer performing "Problem Determination" in the <i>Enterprise Server S80 pSeries 680 Model S85 User's Guide</i> .	Go to "MAP 1520: Power" on page 88.
M0SCSI00	Unable to load diagnostics. This error code is generated by the customer performing "Problem Determination" in the <i>Enterprise Server S80 pSeries 680 Model S85 User's Guide</i> .	Go to "MAP 1540: Minimum Configuration" on page 117.
M0SCSI01	Unable to load diagnostics. This error code is generated by the customer performing "Problem Determination" in the <i>Enterprise Server S80 pSeries 680 Model S85 User's Guide</i> .	Go to "MAP 1540: Minimum Configuration" on page 117.

Unit Reference Codes

This procedure uses a system reference code (SRC) that is displayed on the operator panel, listed in an error log, or reported by the customer to do the following:

- Identify a list of possible failing items.
- Point to additional isolation procedures (if available).

An SRC reported through a message to the system operator may be used when an error log entry is not available.

The reference code tables in this section support 8-character SRC formats.

Use the following procedure below to find an SRC and perform the recommended actions.

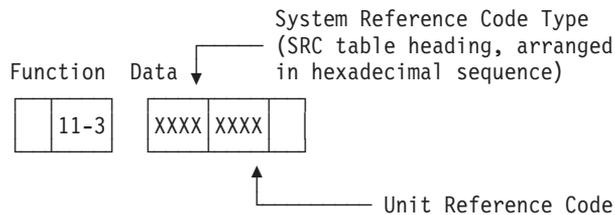
1. Use the following illustration to:
 - Determine the unit reference code (URC) from the SRC reported.
 - Determine which SRC table to use.

Notes:

- a. In the SRC tables, x can be any number 0 through 9 or letter A through F.
- b. Machine check is a condition that is indicated when the system attention light is on and SRC data for functions 11-3 through 20-3 is displayed on the system operator panel. When the SRC indicates a machine check, the leftmost character in the operator panel display for function 11-3 is 0 through 9, A, B, or F.

For information about operator panel display functions, see “Appendix C. Operator Panel Function Codes” on page 595.

System Operator Panel Display or Problem Summary Form Information



2. Examine Table 7 on page 186.
 - The four leftmost characters of the SRC are listed in Table 7 on page 186 to tell you which type or SRC you have and direct you to the correct SRC table. Follow the instructions in Table 7 on page 186.
 - You have now determined which SRC table you are going to use and the URC you are going to look for in the SRC table. If you know how to locate and use the information in the reference code tables, then go to step 4 on page 186 in this procedure.
3. This is an information step that explains how to locate and use the information contained in the reference code tables.

The SRC table name is the same as the SRC type. These tables are arranged in hexadecimal sequence.

The URCs are arranged in hexadecimal sequence, with numeric characters listed before alphabetic characters. For example, URCs 0001 through 0009 are listed before URCs 000A through 000F.

Perform the action indicated in the *Description/Action* column of the SRC tables beginning on page 8 to correct the problem. If this does not correct the problem, exchange the failing items or parts in the order that they are listed in the table.

Notes:

- a. When exchanging the failing items, refer to “Chapter 9. Removal and Replacement Procedures” on page 491.
 - b. The failing item with the highest percent of probable cause should be exchanged first. If exchanging the failing item with the highest percent of probable cause does not correct the problem, reinstall the original item and exchange the failing item with the next highest percent of probable cause. Continue to exchange and reinstall the failing items, one at a time, until the problem is corrected. If exchanging the failing items does not correct the problem, ask your next level of support for assistance.
4. Go to the start of the SRC table for the SRC type.
 5. Follow the instructions in the SRC table.

If you cannot find the SRC table for the SRC type, contact your next level of support for assistance.

Table 7. SRC reference table

First Four Characters of SRC	Type of Code	What You Should Do
0000	Operator panel reference codes	Go to “(0000) Operator Panel Reference Codes” on page 187 and follow the instructions in the SRC table.
1xxx	System power control network (SPCN) reference codes	Go to “(1xxx) System Power Control Network (SPCN) Reference Codes” on page 189 and follow the instructions in the SRC table.
A1xx	Service processor reference codes	Go to “(A1xx, B1xx) Service processor Reference Codes” on page 216 and follow the instructions in the SRC table.
B006	Common firmware reference codes	Go to “(B006) Common Firmware Reference Codes” on page 218 and follow the instructions in the SRC table.
B1xx	Service processor reference codes	Go to “(A1xx, B1xx) Service processor Reference Codes” on page 216 and follow the instructions in the SRC table.
B4xx	System processor reference codes	Go to “(B4xx) System Processor Reference Codes” on page 220 and follow the instructions in the SRC table.

(0000) Operator Panel Reference Codes

The operator panel detected a failure.

1. Look at the four rightmost characters of the SRC (data display for function 11-3). These four characters are the unit reference code.
2. Find the unit reference code in the following table.
3. If you cannot find the unit reference code in the table, contact your next level of support for assistance.

Table 8. Operator panel reference codes table

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
1110 to 111F	<p>Failure of CEC power supply not identified by SPCN.</p> <p>This reference code can be caused by something holding the system power-on reset (POR) line active.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Operator panel assembly Location: U1.1-P1-L1 3. Service processor card Location: U0.1-P1-X1
2222	The green power LED of one or more I/O drawers does not come on and stay on.	Go to "MAP 1520: Power" on page 88.
	Before replacing any parts, examine the system rack and I/O rack cabling carefully. See "Cabling the System Rack and I/O Rack" on page 31. In particular, check the drawer ac power cables.	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. Operator panel assembly Location: U1.1-P1-L1
3333	<p>SPCN - operator panel interface error.</p> <p>An attempt to communicate between the SPCN and the operator panel failed.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Operator panel assembly Location: U1.1-P1-L1 3. System backplane assembly Location: U1.1-P1
4444	<p>Power on request failure</p> <p>A power-on request was not completed successfully. A control panel-detected power-on failure occurred.</p>	<ol style="list-style-type: none"> 1. Operator panel assembly Location: U1.1-P1-L1 2. SPCN card assembly Location: U1.1-P2-X1 3. System backplane assembly Location: U1.1-P1
BBBB	<p>Battery not working correctly</p> <p>A problem was detected with the battery supplying power to the time-of-day clock. The battery is either weak or is not connected securely. Note: This is not a critical failure. However, if there is a power failure, the time of day must be reset.</p>	<ol style="list-style-type: none"> 1. Operator panel battery 2. Operator panel assembly Location: U1.1-P1-L1 3. Service processor card Location: U0.1-P1-X1 4. System backplane assembly Location: U1.1-P1

Table 8. Operator panel reference codes table (continued)

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
CCCC	<p>Service processor error to or from operator panel.</p> <p>An attempt to communicate between the service processor and the control panel failed. Before replacing any parts, examine the system rack and the I/O rack cabling carefully. See “Cabling the System Rack and I/O Rack” on page 31. In particular, check the I/O drawer input power cables.</p>	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. Operator panel assembly Location: U1.1-P1-L1 3. SPCN card assembly Location: U1.1-P2-X1
DDDD	<p>Interface error.</p> <p>A service and manufacturing interface error to or from the control panel occurred.</p> <p>Verify that the external interface device is connected correctly and attempt the power-on operation again.</p>	<ol style="list-style-type: none"> 1. Operator panel assembly Location: U1.1-P1-L1 2. SPCN card assembly Location: U1.1-P2-X1 3. System backplane assembly Location: U1.1-P1 4. SAMI cable. If this system is being used as a node in an SP/2 environment, replace the cable that is connected between the SAMI port on the operator panel assembly and the control workstation.
EEEE	<p>IPL1 failed in the service processor</p> <p>Go to “MAP 1540: Minimum Configuration” on page 117 if the problem is not fixed after replacing all the failing items.</p>	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. SPCN card assembly Location: U1.1-P2-X1 3. Operator panel assembly Location: U1.1-P1-L1
FFF0 to FFFF	Control panel self-test failed	<ol style="list-style-type: none"> 1. Operator panel assembly Location: U1.1-P1-L1 2. SPCN card assembly Location: U1.1-P2-X1

(1xxx) System Power Control Network (SPCN) Reference Codes

The system power control network (SPCN) detected a failure.

1. Look at the four rightmost characters of the SRC (data display for function 11-3).
These four characters are the unit reference code.
2. Find the unit reference code in the following table.

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
00A0	SPCN BATs in process. No action required. This reference code is logged for information only. If this reference code is present for more than 1 minute, go to "MAP 1540: Minimum Configuration" on page 117.	
00A1	Regulator 1 has been turned off by system. No action required. This reference code is logged for information only.	
00A2	Regulator 2 has been turned off by system. No action required. This reference code is logged for information only.	
00A3	Regulator 3 has been turned off by system. No action required. This reference code is logged for information only.	
00A4	Regulator 4 has been turned off by system. No action required. This reference code is logged for information only.	
00A5	Regulator 5 has been turned off by system. No action required. This reference code is logged for information only.	
00A6	Regulator 6 has been turned off by system. No action required. This reference code is logged for information only.	
00AA	Download in process. No action required. This reference code is logged for information only.	

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
00AC	<p>Detected ac loss</p> <p>If system powers on normally or stays powered on after an ac power failure, no replacement of parts may be needed.</p> <p>Before replacing any parts, check to make sure the service processor card is present and firmly seated in its slot. See “Cabling the System Rack and I/O Rack” on page 31 and examine system rack and I/O rack cabling carefully. Check the I/O drawer input power cables in particular.</p>	<ol style="list-style-type: none"> 1. SPCN Cables 2. ac box Location: U1.2-V7
00EF	Remote EPO switch is off	
0800	Blower B01 powered off for concurrent maintenance	Location: U1.2-F1
0801	Blower B02 powered off for concurrent maintenance	Location: U1.2-F2
0802	Blower B03 powered off for concurrent maintenance	Location: U1.2-F3
0803	Blower B04 powered off for concurrent maintenance	Location: U1.2-F4
0900	Power supply P01 powered off for concurrent maintenance	Location: U1.2-V2
0901	Power supply P02 powered off for concurrent maintenance	Location: U1.2-V3
0902	Power supply P03 powered off for concurrent maintenance	Location: U1.2-V4
0903	Power supply P04 powered off for concurrent maintenance	Location: U1.2-V5
0904	Power supply P05 powered off for concurrent maintenance	Location: U1.2-V6
0F0F	<p>ac box failure.</p> <p>The SPCN node cannot determine the machine type of the box in which it is installed. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
0F12	<p>Unidentified box ID. EEPROM test failed.</p> <p>The SPCN node cannot determine the machine type of the box in which it is installed. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
0F13	<p>Unidentified box ID. Code type mismatch.</p> <p>The SPCN node cannot determine the machine type of the box in which it is installed. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
0F1F	<p>Unidentified box ID. LCD test failed.</p> <p>The SPCN node cannot determine the machine type of the box in which it is installed. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
0F2C	<p>Unknown box ID.</p> <p>The SPCN node cannot determine the machine type of the box in which it is installed. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
0F2D	<p>Unknown box ID. Code level mismatch.</p> <p>The SPCN node cannot determine the machine type of the box in which it is installed. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
0F2E	<p>SPCN network fault.</p> <p>The box ID was not defined. A network communications failure occurred. If not able to fix, go to “MAP 1540: Minimum Configuration” on page 117.</p>	<ol style="list-style-type: none"> 1. SPCN card Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
1100	<p>Power supply P01 error</p> <p>A fault detection failure occurred for power supply P01. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.</p>	<ol style="list-style-type: none"> 1. Bulk power supply P01 Location: U1.2-V1 2. SPCN card assembly R21 Location: U1.1-P2-X1
1101	<p>Power supply P02 error</p> <p>A fault detection failure occurred for power supply P02. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.</p>	<ol style="list-style-type: none"> 1. Bulk power supply P02 Location: U1.2-V2 2. SPCN card assembly R21 Location: U1.1-P2-X1

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
1102	<p>Power supply P03 error</p> <p>A fault detection failure occurred for power supply P03. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.</p>	<ol style="list-style-type: none"> 1. Bulk power supply P03 Location: U1.2-V3 2. SPCN card assembly R21 Location: U1.1-P2-X1
1103	<p>Power supply P04 error</p> <p>A fault detection failure occurred for power supply P04. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.</p>	<ol style="list-style-type: none"> 1. Bulk power supply P04 Location: U1.2-V4 2. SPCN card assembly R21 Location: U1.1-P2-X1
1104	<p>Power supply P05 error</p> <p>A fault detection failure occurred for power supply P05. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.</p>	<ol style="list-style-type: none"> 1. Bulk power supply P05 Location: U1.2-V5 2. SPCN card assembly R21 Location: U1.1-P2-X1
1108	<p>Regulator R01 error</p> <p>A fault detection failure occurred for regulator R01.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. SPCN card Location: U1.1-P2-X1
1109	<p>Regulator R02 error</p> <p>A fault detection failure occurred for regulator R02.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R02 Location: U1.1-P2-V2 2. SPCN card Location: U1.1-P2-X1
110A	<p>Regulator R03 error</p> <p>A fault detection failure occurred for regulator R03.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R03 Location: U1.1-P2-V3 2. SPCN card Location: U1.1-P2-X1
110B	<p>Regulator R04 error</p> <p>A fault has been detected for regulator R04.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R04 Location: U1.1-P2-V4 2. SPCN card Location: U1.1-P2-X1
110C	<p>Regulator R05 error</p> <p>A fault detection failure occurred for regulator R05.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R05 Location: U1.1-P2-V5 2. SPCN card Location: U1.1-P2-X1

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
110D	Regulator R06 error A fault detection failure occurred for regulator R06.	1. Programmable regulator assembly R06 Location: U1.1-P2-V6 2. SPCN card Location: U1.1-P2-X1
110E	Regulator R07 error A fault detection failure occurred for regulator R07.	1. Programmable regulator assembly R07 Location: U1.1-P2-V7 2. SPCN card Location: U1.1-P2-X1
110F	Regulator R08 error A fault has been detected for a non-existent regulator.	1. SPCN card Location: U1.1-P2-X1
1110	Regulator R09 error A fault detection failure occurred for regulator R09.	1. Programmable regulator assembly R09 Location: U1.1-P2-V9 2. SPCN card Location: U1.1-P2-X1
1111	Regulator R10 error A fault detection failure occurred for regulator R10.	1. Programmable regulator assembly R10 Location: U1.1-P2-V10 2. SPCN card Location: U1.1-P2-X1
111C	Regulator R21 error A fault detection failure occurred for regulator R21.	1. Processor regulator card R21, Slot M04 Location: U1.1-P1-V1 2. SPCN card Location: U1.1-P2-X1
111D	Regulator R22 error A fault detection failure occurred for regulator R22.	1. Processor regulator card R22, Slot M07 Location: U1.1-P1-V2 2. SPCN card Location: U1.1-P2-X1
111E	Regulator R23 error A fault detection failure occurred for regulator R23. This regulator is included in clock/processor regulator card in slot M19.	1. Clock/processor regulator card R23, Slot M19 Location: U1.1-P1-X2 2. SPCN card Location: U1.1-P2-X1
1200	29V bus fault A 29V bus fault has been detected.	Go to "MAP 1520: Power" on page 88.
1201	2.5V processor regulator fault A 2.5V regulator fault has been detected.	Go to "MAP 1520: Power" on page 88.
1202	3.3V processor regulator fault A 3.3V regulator fault has been detected.	Go to "MAP 1520: Power" on page 88.

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
1203	2.5V memory control regulator fault A 2.5V memory control regulator fault has been detected.	Go to “MAP 1520: Power” on page 88.
1204	3.3V memory control regulator fault A 3.3V memory control regulator fault has been detected.	Go to “MAP 1520: Power” on page 88.
1205	3.3V memory 1 control regulator fault A 3.3V memory 1 control regulator fault has been detected.	Go to “MAP 1520: Power” on page 88.
1206	3.3V memory 2 control regulator fault A 3.3V memory 2 control regulator fault has been detected.	Go to “MAP 1520: Power” on page 88.
1300	Power supply P01 fault A fault has been detected for power supply P01. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.	Bulk power supply P01 Location: U1.2-V1
1301	Power supply P02 fault A fault has been detected for power supply P02. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.	Bulk power supply P02 Location: U1.2-V2
1302	Power supply P03 fault A fault has been detected for power supply P03. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.	Bulk power supply P03 Location: U1.2-V3
1303	Power supply P04 fault A fault has been detected for power supply P04. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.	Bulk power supply P04 Location: U1.2-V4

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
1304	<p>Power supply P05 fault</p> <p>A fault has been detected for power supply P05. If the LED on a bulk power supply is not on or is blinking, it may be the failing item. The LED not on may be the only indication of a failure. Exchange the bulk power supply to correct this problem.</p>	<p>Bulk power supply P05 Location: U1.2-V5</p>
1308	<p>Regulator R01 fault</p> <p>A fault has been detected for regulator R01.</p>	<p>Programmable regulator assembly R01 Location: U1.1-P2-V1</p>
1309	<p>Regulator R02 fault</p> <p>A fault has been detected for regulator R02.</p>	<p>Programmable regulator assembly R02 Location: U1.1-P2-V2</p>
130A	<p>Regulator R03 fault</p> <p>A fault has been detected for regulator R03.</p>	<p>Programmable regulator assembly R03 Location: U1.1-P2-V3</p>
130B	<p>Regulator R04 fault</p> <p>A fault has been detected for regulator R04.</p>	<p>Programmable regulator assembly R04 Location: U1.1-P2-V4</p>
130C	<p>Regulator R05 fault</p> <p>A fault has been detected for regulator R05.</p>	<p>Programmable regulator assembly R05 Location: U1.1-P2-V5</p>
130D	<p>Regulator R06 fault</p> <p>A fault has been detected for regulator R06.</p>	<p>Programmable regulator assembly R06 Location: U1.1-P2-V6</p>
130E	<p>Regulator R07 fault</p> <p>A fault has been detected for regulator R07.</p>	<p>Programmable regulator assembly R07 Location: U1.1-P2-V7</p>
130F	<p>Regulator R08 fault</p> <p>A fault has been detected for regulator R08.</p>	<p>Programmable regulator assembly R08 Location: U1.1-P2-V8</p>
1310	<p>Regulator R09 fault</p> <p>A fault has been detected for regulator R09.</p>	<p>Programmable regulator assembly R09 Location: U1.1-P2-V9</p>
1311	<p>Regulator R10 fault</p> <p>A fault has been detected for regulator R10.</p>	<p>Programmable regulator assembly R10 Location: U1.1-P2-V10</p>
131C	<p>Regulator R21 error</p> <p>A fault detection failure occurred for regulator R21.</p>	<ol style="list-style-type: none"> 1. Processor regulator card R21, Slot M04 Location: U1.1-P1-V1 2. SPCN card Location: U1.1-P2-X1

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
131D	Regulator R22 error A fault detection failure occurred for regulator R22.	1. Processor regulator card R22, Slot M07 Location: U1.1-P1-V2 2. SPCN card Location: U1.1-P2-X1
131E	Regulator R23 error A fault detection failure occurred for regulator R23.	1. Clock/processor regulator card R23, Slot M19 Location: U1.1-P1-X2 2. SPCN card Location: U1.1-P2-X1
1401	2.5V processor domain fault A 2.5V domain fault has been detected.	Go to "MAP 1520: Power" on page 88.
1402	3.3V processor domain fault A 3.3V domain fault has been detected.	Go to "MAP 1520: Power" on page 88.
1403	2.5V memory control domain fault A 2.5V memory control domain fault has been detected.	Go to "MAP 1520: Power" on page 88.
1404	3.3V memory control domain fault A 3.3V memory control domain fault has been detected.	Go to "MAP 1520: Power" on page 88.
1405	3.3V memory control 1 domain fault A 3.3V memory 1 control domain fault has been detected.	Go to "MAP 1520: Power" on page 88.
1406	3.3V memory control 2 domain fault A 3.3V memory 2 control domain fault has been detected.	Go to "MAP 1520: Power" on page 88.

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
6018	<p>For SRC 1011, one of the regulators (R01, R02, or R03) has reported a fault. These are located in the system rack.</p> <p>A regulator fault was detected.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01, R02, or R03 Location: U1.1-P2-V1, U1.1-P2-V2, U1.1-P2-V3 2. SPCN card Location: U1.1-P2-X1 3. Go to "MAP 1520: Power" on page 88.
	<p>For SRC 10xC, this pertains only to the 10 EIA-unit I/O drawer in the model S80 and S85. Both power supplies in the primary I/O drawer failed to report power good after a power-on command. The system will shut down. See note on page 215.</p>	<ol style="list-style-type: none"> 1. Power supply 1 and 2 Location: U0.1-V1, U0.1-V2 2. Power distribution board (PDB) Location: U0.1-X3 3. PDB J3 to I/O planar J22 cable. 4. I/O planar Location: U0.1-P1
	<p>For SRC 10x1, this pertains only to the 10 EIA-unit I/O drawer in the model S80 and S85. Both power supplies in a secondary I/O drawer failed to report power good after a power-on command. The system will shut down. See note on page 215.</p>	<ol style="list-style-type: none"> 1. Power supply 1 and 2 Location: U0.x-V1, U0.x-V2 (x = I/O drawer number 2, 3, or 4) 2. Power distribution board (PDB) Location: U0.x-X3 (x = I/O drawer number 2, 3, or 4) 3. PDB J3 to I/O planar J22 cable. 4. I/O planar Location: U0.x-P1 (x = I/O drawer number 2, 3, or 4)
6118	<p>Regulator over-current fault.</p> <p>One of the regulators (R01, R02, or R03) detected an over-current condition. This may be caused by the regulator or one of the cards powered by the regulator.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01, R02, R03 Location: U1.1-P2-V1, U1.1-P2-V2, U1.1-P2-V3 2. SPCN card Location: U1.1-P2-X1 3. Go to "MAP 1520: Power" on page 88.
6218	<p>Regulator over-current fault.</p> <p>Regulator 1 detected an over-current condition. This may be caused by the regulator or one of the cards powered by the regulator.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. SPCN card Location: U1.1-P2-X1 3. Go to "MAP 1520: Power" on page 88
6238	<p>Regulator over-current fault.</p> <p>Regulator 2 detected an over-current condition. This may be caused by the regulator or one of the cards powered by the regulator.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R02 Location: U1.1-P2-V2 2. SPCN card Location: U1.1-P2-X1 3. Go to "MAP 1520: Power" on page 88

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
6258	Regulator over-current fault. Regulator 3 detected an over-current condition. This may be caused by the regulator or one of the cards powered by the regulator.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R03 Location: U1.1-P2-V3 2. ac box Location: U1.2-V7
6318	Regulator 1 has reported a fault.	<ol style="list-style-type: none"> 1. Programmable regulator assembly Location: U1.1-P2-V1 2. Go to "MAP 1520: Power" on page 88. 3. SPCN card assembly, R21 Location: U1.1-P2-X1
631A	Regulator fault Regulator 1 has reported a fault.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7
6338	Regulator fault Regulator 2 has reported a fault.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R02 Location: U1.1-P2-V2 2. Go to "MAP 1520: Power" on page 88. 3. SPCN card Location: U1.1-P2-X1
633A	Regulator fault Regulator 1 has reported a fault.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7
6358	Regulator fault Regulator 3 has reported a fault.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R03 Location: U1.1-P2-V3 2. ac box Location: U1.2-V7
6400	Power good fault	Go to "MAP 1520: Power" on page 88.
6401	Power good fault	Go to "MAP 1520: Power" on page 88.
6518	One of the regulators has reported a fault. An over-current sensor failure occurred for a regulator. The ac box or one of the regulators can cause this fault.	<ol style="list-style-type: none"> 1. Go to "MAP 1520: Power" on page 88. 2. ac box Location: U1.2-V7
6618	Regulator over-current fault Regulator 1 reported a false over-current condition. Fault tolerance may allow continued system use.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
6638	Regulator over-current fault Regulator 2 reported a false over-current condition. Fault tolerance may allow continued system use.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R02 Location: U1.1-P2-V2 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7
6658	Regulator over-current fault Regulator 3 reported a false over-current condition. Fault tolerance may allow continued system use.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R03 Location: U1.1-P2-V3 2. ac box Location: U1.2-V7
6718	Regulator 1 has reported a fault. Fault tolerance may allow continued system operation.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7
6738	Regulator 2 has reported a fault. Fault tolerance may allow continued system operation.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R02 Location: U1.1-P2-V2 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7
6758	Regulator fault Regulator 3 has reported a fault. Fault tolerance may allow continued system use.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R03 Location: U1.1-P2-V3 2. ac box Location: U1.2-V7
6818	A fault detection failure occurred for a regulator.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01, R02, R03 Location: U1.1-P2-V1, U1.1-P2-V2, U1.1-P2-V3 2. SPCN card Location: U1.1-P2-X1
6918	One of the regulators has reported a fault. An over-current fault detection failure occurred for a regulator. The regulator or the SPCN card can cause this failure.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01, R02, R03 Location: U1.1-P2-V1, U1.1-P2-V2, U1.1-P2-V3 2. SPCN card Location: U1.1-P2-X1
6A18	A regulator fault detection failure occurred for regulator 1.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R01 Location: U1.1-P2-V1 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
6A38	A regulator fault detection failure occurred for regulator 2.	<ol style="list-style-type: none"> 1. Programmable regulator assembly R02 Location: U1.1-P2-V2 2. Go to "MAP 1520: Power" on page 88. 3. ac box Location: U1.2-V7
6A58	<p>Regulator fault</p> <p>A regulator fault detection failure occurred for regulator 3. The regulator or the SPCN card can causes this fault.</p>	<ol style="list-style-type: none"> 1. Programmable regulator assembly R03 Location: U1.1-P2-V3 2. SPCN card Location: U1.1-P2-X1 3. ac box Location: U1.2-V7
7000	<p>Air moving device 1 fault</p> <p>A problem was detected with an air moving device, which can be caused by an air moving device not being installed or operating at the wrong speed. The SPCN card could be defective. Change the failing items one at a time.</p>	<ol style="list-style-type: none"> 1. Blower 1, B01 Location: U1.2-F1 2. SPCN card Location: U1.1-P2-X1
7001	<p>Air moving device 2 fault</p> <p>A problem was detected with an air moving device, which can be caused by an air moving device not being installed or operating at the wrong speed. The SPCN card could be defective. Change the failing items one at a time.</p>	<ol style="list-style-type: none"> 1. Blower 2, B02 Location: U1.2-F2 2. SPCN card Location: U1.1-P2-X1
7002	<p>Air moving device 3 fault</p> <p>A problem was detected with an air moving device, which can be caused by an air moving device not being installed or operating at the wrong speed. The SPCN card could be defective. Change the failing items one at a time.</p>	<ol style="list-style-type: none"> 1. Blower 3, B03 Location: U1.2-F3 2. SPCN card Location: U1.1-P2-X1
7003	<p>Air moving device 4 fault</p> <p>A problem was detected with an air moving device, which can be caused by an air moving device not being installed or operating at the wrong speed. The SPCN card could be defective. Change the failing items one at a time.</p>	<ol style="list-style-type: none"> 1. Blower 4, B04 Location: U1.2-F4 2. SPCN card Location: U1.1-P2-X1
7101	<p>Power supply failure</p> <p>The ac power supply module (ac box) reported a fault.</p>	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
7201	Power supply over-current fault The ac box reported an over-current condition. This is usually caused by one of the regulators.	Go to "MAP 1520: Power" on page 88.
7300	ac box over-current fault The ac box or one of the feature power supplies reported an over-current condition.	Go to "MAP 1520: Power" on page 88.
7400	Control supply fault A control supply fault was reported in the ac box.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. SPCN card R21 Location: U1.1-P2-X1
7401	Control supply over-current A control supply over-current condition was detected in the ac box.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. SPCN card R21 Location: U1.1-P2-X1
7402	Control supply 5V regulator fault The SPCN detected a fault in the +5 V dc regulator of the control supply in the ac box.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. SPCN card R21 Location: U1.1-P2-X1
7403	Control supply 12V regulator fault The SPCN detected a fault in the +12V dc regulator of the control supply in the ac box.	ac box Location: U1.2-V7
7404	Control supply 12V regulator overcurrent An overcurrent condition was detected in the +12 V dc regulator of the control supply in the ac box.	ac box Location: U1.2-V7
7405	Control supply 5VSW regulator fault The SPCN detected a fault in the 5VSW dc regulator of the control supply in the ac box.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Operator panel assembly Location: U1.1-P1-L1 3. SPCN card R21 Location: U1.1-P2-X2 4. Clock/processor regulator card Location: U1.1-P1-X1 5. System backplane assembly Location: U1.1-P1

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
7406	Control supply 5VSW power off failure To avoid damage, this failure must be corrected before removing powered processor or memory cards.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Operator panel assmby Location: U1.1-P1-L1 3. SPCN card R21 Location: U1.1-P2-X1
7500	Air moving device 1 missing error A problem was detected with an air moving device 1, which can be caused by an air moving device not being installed. Install air moving device if missing, replace if already installed. Replace the SPCN card if the replacing air moving device does not fix the problem.	<ol style="list-style-type: none"> 1. Blower 1, B01 Location: U1.2-F1 2. SPCN card R21 Location: U1.1-P2-X1
7501	Air moving device 2 missing error A problem was detected with an air moving device 2, which can be caused by an air moving device not being installed. Install air moving device if missing, replace if already installed. Replace the SPCN card if the replacing air moving device does not fix the problem.	<ol style="list-style-type: none"> 1. Blower 2, B02 Location: U1.2-F2 2. SPCN card R21 Location: U1.1-P2-X1
7502	Air moving device 3 missing error A problem was detected with an air moving device 3, which can be caused by an air moving device not being installed. Install air moving device if missing, replace if already installed. Replace the SPCN card if the replacing air moving device does not fix the problem.	<ol style="list-style-type: none"> 1. Blower 3, B03 Location: U1.2-F3 2. SPCN card R21 Location: U1.1-P2-X1
7503	Air moving device 4 missing error A problem was detected with an air moving device 4, which can be caused by an air moving device not being installed. Install air moving device if missing, replace if already installed. Replace the SPCN card if the replacing air moving device does not fix the problem.	<ol style="list-style-type: none"> 1. Blower 4, B04 Location: U1.2-F4 2. SPCN card R21 Location: U1.1-P2-X1
8400	No VPD found due to invalid bypass	SPCN card R21 Location: U1.1-P2-X1
8401	Timeout on panel for request of VPD	<ol style="list-style-type: none"> 1. Operator panel assmby Location: U1.1-P1-L1 2. Clock/processor regulator card, M19 Location: U1.1-P1-X1

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
8402	No VPD found due to clock/processor regulator card failure	<ol style="list-style-type: none"> 1. Clock/processor regulator card, M19 Location: U1.1-P1-X2 2. Operator panel assembly Location: U1.1-P1-L1
8403	VPD critical mismatch	SPCN card R21 Location: U1.1-P2-X1
8404	Processor unit VPD mismatch. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Processor card 0, M05 Location: U1.1-P1-C1 2. Processor card 1, M18 Location: U1.1-P1-C2 3. Processor card 2, M06 Location: U1.1-P1-C3 4. Processor card 3, M16 Location: U1.1-P1-C4
8405	Processor unit VPD mismatch. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Processor card 2, M06 Location: U1.1-P1-C3 2. Processor card 0, M05 Location: U1.1-P1-C1 3. Processor card 1, M18 Location: U1.1-P1-C2 4. Processor card 3, M16 Location: U1.1-P1-C4
8406	Processor unit VPD mismatch. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Processor card 3, M16 Location: U1.1-P1-C4 2. Processor card 2, M06 Location: U1.1-P1-C3 3. Processor card 0, M05 Location: U1.1-P1-C1 4. Processor card 1, M18 Location: U1.1-P1-C2
8409	No processor installed. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Processor card 2, M06 Location: U1.1-P1-C3 2. Processor card 0, M05 Location: U1.1-P1-C1 3. Processor card 1, M18 Location: U1.1-P1-C2 4. Processor card 3, M16 Location: U1.1-P1-C4 <p>If you are testing the system and have all processors removed, disregard this SRC otherwise install or exchange all processors cards.</p>

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
8413	Invalid processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	Processor card 0, M05 Location: U1.1-P1-C1
8414	Invalid processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	Processor card 1, M18 Location: U1.1-P1-C2
8415	Invalid processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	Processor card 2, M06 Location: U1.1-P1-C3
8416	Invalid processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	Processor card 3, M16 Location: U1.1-P1-C4
8423	No processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Clock/processor regulator card, M19 Location: U1.1-P1-X2 2. Processor card 0, M05 Location: U1.1-P1-C1
8424	No processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Clock/processor regulator card, M19 Location: U1.1-P1-X2 2. Processor card 1, M18 Location: U1.1-P1-C2
8425	No processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Clock/processor regulator card, M19 Location: U1.1-P1-X2 2. Processor card 2, M06 Location: U1.1-P1-C3

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
8426	No processor VPD. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Clock/processor regulator card, M19 Location: U1.1-P1-X2 2. Processor card 3, M16 Location: U1.1-P1-C4
9012	<p>Address not valid.</p> <p>Firmware command had a frame address that was not valid.</p> <p>Exchange the SPCN frame-to-frame cables to the failing frame.</p>	<ol style="list-style-type: none"> 1. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP. 2. ac box Location: U1.2-V7
9013	<p>Invalid node address.</p> <p>The address in the SPCN command does not match the secondary nodes assigned address.</p> <p>Exchange the failing items for the SPCN node reporting the error.</p>	<ol style="list-style-type: none"> 1. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP. 2. SPCN card assembly, R21 Location: U1.1-P2-X1
9014	<p>A command has an invalid address mode.</p> <p>A command from the system unit specified a unit address of D or E or had a frame address of 00.</p> <p>Exchange the failing items in the system unit.</p>	<ol style="list-style-type: none"> 1. SPCN code problem. 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.
9021	<p>A command to an SPCN node was rejected.</p> <p>No action required. This reference code is logged for information only.</p>	
9022	<p>Addressed unit not in frame.</p> <p>The addressed unit does not exist in the addressed frame.</p> <p>No action required. This reference code is logged for information only.</p>	
9023	<p>Addressed unit exists, but the frame is powered off.</p> <p>The addressed unit is in a frame that is powered off.</p> <p>No action required. This reference code is logged for information only.</p>	

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Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9024	<p>SPCN firmware code not valid.</p> <p>The firmware code in one of the secondary nodes is not valid. The code will be reloaded.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9025	<p>SPCN firmware code is not valid.</p> <p>The firmware code in one of the frames is not valid. The code will be reloaded.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9028	<p>SPCN firmware code is not valid.</p> <p>The firmware code in the primary node is not valid. The code will be reloaded.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9029	<p>SPCN VPD damaged</p> <p>The VPD record in the EEPROM has bad data.</p> <p>Exchange the failing items for the node reporting the failure.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
902D	<p>Addressed frame is not in SPCN configuration table.</p> <p>The addressed frame is not in the SPCN configuration table.</p> <p>No action required. This reference code is logged for information only.</p>	
9031	<p>Frame-to-frame communications failure</p> <p>The SPCN detected a BCC error on a transmission from another frame. The transmission is attempted again.</p> <p>No action required. This reference code is logged for error analysis only.</p>	

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9032	<p>SPCN communications failure, unit to rack.</p> <p>The frame detected a BCC error on a transmission from a secondary node to the frame. The transmission is attempted again.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9033	<p>SPCN communications failure, rack to unit.</p> <p>A secondary node detected a BCC error on a transmission from the frame. The transmission is attempted again.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9034	<p>Unsupported packet size.</p> <p>The receiving node detected a packet exceeding 70 bytes. The frame can also return this code if a secondary node returns more than 10 bytes to a PAS command.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9035	<p>Secondary SPCN node timeout.</p> <p>A secondary SPCN node did not respond to a command. The command was attempted again and failed.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
9036	<p>Frame timeout.</p> <p>One or more frames did not respond to a command. The command is attempted again.</p> <p>No action required. This reference code is logged for error analysis only.</p>	
903B	<p>Invalid packet length for data sent.</p> <p>The number of bytes sent or received does not match the number of bytes specified in the command.</p> <p>No action required. This reference code is logged for error analysis only.</p>	

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9041	<p>Invalid load type.</p> <p>The download was successful, but the wrong type of firmware code was loaded. The operation was attempted again but was not successful. Exchange the failing items for the node reporting the fault.</p>	<ol style="list-style-type: none"> 1. SPCN code problem 2. SPCN card assembly, R21 Location: U1.1-P2-X1
9042	<p>EEPROM failure.</p> <p>The EEPROM in an SPCN node cannot be written successfully.</p> <p>Exchange the SPCN node reported in the failure.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9043	<p>Download failure.</p> <p>The firmware code download to an SPCN node was completed but was not successful.</p> <p>Exchange the failing SPCN node.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9046	<p>QDS packet sequence error.</p> <p>The packet sequence number is wrong. The download was stopped.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9047	<p>QDS block sequence error.</p> <p>The block sequence number is wrong. The download was stopped.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9048	<p>The SPCN ROS and EEPROM firmware code is not compatible.</p> <p>The firmware levels in the nodes ROS and EEPROM are not compatible.</p> <p>Exchange the failing items for the failing node.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9080	<p>Undefined status code.</p> <p>An SPCN node returned an unknown status code.</p> <p>Exchange the failing SPCN node.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. System backplane assembly Location: U1.1-P1
90F0	<p>A frame was dropped from the SPCN configuration.</p> <p>A frame was dropped from the SPCN configuration. This is usually caused by a loss of ac power or a problem with the frame-to-frame cable.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
90F1	A frame was added to the SPCN configuration. No action required. This reference code is logged for information only.	
9101	Firmware-SPCN timeout. A firmware timeout occurred. The SPCN failed to respond to a firmware command.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Operator panel assembly Location: U1.1-P1-L1
9103	Download initialize timeout. An SPCN node failed to enter the download state after an initialize for download command. Exchange the failing SPCN node.	SPCN card assembly, R21 Location: U1.1-P2-X1
9104	Download completion timeout. An SPCN node failed to leave the download state. Exchange the failing SPCN node.	SPCN card assembly, R21 Location: U1.1-P2-X1
9105	Load damaged timeout. An SPCN node failed to enter the operational state. Exchange the failing SPCN node.	SPCN card assembly, R21 Location: U1.1-P2-X1
9106	An SPCN LID was not found. No action required. This reference code is logged for information only.	
9107	An SPCN microcode download is required. No action required. This reference code is logged for error analysis only.	
9108	A status change occurred in one of the SPCN nodes. No action required. This reference code is logged for information only.	
9109	Firmware code part number is not correct. The AROS part number field was not updated to the correct level after the system attempted to load new firmware code.	SPCN card assembly, R21 Location: U1.1-P2-X1
9111	SPCN is too large for VLIC. There are more nodes in the network than VLIC can service.	SPCN code problem

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9112	<p>Primary SPCN node is reporting load damaged.</p> <p>The firmware code for the primary SPCN node is damaged. The reload failed because the code could not be found.</p>	<p>ac box Location: U1.2-V7</p>
9113	<p>Secondary SPCN node is reporting load damaged.</p> <p>The firmware code for the secondary SPCN node is damaged. The reload failed because the code could not be found.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9114	<p>Frame SPCN node is reporting load damaged.</p> <p>The firmware code for a SPCN node is damaged. The reload failed because the code could not be found.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9115	<p>SPCN command rejected by the service processor.</p> <p>The service processor rejected an SPCN command from the firmware code.</p> <p>No action required. This reference code is logged for information only.</p>	
9116	<p>SPCN - control panel interface failure.</p> <p>The SPCN to control panel interface is not working.</p>	
9117	<p>SPCN - control panel interface is now working.</p> <p>The SPCN to control panel interface is now working.</p> <p>No action required. This reference code is logged for information only.</p>	
9212	<p>Frame address field not valid.</p> <p>A firmware code command had a frame address that is not valid.</p> <p>Exchange the failing items for the failing node.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>
9213	<p>Invalid address status, secondary node.</p> <p>The address in the SPCN command does not match the assigned address of the secondary node.</p> <p>Exchange the failing items for the failing node.</p>	<p>SPCN card assembly, R21 Location: U1.1-P2-X1</p>

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9214	Invalid address mode status Invalid address mode occurred during frame command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9215	Invalid frame command status Invalid frame command occurred during frame command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
921B	System unit SPCN port fault status. System unit port fault occurred during command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
922B	Address unassigned status A secondary node has no address assigned during command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9231	Frame-to-frame communications failure A frame-to-frame communications failure occurred during STF processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.
9232	Intrarack communications failure. An SPCN secondary node to frame communications failure occurred during command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.
9233	Intrarack communications failure. An SPCN frame to secondary node communications failure occurred during command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.
9234	Unsupported packet size. status Unsupported packet size. occurred during STF and secondary node command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.
9235	SPCN secondary node timeout status An SPCN secondary node timeout occurred during command processing.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem 3. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9236	<p>Frame timeout. status</p> <p>An SPCN frame node timeout occurred during network post processing.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP.
9238	<p>Secondary node fault.</p> <p>An SPCN Secondary node fault. occurred during command processing.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9239	<p>Frame node fault.</p> <p>An internal error in the SPCN frame node prevents the running of a Frame command.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
923A	<p>ASA failure.</p> <p>The frame address returned by a secondary node does not match the address of the frame.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
923B	<p>Invalid packet length for data sent.</p> <p>An invalid packet length occurred for data exchanged.</p>	<ol style="list-style-type: none"> 1. SPCN code problem 2. SPCN card assembly, R21 Location: U1.1-P2-X1
9280	<p>Response stack overflow.</p> <p>Too many responses were received during system frame command processing.</p>	<ol style="list-style-type: none"> 1. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP. 2. SPCN code problem 3. ac box Location: U1.2-V7
9281	<p>Response overrun.</p> <p>Response overrun occurred during system frame processing.</p>	<ol style="list-style-type: none"> 1. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP. 2. SPCN code problem 3. ac box Location: U1.2-V7
9282	<p>No free entries.</p> <p>No free entries were found during system frame processing.</p>	<ol style="list-style-type: none"> 1. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP. 2. SPCN code problem 3. ac box Location: U1.2-V7
9283	<p>ARA failure.</p> <p>An assign frame address failure occurred during ARA preprocessing.</p>	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
9284	Undefined status Undefined status occurred during frame or STF processing.	1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9285	BCC fault. A BCC error was detected during network post processing.	SPCN card assembly, R21 Location: U1.1-P2-X1
9286	Length check error. Length check occurred during SPCN post processing.	1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9287	Undefined status Undefined status occurred during command processing.	1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9288	Configuration error. A configuration error was detected during system frame processing.	1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. SPCN code problem
9289	Invalid packet length for data sent. Invalid packet length occurred for data exchanged.	1. SPCN code problem 2. SPCN card assembly, R21 Location: U1.1-P2-X1
C512	ac box failure. SPCN serial port communications fault occurred.	ac box Location: U1.2-V7
C600	ac box failure. The ac box control supply failed to turn off.	ac box Location: U1.2-V7
C601	ac box failure. ac box bus voltage control test fault occurred.	ac box Location: U1.2-V7
C602	ac box failure. ac box fault detection failure occurred.	ac box Location: U1.2-V7
C609	Clock/processor regulator card failure	1. Clock/processor regulator card, M19 Location: U1.1-P1-X2 2. SPCN card R21 Location: U1.1-P2-X1
C62E	SPCN network fault An SPCN frame-to-frame communication failure was detected.	1. ac box Location: U1.2-V7 2. Go to "MAP 1520: Power" on page 88, assume that you do not have an error code when following the MAP.

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
C701	ac box failure. An SPCN frame-to-frame communication failure was detected.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP.
C702	ac box failure. An SPCN frame-to-frame communication failure was detected.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP.
C703	ac box failure. An SPCN frame-to-frame communication failure was detected.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP.
CB00	Unknown box ID The SPCN node cannot determine the machine type of the box in which it is installed.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. System backplane assembly Location: U1.1-P1
CB05 to CB06	ac box failure. The SPCN ROS and EPROMs test failed.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7
CC00	ac box failure. An unknown fault was detected. The machine failed to power up.	<ol style="list-style-type: none"> 1. ac box Location: U1.2-V7 2. Go to “MAP 1520: Power” on page 88, assume that you do not have an error code when following the MAP. 3. SPCN card assembly, R21 Location: U1.1-P2-X1
CD00	SPCN failed to detect any bulk power supplies installed.	<ol style="list-style-type: none"> 1. SPCN card assembly, R21 Location: U1.1-P2-X1 2. Check cabling of bulk power supplies 3. Call your next level of support if all bulk power supplies are installed.
CE18	Regulator not present. No regulators can be found. If the regulators are installed, exchange the failing items.	<ol style="list-style-type: none"> 1. Programmable regulator assembly. 2. ac box Location: U1.2-V7

Reference Code	Description/Action (Perform all actions before exchanging Failing Items)	Failing Item
CE19	Regulator not present. If regulator 3 in slot 16 is installed, exchange the failing items.	<ol style="list-style-type: none"> 1. Go to “MAP 1520: Power” on page 88. 2. ac box Location: U1.2-V7

Note: If the SPCN network is cabled as specified in “Cabling the System Rack and I/O Rack” on page 31, then the SPCN rack addresses are assigned as 1 to the system rack, 2 to the primary I/O drawer (drawer that contains the service processor), 3 to the next I/O drawer in the chain, and so on. This can be read as the third character in the SRC. The fourth character in the SRC is the unit address. The primary I/O drawer has a unit address of C. All other drawers have a unit address of 1.

(A1xx, B1xx) Service processor Reference Codes

1. Look at the four rightmost characters of the SRC (data display for function 11-3). These four characters are the unit reference code. Also, you may have additional secondary reference codes in functions 14 and 15.
2. Find the unit reference code in the following table.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
1933	IPL command rejected; bus 1 load-source unit not ready. Make the load source device ready. If load source device is ready and error still exists, replace the failing item. If the load source device is a tape or CD storage unit use F100092.	Service processor card Location: U0.1-P1-X1
4500	Problem detected with the service processor	Service processor card Location: U0.1-P1-X1
4501	System processor card failure. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Processor card 0, M08 Location: U1.1-P1-C1 2. Processor card 1, M09 Location: U1.1-P1-C2 3. Processor card 2, M20 Location: U1.1-P1-C3
4502	Service processor Before replacing parts, check all cabling, especially the JTAG cable. See "Cabling the System Rack and I/O Rack" on page 31, .	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. JTAG cable 3. RIO cable 4. I/O planar 5. Operator panel assembly
4503	Any device attached to Bus 1 or the service processor	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. RIO Cable
4504	IPL command rejected; load-source device failed or not found	Service processor card
4505	Problem with load source device media Before replacing parts, check all cabling especially the JTAG cable, RIO cables, and power cabling between the system rack and the primary I/O drawer, see "Cabling the System Rack and I/O Rack" on page 31.	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. Go to "MAP 1540: Minimum Configuration" on page 117
4506	Problem detected with operator panel.	Operator panel assembly Location: U1.1-P1-L1
4507	Tape or CD storage unit failure Before replacing any FRU. verify the load source device is ready and the correct IPL media is loaded properly.	Service processor card Location: U0.1-P1-X1

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4509	Service processor problem isolation procedure.	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. Operator panel assembly Location: U1.1-P1-L1
4511	Service processor or system processor failure. Record function code 19 from the operator panel. This function code is the CCIN identifier which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. Processor card 0, M08 Location: U1.1-P1-C1 3. Processor card 1, M09 Location: U1.1-P1-C2 4. Processor card 2, M20 Location: U1.1-P1-C3
4512	Clock card (in system rack)	Clock Card. M07 Location: U1.1-P1-X1
4998	Operator/User Error	Invalid operation
4999	Service processor firmware problem - call for support	
6010	Service processor	Service processor card Location: U0.1-P1-X1
8FF0	Information only, no service action required	
8FF1	System down, condition reported	

(B006) Common Firmware Reference Codes

The common firmware detected a failure.

1. Look at the four rightmost characters of the SRC (data display for function 11-3).
These four characters are the unit reference code.
2. Find the unit reference code in the following table.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
1301	Service processor resource not available. An activation or deactivation failed to get a resource controlled by firmware.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor firmware problem
1302	Not valid condition in service processor firmware. An error in an activation or deactivation occurred.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor firmware problem 3. Service processor card Location: U0.1-P1-X1
1303	Service processor resource not available. A resource needed to perform a requested function is not available in the firmware.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor firmware problem
1304	Not valid condition in service processor firmware. The firmware has recovered from a condition that was not expected.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor firmware problem 3. Service processor card Location: U0.1-P1-X1
1305 to 1306	Service processor card or firmware error. A microprocessor exception occurred on the I/O adapter.	<ol style="list-style-type: none"> 1. Service processor card Location: U0.1-P1-X1 2. Go to "MAP 1540: Minimum Configuration" on page 117.
1307	Service processor resource not available. The firmware could not allocate memory resources on the service processor card.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor firmware problem 3. Service processor card Location: U0.1-P1-X1
1308	Not valid condition in service processor firmware. The firmware found a condition that should not have occurred.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor firmware problem 3. Service processor card Location: U0.1-P1-X1
1309	Service processor was not ready for interrupt that occurred.	<ol style="list-style-type: none"> 1. I/O adapter firmware problem 2. Service processor card Location: U0.1-P1-X1 3. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
1310	Service processor resource not available. The service processor error log is being filled faster than the errors are being reported to the system. Check other errors reported to the system and correct them.	

Processor Reference Codes

(B4xx) System Processor Reference Codes

1. Look at the four rightmost characters of the SRC (data display for function 11-3). These four characters are the unit reference code.

Note: Function 11 provides the primary SRC. Function 12 is an informational status message only and not used. Functions 14 and 15 provide secondary reference codes in addition to the primary SRC. Function 19 provides CCIN information for FRU replacement. Function 13 provides status information for service support use.

Press Enter to view the SRC. If no SRC is present, press Enter to continue to the next function.

Record the SRC information for error reporting. As an example, the system processor detected a failure.

- a. Look at the four rightmost characters of the operator panel display for function 11. These four characters are the unit reference code.
- b. Look at functions 14 and 15 for more reference codes. Each is four characters in length. There may be from zero to four unit reference codes contained in these words. For example:

```
Word 11 - B455 rrrr
Word 14 - rrrr rrrr
Word 15 - rrrr 0000
Word 19 - CCIN CCIN
```

This example shows a total of four reference codes for this failure. The rrrr signifies the reference codes. Each reference code has only one FRU associated with it. The CCIN is used to determine a failing FRU in some cases.

- c. Record Word 19. Word 19 can contain a CCIN code that helps differentiate between some failing FRUs, such as memory cards or processor cards.
2. Find the unit reference code in the following table.

Attention: When viewing the following tables, the probability class is defined as follows:

- **Mandatory:** These FRUs are to be replaced first, followed by an IPL with only these FRUs replaced. When more than one FRU is called out with mandatory probability, then all FRUs identified must be replaced as a group before IPLing the system.
- **High:** These FRUs are to be replaced second, one-at-a-time with a system IPL between each FRU replacement.
- **Low:** These FRUs are to be replaced last, one-at-a-time with a system IPL between each FRU replacement.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2400	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	Processor card 0, M05 Location: U1.1-P1-C1
2401	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	Processor card 1, M18 Location: U1.1-P1-C2
2402	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	Processor card 2, M06 Location: U1.1-P1-C3
2403	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	Processor card 3, M16 Location: U1.1-P1-C4
2409	System processor card failure. Location is unknown.	Processor card X, Mxx Location: U1.1-P1-Cx

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2420	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M01 Location: U1.1-P1-M1 00-00</p>
2421	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M02 Location: U1.1-P1-M2 AIX Location Code: 00-00</p>
2422	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M03 Location: U1.1-P1-M3 AIX Location Code: 00-00</p>
2423	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M24 Location: U1.1-P1-M16 AIX Location Code: 00-00</p>
2424	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M08 Location: U1.1-P1-M4 AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2425	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M09 Location: U1.1-P1-M5 AIX Location Code: 00-00</p>
2426	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M10 Location: U1.1-P1-M6 AIX Location Code: 00-00</p>
2427	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M11 Location: U1.1-P1-M7 AIX Location Code: 00-00</p>
2428	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M12 Location: U1.1-P1-M8 AIX Location Code: 00-00</p>
2429	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M13 Location: U1.1-P1-M9 AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
242A	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M14 Location: U1.1-P1-M10 AIX Location Code: 00-00</p>
242B	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M15 Location: U1.1-P1-M11 AIX Location Code: 00-00</p>
242C	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M20 Location: U1.1-P1-M12 AIX Location Code: 00-00</p>
242D	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M21 Location: U1.1-P1-M13 AIX Location Code: 00-00</p>
242E	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M22 Location: U1.1-P1-M14 AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
242F	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M23 Location: U1.1-P1-M15 AIX Location Code: 00-00</p>
2430	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "A". M01, M02, M03, M24 Location: U1.1-P1-M1 Location: U1.1-P1-M2 Location: U1.1-P1-M3 Location: U1.1-P1-M16 AIX Location Code: 00-00</p>
2431	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "B". M08, M09, M10, M11 Location: U1.1-P1-M4 Location: U1.1-P1-M5 Location: U1.1-P1-M6 Location: U1.1-P1-M7 AIX Location Code: 00-00</p>
2432	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "C". M12, M13, M14, M15 Location: U1.1-P1-M8 Location: U1.1-P1-M9 Location: U1.1-P1-M10 Location: U1.1-P1-M11 AIX Location Code: 00-00</p>
2433	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is mandatory.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "D". M20, M21, M22, M23 Location: U1.1-P1-M12 Location: U1.1-P1-M13 Location: U1.1-P1-M14 Location: U1.1-P1-M15 AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2440	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2441	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2442	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	
2443	Processor CCIN (word 19) is equal to 5312 or 5313	Word 13 does not equal 700xBB1B or 700x2342 (where x=0 to B). I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
		Word 13 equals 700xBB1B or 700x2342 (where x=0 to B): 1. Try to reboot. 2. If reboot is successful, contact your second level support. 3. If reboot is not successful, a new SRC should appear.	Perform indicated action(s).
	Processor CCIN (word 19) is not equal to 5312 or 5313.	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2444	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2445	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2446	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2450	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2451	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2452	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2453	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2454	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2455	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2456	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2457	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2458	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2459	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
245A	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
245B	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2460	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2461	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2462	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2463	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2464	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2465	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2466	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2467	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2468	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2469	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
246A	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
246B	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
2470	Problem could be propagated from the attached Input/Output devices. Go to “MAP 1540: Minimum Configuration” on page 117 and attempt to isolate the problem. If MAP 1540 fails to isolate the problem, return here and continue below.	Go to “MAP 1540: Minimum Configuration” on page 117.
	After returning from “MAP 1540: Minimum Configuration” on page 117, the problem could be the JTAG cable or the system backplane assembly. Before replacing any parts, test for the existence of the proper number and position of memory cards and processor cards. This condition may result in invalid configurations during VPD reading. Note: Record function 13 codes. Contact your second level of support before replacing the system backplane assembly.	<ol style="list-style-type: none"> 1. JTAG Cable (internal) 2. System Backplane Assembly Location: U1.1-P1 AIX Location Code: 00-00
247F	Main storage failure A memory card at the specified location is faulty. Probability is mandatory. Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.	All installed memory cards. Location: U1.1-P1-Mxx AIX Location Code: 00-00
2480	Clock/processor regulator card at the specified location is faulty. Probability is mandatory.	Clock/processor regulator card, M19 Location: U1.1-P1-X2
2481	I/O hub card The I/O hub card at the specified location is faulty. Probability is mandatory.	I/O hub card, M17 Location: U1.1-P1-X1
248E	Operator panel The operator panel at the specified location is faulty. Probability is mandatory.	Operator panel Location: U1.1-P1-L1

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
248F	<p>System backplane is faulty. Probability is mandatory.</p> <p>Perform the following steps before replacing the system backplane:</p> <ol style="list-style-type: none"> 1. Check locations M06, M16, and M18 for the Processor Terminator/filler card, CCIN=246C. 2. Are there any processor Terminator/filler cards in the system? NO Replace the failing item. YES Continue with the following step. 3. Turn the system power off if it is not already turned off. 4. Remove all the Processor Terminator/filler cards. Use the locations to determine the positions of the other processor Terminator/filler cards. 5. Select SLOW IPL speed. See operator panel commands. 6. Power on the system. 7. Does the system boot successfully? NO Replace the failing item. YES Continue with the following step. 8. Power off the system. 9. Reinstall one of the processor terminator/filler cards that you removed. 10. Power on the system. 11. Does the system boot successfully? NO The failing FRU is the processor terminator/filler card you just reinstalled. Exchange the processor terminator/filler card. This ends the procedure. YES Continue with the following step. 12. Have you reinstalled all the processor terminator/filler cards that you removed? NO Return to step 8. YES The processor terminator/filler cards are not failing, replace the failing item. 	<p>System Backplane, M00 Location: U1.1-P1</p>
2490	<p>RIO Port 0 or the RIO cable connected to it is faulty. Probability is mandatory.</p>	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 0. Location: U1.1-P1-X1/Q1 3. I/O hub card Location: U1.1-P1-X1

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2491	RIO Port 1 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 1. Location: U1.1-P1-X1/Q2 3. I/O hub card Location: U1.1-P1-X1
2492	RIO Port 2 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 2. Location: U1.1-P1-X1/Q3 3. I/O hub card Location: U1.1-P1-X1
2493	RIO Port 3 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 3. Location: U1.1-P1-X1/Q4 3. I/O hub card Location: U1.1-P1-X1
24A0	A RIO Port or the RIO cable connected to it is faulty. Probability is mandatory. Note: Before replacing all the RIO cables for this reference code, contact your second level of support.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. Replace the RIO Cables. Location: U1.1-P1-X1/Q1, Q2, Q3, Q4 3. I/O hub card Location: U1.1-P1-X1
24AF	RIO Port 0 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 0. Location: U1.1-P1-X1/Q1 3. I/O hub card Location: U1.1-P1-X1

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
24B0	RIO Port 1 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 1. Location: U1.1-P1-X1/Q2 3. I/O hub card Location: U1.1-P1-X1
24B1	RIO Port 2 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 2. Location: U1.1-P1-X1/Q3 3. I/O hub card Location: U1.1-P1-X1
24B2	RIO Port 3 or the RIO cable connected to it is faulty. Probability is mandatory.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 3. Location: U1.1-P1-X1/Q4 3. I/O hub card Location: U1.1-P1-X1
24F0	Software or firmware error, VPD configuration failed.	Software or service processor firmware Contact support center for assistance.
24F1	Software or firmware error	Software or service processor firmware Contact support center for assistance.
24F2	Software or firmware error	Software or service processor firmware Contact support center for assistance.
24F3	<p>Main Store Plugging Error</p> <p>A memory card at the specified location is faulty. Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All installed memory cards. Location: U1.1-P1-Mxx AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2570	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2571	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2572	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
2573	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117
2580	I/O Planar 0 error detected. Probability is mandatory.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2581	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 1 Location: U0.1-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2582	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 2 Location: U0.1-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2583	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 3 Location: U0.1-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2584	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 4 Location: U0.1-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2585	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 5 Location: U0.1-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2586	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 6 Location: U0.1-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2587	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 7 Location: U0.1-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2588	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 8 Location: U0.1-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2589	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 9 Location: U0.1-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: a. If only one adapter was inserted in slots 9 and 10: 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
258A	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 10 Location: U0.1-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
258B	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 11 Location: U0.1-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
258C	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 12 Location: U0.1-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
258D	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 0, Slot 13 Location: U0.1-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
258E	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 0, Slot 14 Location: U0.1-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
2590	I/O Planar 1 error detected. Probability is mandatory.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2591	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 1 Location: U0.2-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2592	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 2 Location: U0.2-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2593	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 3 Location: U0.2-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2594	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 4 Location: U0.2-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2595	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 5 Location: U0.2-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2596	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 6 Location: U0.2-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2597	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 7 Location: U0.2-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2598	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 8 Location: U0.2-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
2599	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 9 Location: U0.2-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: a. If only one adapter was inserted in slots 9 and 10: 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
259A	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 10 Location: U0.2-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
259B	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 11 Location: U0.2-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
259C	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 12 Location: U0.2-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
259D	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 1, Slot 13 Location: U0.2-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
259E	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 1, Slot 14 Location: U0.2-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
25A0	I/O Planar 2 error detected. Probability is mandatory.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A1	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 1 Location: U0.3-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A2	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 2, Slot 2 Location: U0.3-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A3	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 3 Location: U0.3-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A4	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 2, Slot 4 Location: U0.3-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A5	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 5 Location: U0.3-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 8, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A6	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 2, Slot 6 Location: U0.3-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A7	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 7 Location: U0.3-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 8, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A8	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 2, Slot 8 Location: U0.3-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25A9	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 9 Location: U0.3-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: a. If only one adapter was inserted in slots 9 and 10: 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25AA	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 2, Slot 10 Location: U0.3-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25AB	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 11 Location: U0.3-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25AC	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 2, Slot 12 Location: U0.3-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25AD	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 13 Location: U0.3-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25AE	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 2, Slot 14 Location: U0.3-P1-I14 1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
25B0	I/O Planar 3 error detected. Probability is mandatory.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B1	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 1 Location: U0.4-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B2	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 2 Location: U0.4-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B3	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 3 Location: U0.4-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B4	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 4 Location: U0.4-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B5	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 5 Location: U0.4-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B6	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 6 Location: U0.4-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B7	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 7 Location: U0.4-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B8	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 8 Location: U0.4-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25B9	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 9 Location: U0.4-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: a. If only one adapter was inserted in slots 9 and 10: 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25BA	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 10 Location: U0.4-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25BB	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 11 Location: U0.4-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25BC	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 12 Location: U0.4-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25BD	PCI error detected An adapter card at the specified location is faulty. Probability is mandatory.	Drawer 3, Slot 13 Location: U0.4-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
25BE	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is mandatory.</p>	<p>Drawer 3, Slot 14 Location: U0.4-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
2A00	Illegal condition detected. Probability is mandatory.	Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem.
2A0C	System configuration not valid. Check VPD module and CCIN on processor cards. Probability is mandatory.	<p>All processor cards at M05, M06, M16, and M18. Locations: U1.1-P1-C1 U1.1-P1-C3 U1.1-P1-C4 U1.1-P1-C2</p>
4400	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Processor card 0, M05 Location: U1.1-P1-C1</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4401	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Processor card 1, M18 Location: U1.1-P1-C2</p>
4402	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Processor card 2, M06 Location: U1.1-P1-C3</p>
4403	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Processor card 3, M16 Location: U1.1-P1-C4</p>
4409	<p>System processor card failure</p> <p>Unknown location.</p>	<p>Processor card X, Mxx Location: U1.1-P1-Cx</p>
4420	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M01 Location: U1.1-P1-M1 AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4421	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M02 Location: U1.1-P1-M2 AIX Location Code: 00-00</p>
4422	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M03 Location: U1.1-P1-M3 AIX Location Code: 00-00</p>
4423	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M24 Location: U1.1-P1-M16 AIX Location Code: 00-00</p>
4424	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M08 Location: U1.1-P1-M4 AIX Location Code: 00-00</p>
4425	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M09 Location: U1.1-P1-M5 AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4426	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M10 Location: U1.1-P1-M6 AIX Location Code: 00-00</p>
4427	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M11 Location: U1.1-P1-M7 AIX Location Code: 00-00</p>
4428	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M12 Location: U1.1-P1-M8 AIX Location Code: 00-00</p>
4429	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M13 Location: U1.1-P1-M9 AIX Location Code: 00-00</p>
442A	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M14 Location: U1.1-P1-M10 AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
442B	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M15 Location: U1.1-P1-M11 AIX Location Code: 00-00</p>
442C	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M20 Location: U1.1-P1-M12 AIX Location Code: 00-00</p>
442D	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M21 Location: U1.1-P1-M13 AIX Location Code: 00-00</p>
442E	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M22 Location: U1.1-P1-M14 AIX Location Code: 00-00</p>
442F	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M23 Location: U1.1-P1-M15 AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4430	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>All memory cards in quad “A”. M01, M02, M03, M24 Location: U1.1-P1-M1 Location: U1.1-P1-M2 Location: U1.1-P1-M3 Location: U1.1-P1-M16 AIX Location Code: 00-00</p>
4431	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>All memory cards in quad “B”. M08, M09, M10, M11 Location: U1.1-P1-M4 Location: U1.1-P1-M5 Location: U1.1-P1-M6 Location: U1.1-P1-M7 AIX Location Code: 00-00</p>
4432	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>All memory cards in quad “C”. M12, M13, M14, M15 Location: U1.1-P1-M8 Location: U1.1-P1-M9 Location: U1.1-P1-M10 Location: U1.1-P1-M11 AIX Location Code: 00-00</p>
4433	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>All memory cards in quad “D”. M20, M21, M22, M23 Location: U1.1-P1-M12 Location: U1.1-P1-M13 Location: U1.1-P1-M14 Location: U1.1-P1-M15 AIX Location Code: 00-00</p>
4440	<p>I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.</p>	<p>Go to “MAP 1540: Minimum Configuration” on page 117.</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4441	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4442	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4443	Processor CCIN (word 19) is equal to 5312 or 5313	Go to “MAP 1540: Minimum Configuration” on page 117.
	<p>Word 13 does not equal 700xBB1B or 700x2342 (where x=0 to B).</p> <p>I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.</p> <p>Word 13 equals 700xBB1B or 700x2342 (where x=0 to B):</p> <ol style="list-style-type: none"> 1. Try to reboot. 2. If reboot is successful, contact your second level support. 3. If reboot is not successful, a new SRC should appear to isolate the problem. 	Perform indicated action(s).

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Reference Code	Description/Action Perform all actions before exchanging Failing Items		Failing Item
	Processor CCIN (word 19) is not equal to 5312 or 5313.	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items		Failing Item
4444	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.		Go to “MAP 1540: Minimum Configuration” on page 117.
4445	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.		Go to “MAP 1540: Minimum Configuration” on page 117.
4446	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.		Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4450	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4451	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4452	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4453	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4454	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4455	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4456	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4457	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4458	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4459	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
445A	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
445B	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4460	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4461	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4462	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4463	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4464	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4465	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4466	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4467	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4468	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
4469	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
446A	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
446B	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4470	Problem could be propagated from the attached Input/Output devices. Go to “MAP 1540: Minimum Configuration” on page 117 and attempt to isolate the problem. If MAP 1540 fails to isolate the problem, return here and continue below.	Go to “MAP 1540: Minimum Configuration” on page 117.
	After returning from “MAP 1540: Minimum Configuration” on page 117, the problem could be the JTAG cable or the system backplane assembly. Before replacing any parts, test for the existence of the proper number and position of memory cards and processor cards. This condition may result in invalid configurations during VPD reading. Note: Record function 13 codes. Contact your second level of support before replacing the system backplane assembly.	<ol style="list-style-type: none"> 1. JTAG Cable (internal) 2. System Backplane Assembly Location: U1.1-P1 AIX Location Code: 00-00
447F	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	All installed memory cards. Location: U1.1-P1-Mxx AIX Location Code: 00-00
4480	Clock/processor regulator card at the specified location is faulty. Probability is high.	Clock/processor regulator card, M19 Location: U1.1-P1-X2
4481	<p>I/O hub card</p> <p>The I/O hub card at the specified location is faulty. Probability is high.</p>	I/O hub card, M17 Location: U1.1-P1-X1
448E	<p>Operator panel</p> <p>The operator panel at the specified location is faulty. Probability is high.</p>	Operator panel Location: U1.1-P1-L1

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
448F	<p>System backplane is faulty. Probability is high.</p> <p>Perform the following steps before replacing the system backplane:</p> <ol style="list-style-type: none"> 1. Check locations M06, M16, and M18 for the Processor Terminator/filler card, CCIN=246C. 2. Are there any processor Terminator/filler cards in the system? NO Replace the failing item. YES Continue with the following step. 3. Turn the system power off if it is not already turned off. 4. Remove all the Processor Terminator/filler cards. Use the locations to determine the positions of the other processor Terminator/filler cards. 5. Select SLOW IPL speed. See operator panel commands. 6. Power on the system. 7. Does the system boot successfully? NO Replace the failing item. YES Continue with the following step. 8. Power off the system. 9. Reinstall one of the processor terminator/filler cards that you removed. 10. Power on the system. 11. Does the system boot successfully? NO The failing FRU is the processor terminator/filler card you just reinstalled. Exchange the processor terminator/filler card. This ends the procedure. YES Continue with the following step. 12. Have you reinstalled all the processor terminator/filler cards that you removed? NO Return to step 8. YES The processor terminator/filler cards are not failing, replace the failing item. 	<p>System Backplane, M00 Location: U1.1-P1</p>
4490	<p>RIO Port 0 or the RIO cable connected to it is faulty. Probability is high.</p>	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 0. Location: U1.1-P1-X1/Q1 3. I/O hub card Location: U1.1-P1-X1

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4491	RIO Port 1 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 1. Location: U1.1-P1-X1/Q2 3. I/O hub card Location: U1.1-P1-X1
4492	RIO Port 2 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 2. Location: U1.1-P1-X1/Q3 3. I/O hub card Location: U1.1-P1-X1
4493	RIO Port 3 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 3. Location: U1.1-P1-X1/Q4 3. I/O hub card Location: U1.1-P1-X1
44A0	A RIO Port or the RIO cable connected to it is faulty. Probability is high. Note: Before replacing all the RIO cables for this reference code, contact your second level of support.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. Replace the RIO Cables. Location: U1.1-P1-X1/Q1, Q2, Q3, Q4 3. I/O hub card Location: U1.1-P1-X1
44AF	RIO Port 0 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 0. Location: U1.1-P1-X1/Q1 3. I/O hub card Location: U1.1-P1-X1

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
44B0	RIO Port 1 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 1. Location: U1.1-P1-X1/Q2 3. I/O hub card Location: U1.1-P1-X1
44B1	RIO Port 2 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 2. Location: U1.1-P1-X1/Q3 3. I/O hub card Location: U1.1-P1-X1
44B2	RIO Port 3 or the RIO cable connected to it is faulty. Probability is high.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 3. Location: U1.1-P1-X1/Q4 3. I/O hub card Location: U1.1-P1-X1
44F0	Software or firmware error, VPD configuration failed.	Software or service processor firmware Contact support center for assistance.
44F1	Software or firmware error	Software or service processor firmware Contact support center for assistance.
44F2	Software or firmware error	Software or service processor firmware Contact support center for assistance.
44F3	<p>Main Store Plugging Error</p> <p>A memory card at the specified location is faulty. Probability is high.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All installed memory cards. Location: U1.1-P1-Mxx AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4570	I/O adapter hardware error detected. Use the service processor Menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4571	I/O adapter hardware error detected. Use the service processor Menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4572	I/O adapter hardware error detected. Use the service processor Menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
4573	I/O adapter hardware error detected. Use the service processor Menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the I/O drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117
4580	I/O Planar 0 error detected. Probability is high.	Go to “MAP 1540: Minimum Configuration” on page 117

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4581	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 0, Slot 1 Location: U0.1-P1-I1</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4582	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 2 Location: U0.1-P1-I2 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4583	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 0, Slot 3 Location: U0.1-P1-I3</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4584	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 4 Location: U0.1-P1-I4 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4585	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 0, Slot 5 Location: U0.1-P1-I5</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4586	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 6 Location: U0.1-P1-I6 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4587	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 0, Slot 7 Location: U0.1-P1-I7</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4588	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 8 Location: U0.1-P1-I8 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4589	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 0, Slot 9 Location: U0.1-P1-I9</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
458A	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 10 Location: U0.1-P1-I10 <ol style="list-style-type: none">1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 9 and 10:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two adapters were inserted in slots 9 and 10:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
458B	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 11 Location: U0.1-P1-I11 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
458C	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 12 Location: U0.1-P1-I12 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
458D	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 0, Slot 13 Location: U0.1-P1-I13 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
458E	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 0, Slot 14 Location: U0.1-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
4590	I/O Planar 1 error detected. Probability is high.	Go to "MAP 1540: Minimum Configuration" on page 117

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4591	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 1 Location: U0.2-P1-I1</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4592	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 2 Location: U0.2-P1-I2 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4593	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 3 Location: U0.2-P1-I3</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4594	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 4 Location: U0.2-P1-I4 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4595	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 5 Location: U0.2-P1-I5</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4596	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 6 Location: U0.2-P1-I6 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4597	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 7 Location: U0.2-P1-I7</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4598	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 8 Location: U0.2-P1-I8 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
4599	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 9 Location: U0.2-P1-I9</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459A	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 10 Location: U0.2-P1-I10 <ol style="list-style-type: none">1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 9 and 10:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two adapters were inserted in slots 9 and 10:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459B	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 11 Location: U0.2-P1-I11 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459C	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 1, Slot 12 Location: U0.2-P1-I12 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459D	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 13 Location: U0.2-P1-I13</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
459E	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 1, Slot 14 Location: U0.2-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
45A0	I/O Planar 2 error detected. Probability is high.	Go to "MAP 1540: Minimum Configuration" on page 117

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A1	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 2, Slot 1 Location: U0.3-P1-I1</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A2	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 2 Location: U0.3-P1-I2 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A3	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 2, Slot 3 Location: U0.3-P1-I3</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A4	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 4 Location: U0.3-P1-I4 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A5	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 2, Slot 5 Location: U0.3-P1-I5</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A6	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 6 Location: U0.3-P1-I6 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A7	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 2, Slot 7 Location: U0.3-P1-I7</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A8	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 8 Location: U0.3-P1-I8 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45A9	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 9 Location: U0.3-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AA	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 10 Location: U0.3-P1-I0 <ol style="list-style-type: none">1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 9 and 10:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two adapters were inserted in slots 9 and 10:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AB	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 2, Slot 11 Location: U0.3-P1-I11</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AC	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 12 Location: U0.3-P1-I12 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AD	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 2, Slot 13 Location: U0.3-P1-I13</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45AE	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 2, Slot 14 Location: U0.3-P1-I14 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.
45B0	I/O Planar 3 error detected. Probability is high.	Go to "MAP 1540: Minimum Configuration" on page 117

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B1	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 1 Location: U0.4-P1-I1</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B2	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 3, Slot 2 Location: U0.4-P1-I2 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B3	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 3 Location: U0.4-P1-I3</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B4	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 3, Slot 4 Location: U0.4-P1-I4 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B5	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 5 Location: U0.4-P1-I5</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B6	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 3, Slot 6 Location: U0.4-P1-I6 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B7	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 7 Location: U0.4-P1-I7</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B8	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 3, Slot 8 Location: U0.4-P1-I8 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45B9	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 9 Location: U0.4-P1-I9</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45BA	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 3, Slot 10 Location: U0.4-P1-I10 <ol style="list-style-type: none">1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 9 and 10:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two adapters were inserted in slots 9 and 10:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45BB	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 11 Location: U0.4-P1-I11</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45BC	PCI error detected An adapter card at the specified location is faulty. Probability is high.	Drawer 3, Slot 12 Location: U0.4-P1-I12 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45BD	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 13 Location: U0.4-P1-I13</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
45BE	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is high.</p>	<p>Drawer 3, Slot 14 Location: U0.4-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
4A00	<p>Illegal condition detected. Probability is high.</p>	<p>Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem.</p>
4A0C	<p>System configuration not valid. Check VPD module and CCIN on processor cards. Probability is mandatory.</p>	<p>All processor cards at M05, M06, M16, and M18. Locations: U1.1-P1-C1 U1.1-P1-C3 U1.1-P1-C4 U1.1-P1-C2</p>
6400	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Processor card 0, M05 Location: U1.1-P1-C1</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6401	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is low. Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Processor card 1, M18 Location: U1.1-P1-C2</p>
6402	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Processor card 2, M06 Location: U1.1-P1-C3</p>
6403	<p>System processor card failure</p> <p>A processor card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Processor card 3, M16 Location: U1.1-P1-C4</p>
6409	<p>System processor card failure</p> <p>Location is unknown.</p>	<p>Processor card X, Mxx Location: U1.1-P1-Cx</p>
6420	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M01 Location: U1.1-P1-M1 AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6421	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M02 Location: U1.1-P1-M2 AIX Location Code: 00-00</p>
6422	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M03 Location: U1.1-P1-M3 AIX Location Code: 00-00</p>
6423	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M24 Location: U1.1-P1-M16 AIX Location Code: 00-00</p>
6424	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M08 Location: U1.1-P1-M4 AIX Location Code: 00-00</p>
6425	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M09 Location: U1.1-P1-M5 AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6426	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M10 Location: U1.1-P1-M6 AIX Location Code: 00-00</p>
6427	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M11 Location: U1.1-P1-M7 AIX Location Code: 00-00</p>
6428	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M12 Location: U1.1-P1-M8 AIX Location Code: 00-00</p>
6429	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M13 Location: U1.1-P1-M9 AIX Location Code: 00-00</p>
642A	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>Memory Card, M14 Location: U1.1-P1-M10 AIX Location Code: 00-00</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
642B	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M15 Location: U1.1-P1-M11 AIX Location Code: 00-00</p>
642C	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M20 Location: U1.1-P1-M12 AIX Location Code: 00-00</p>
642D	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M21 Location: U1.1-P1-M13 AIX Location Code: 00-00</p>
642E	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M22 Location: U1.1-P1-M14 AIX Location Code: 00-00</p>
642F	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>Memory Card, M23 Location: U1.1-P1-M15 AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6430	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "A". M01, M02, M03, M24 Location: U1.1-P1-M1 Location: U1.1-P1-M2 Location: U1.1-P1-M3 Location: U1.1-P1-M16 AIX Location Code: 00-00</p>
6431	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "B". M08, M09, M10, M11 Location: U1.1-P1-M4 Location: U1.1-P1-M5 Location: U1.1-P1-M6 Location: U1.1-P1-M7 AIX Location Code: 00-00</p>
6432	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "C". M12, M13, M14, M15 Location: U1.1-P1-M8 Location: U1.1-P1-M9 Location: U1.1-P1-M10 Location: U1.1-P1-M11 AIX Location Code: 00-00</p>
6433	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All memory cards in quad "D". M20, M21, M22, M23 Location: U1.1-P1-M12 Location: U1.1-P1-M13 Location: U1.1-P1-M14 Location: U1.1-P1-M15 AIX Location Code: 00-00</p>
6440	<p>I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.</p>	<p>Go to "MAP 1540: Minimum Configuration" on page 117.</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6441	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6442	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6443	Processor CCIN (word 19) is equal to 5312 or 5313	Word 13 does not equal 700xBB1B or 700x2342 (where x=0 to B). Go to “MAP 1540: Minimum Configuration” on page 117.
	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Perform indicated action(s).
	Word 13 equals 700xBB1B or 700x2342 (where x=0 to B): 1. Try to reboot. 2. If reboot is successful, contact your second level support. 3. If reboot is not successful, a new SRC should appear to isolate the problem.	

Reference Code	Description/Action Perform all actions before exchanging Failing Items		Failing Item
	Processor CCIN (word 19) is not equal to 5312 or 5313.	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items		Failing Item
6444	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.		Go to "MAP 1540: Minimum Configuration" on page 117.
6445	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.		Go to "MAP 1540: Minimum Configuration" on page 117.
6446	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.		Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6450	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6451	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6452	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6453	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6454	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6455	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6456	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6457	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6458	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6459	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
645A	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
645B	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6460	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6461	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6462	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6463	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6464	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6465	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6466	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6467	I/O adapter failed. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6468	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
6469	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
646A	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.
646B	I/O adapter failed. Use the service processor menus described in “Chapter 7. Service Processor Menus” on page 447 to view the “Progress Indicators from Last Boot” panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to “MAP 1540: Minimum Configuration” on page 117.	Go to “MAP 1540: Minimum Configuration” on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6470	<p>Problem could be propagated from the attached Input/Output devices. Go to “MAP 1540: Minimum Configuration” on page 117 and attempt to isolate the problem. If MAP 1540 fails to isolate the problem, return here and continue below.</p> <p>After returning from “MAP 1540: Minimum Configuration” on page 117, the problem could be the JTAG cable or the system backplane assembly. Before replacing any parts, test for the existence of the proper number and position of memory cards and processor cards. This condition may result in invalid configurations during VPD reading.</p> <p>Note: Record function 13 codes. Contact your second level of support before replacing the system backplane assembly.</p>	<p>Go to “MAP 1540: Minimum Configuration” on page 117.</p> <ol style="list-style-type: none"> 1. JTAG Cable (internal) 2. System Backplane Assembly Location: U1.1-P1 AIX Location Code: 00-00
647F	<p>Main storage failure</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under “Electronic Cards” on page 556.</p>	<p>All installed memory cards. Location: U1.1-P1-Mxx AIX Location Code: 00-00</p>
6480	<p>Clock/processor regulator card at the specified location is faulty. Probability is low.</p>	<p>Clock/Regulator Card, M19 Location: U1.1-P1-X2</p>
6481	<p>I/O hub card</p> <p>The I/O hub card at the specified location is faulty.</p> <p>Probability is low.</p>	<p>I/O hub card, M17 Location: U1.1-P1-X1</p>
648E	<p>Operator panel</p> <p>The operator panel at the specified location is faulty. Probability is low.</p>	<p>Operator panel Location: U1.1-P1-L1</p>

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
648F	<p>System backplane is faulty. Probability is low.</p> <p>Perform the following steps before replacing the system backplane:</p> <ol style="list-style-type: none"> 1. Check locations M06, M16, and M18 for the Processor Terminator/filler card, CCIN=246C. 2. Are there any processor Terminator/filler cards in the system? NO Replace the failing item. YES Continue with the following step. 3. Turn the system power off if it is not already turned off. 4. Remove all the Processor Terminator/filler cards. Use the locations to determine the positions of the other processor Terminator/filler cards. 5. Select SLOW IPL speed. See operator panel commands. 6. Power on the system. 7. Does the system boot successfully? NO Replace the failing item. YES Continue with the following step. 8. Power off the system. 9. Reinstall one of the processor terminator/filler cards that you removed. 10. Power on the system. 11. Does the system boot successfully? NO The failing FRU is the processor terminator/filler card you just reinstalled. Exchange the processor terminator/filler card. This ends the procedure. YES Continue with the following step. 12. Have you reinstalled all the processor terminator/filler cards that you removed? NO Return to step 8. YES The processor terminator/filler cards are not failing, replace the failing item. 	<p>System Backplane, M00 Location: U1.1-P1</p>
6490	<p>RIO Port 0 or the RIO cable connected to it is faulty. Probability is low.</p>	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 0. Location: U1.1-P1-X1/Q1 3. I/O hub card Location: U1.1-P1-X1

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6491	RIO Port 1 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 1. Location: U1.1-P1-X1/Q2 3. I/O hub card Location: U1.1-P1-X1
6492	RIO Port 2 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 2. Location: U1.1-P1-X1/Q3 3. I/O hub card Location: U1.1-P1-X1
6493	RIO Port 3 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 3. Location: U1.1-P1-X1/Q4 3. I/O hub card Location: U1.1-P1-X1 :rev refid=rev4.
64A0	A RIO Port or the RIO cable connected to it is faulty. Probability is low. Note: Before replacing all the RIO cables for this reference code, contact your second level of support.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. Replace the RIO Cables. Location: U1.1-P1-X1/Q1, Q2, Q3, Q4 3. I/O hub card Location: U1.1-P1-X1
64AF	RIO Port 0 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 0. Location: U1.1-P1-X1/Q1 3. I/O hub card Location: U1.1-P1-X1

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
64B0	RIO Port 1 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 1. Location: U1.1-P1-X1/Q2 3. I/O hub card Location: U1.1-P1-X1
64B1	RIO Port 2 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 2. Location: U1.1-P1-X1/Q3 3. I/O hub card Location: U1.1-P1-X1
64B2	RIO Port 3 or the RIO cable connected to it is faulty. Probability is low.	<ol style="list-style-type: none"> 1. Check the RIO cable connectors for damage. Ensure that the cable connections to the RIO ports are tight. 2. RIO Cable on RIO port 3. Location: U1.1-P1-X1/Q4 3. I/O hub card Location: U1.1-P1-X1
64F0	Software or firmware error, VPD configuration failed.	Software or service processor firmware Contact support center for assistance.
64F1	Software or firmware error	Software or service processor firmware Contact support center for assistance.
64F2	Software or firmware error	Software or service processor firmware Contact support center for assistance.
64F3	<p>Main Store Plugging Error</p> <p>A memory card at the specified location is faulty. Probability is low.</p> <p>Record function code 19 from the operator panel. This function code is the CCIN identifier, which is used to determine the processor or memory card type. To get the part number for the failing card, find the CCIN number in the parts tables under "Electronic Cards" on page 556.</p>	<p>All installed memory cards. Location: U1.1-P1-Mxx AIX Location Code: 00-00</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6570	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6571	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6572	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117.
6573	I/O adapter hardware error detected. Use the service processor menus described in "Chapter 7. Service Processor Menus" on page 447 to view the "Progress Indicators from Last Boot" panel. If an E5xy checkpoint is recorded as the first or second entry, the drawer and slot at the time of failure can be determined from the E5xy checkpoint information found on page 154. Use this information when proceeding to "MAP 1540: Minimum Configuration" on page 117.	Go to "MAP 1540: Minimum Configuration" on page 117
6580	I/O Planar 0 error detected. Probability is low.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6581	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 1 Location: U0.1-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6582	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 2 Location: U0.1-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6583	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 3 Location: U0.1-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6584	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 4 Location: U0.1-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6585	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 5 Location: U0.1-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6586	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 6 Location: U0.1-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6587	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 7 Location: U0.1-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6588	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 8 Location: U0.1-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6589	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 9 Location: U0.1-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: a. If only one adapter was inserted in slots 9 and 10: 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658A	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 10 Location: U0.1-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658B	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 11 Location: U0.1-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658C	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 12 Location: U0.1-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658D	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 0, Slot 13 Location: U0.1-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
658E	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 0, Slot 14 Location: U0.1-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
6590	I/O Planar 1 error detected. Probability is low.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6591	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 1 Location: U0.2-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6592	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 1, Slot 2 Location: U0.2-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6593	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 3 Location: U0.2-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6594	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 1, Slot 4 Location: U0.2-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6595	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 5 Location: U0.2-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6596	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 1, Slot 6 Location: U0.2-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6597	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 7 Location: U0.2-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6598	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 1, Slot 8 Location: U0.2-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
6599	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 9 Location: U0.2-P1-I9 <ol style="list-style-type: none">1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 9 and 10:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two adapters were inserted in slots 9 and 10:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659A	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 1, Slot 10 Location: U0.2-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659B	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 11 Location: U0.2-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659C	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 1, Slot 12 Location: U0.2-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659D	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 13 Location: U0.2-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
659E	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 1, Slot 14 Location: U0.2-P1-I14 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
65A0	I/O Planar 2 error detected. Probability is low.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A1	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 1 Location: U0.3-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, or 4 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A2	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 2 Location: U0.3-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A3	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 3 Location: U0.3-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A4	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 4 Location: U0.3-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A5	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 5 Location: U0.3-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A6	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 6 Location: U0.3-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A7	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 7 Location: U0.3-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A8	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 8 Location: U0.3-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65A9	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 9 Location: U0.3-P1-I9 <ol style="list-style-type: none">1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 9 and 10:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two adapters were inserted in slots 9 and 10:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65AA	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 10 Location: U0.3-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to “MAP 1540: Minimum Configuration” on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65AB	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 11 Location: U0.3-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65AC	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 12 Location: U0.3-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

B4xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65AD	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 2, Slot 13 Location: U0.3-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65AE	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 2, Slot 14 Location: U0.3-P1-I14</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
65B0	I/O Planar 3 error detected. Probability is low.	Go to "MAP 1540: Minimum Configuration" on page 117

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B1	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 1 Location: U0.4-P1-I1 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B2	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 3, Slot 2 Location: U0.4-P1-I2</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B3	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 3 Location: U0.4-P1-I3 <ol style="list-style-type: none">1. Remove any adapters from slots 1, 2, 3, and 4 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 1, 2, 3, and 4:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B4	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 3, Slot 4 Location: U0.4-P1-I4</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 1, 2, 3, and 4, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 1, 2, 3, and 4: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B5	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 5 Location: U0.4-P1-I5 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B6	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 3, Slot 6 Location: U0.4-P1-I6</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B7	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 7 Location: U0.4-P1-I7 <ol style="list-style-type: none">1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 5, 6, 7, and 8:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B8	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 3, Slot 8 Location: U0.4-P1-I8</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 5, 6, 7, and 8, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 5, 6, 7, and 8: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65B9	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 9 Location: U0.4-P1-I9 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: a. If only one adapter was inserted in slots 9 and 10: 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BA	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 3, Slot 10 Location: U0.4-P1-I10</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 9 and 10, and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two adapters were inserted in slots 9 and 10: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BB	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 11 Location: U0.4-P1-I11 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BC	<p>PCI error detected</p> <p>An adapter card at the specified location is faulty. Probability is low.</p>	<p>Drawer 3, Slot 12 Location: U0.4-P1-I12</p> <ol style="list-style-type: none"> 1. Remove any adapters from slots 11, 12, 13, or 14 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BD	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 13 Location: U0.4-P1-I13 <ol style="list-style-type: none">1. Remove any adapters from slots 11, 12, 13, and 14, and retry. If failure no longer occurs:<ol style="list-style-type: none">a. If only one adapter was inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Replace the adapter and retry.2) Replace the I/O planar and retry.b. If two or more adapters were inserted in slots 11, 12, 13, and 14:<ol style="list-style-type: none">1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry.2) If only one adapter causes a failure then replace the failing adapter and retry.3) If replacing the adapter does not fix the problem, replace the I/O planar.2. Go to "MAP 1540: Minimum Configuration" on page 117.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
65BE	PCI error detected An adapter card at the specified location is faulty. Probability is low.	Drawer 3, Slot 14 Location: U0.4-P1-I14 1. Remove any adapters from slots 11, 12, 13, and 14 and retry. If failure no longer occurs: <ol style="list-style-type: none"> a. If only one adapter was inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Replace the adapter and retry. 2) Replace the I/O planar and retry. b. If two or more adapters were inserted in slots 11, 12, 13, and 14: <ol style="list-style-type: none"> 1) Retry each adapter individually in its original slot. If every adapter causes a failure then replace the I/O planar and retry. 2) If only one adapter causes a failure then replace the failing adapter and retry. 3) If replacing the adapter does not fix the problem, replace the I/O planar. 2. Go to "MAP 1540: Minimum Configuration" on page 117.
6A00	Illegal condition detected. Probability is low.	Contact your next level of support. Do not replace any FRUs in an attempt to fix this problem.
6A0C	System configuration not valid. Check VPD module and CCIN on processor cards. Probability is low.	All processor cards at M05, M06, M16, and M18. Locations: U1.1-P1-C1 U1.1-P1-C3 U1.1-P1-C4 U1.1-P1-C2

Bus SRN to FRU Reference Table

The following bus SRN to FRU reference table is used to locate defective FRUs within an I/O planar PCI bus. If the system you are diagnosing produces a service request number (SRN) that is contained in the following table, the bus and PCI slots for that bus are identified.

Note: If you were directed here because you received a firmware error code 26800Dxx, the value of the xx represents the failing PCI bus. In the following table, use the PCI bus xx to isolate the failing device.

Using the diagnostic test that produced the SRN, use the following procedure to identify the failing FRU.

1. Remove power from the system.
2. Based on the SRN or error code you received, remove the adapters from the PCI bus slots identified in the following table.
3. Restore power to the system.
4. Rerun the test that produced the original SRN or error code.
5. If a failure is detected on the I/O drawer with the adapters removed from the failing I/O bus, the I/O drawer planar is the isolated FRU, replace the I/O planar.

If a failure is not detected, reinstall the adapters one at a time, into their original slot location. Retest the configuration until a failure is detected. The last adapter installed is the failing adapter; replace that adapter.

If a failure is not detected, and all the FRUs have been tested, call your next level of support for assistance.

SRN	Bus Identification	Possible Failing Device and AIX Location Code	Associated FRU
I/O Drawer 0 of 3 (Primary)			
9CC-100	PCI Bus 00	Device installed in I/O slot 5 (10-58 to 10-5F or 1B-XX)	I/O planar or adapter
		Device installed in I/O slot 6 (10-60 to 10-67 or 1C-XX)	I/O planar or adapter
		Device installed in I/O slot 7 (10-68 to 10-6F or 1D-XX)	I/O planar or adapter
		Device installed in I/O slot 8 (10-70 to 10-77 or 1E-XX not used by AIX) PCI Slot 8 Service Processor ISA Bridge (10-78 to 10-7F or 1F-XX not used by AIX)	I/O planar or adapter I/O Planar or Service Processor
9CC-101	PCI Bus 01	Device installed in I/O slot 1 (20-58 to 20-5F or 2B-XX)	I/O planar or adapter
		Device installed in I/O slot 2 (20-60 to 20-67 or 2C-XX)	I/O planar or adapter
		Device installed in I/O slot 3 (20-68 to 20-6F or 2D-XX)	I/O planar or adapter

SRN	Bus Identification	Possible Failing Device and AIX Location Code	Associated FRU
		Device installed in I/O slot 4 (20-70 to 20-77 or 2E-XX)	I/O planar or adapter
9CC-102	PCI Bus 02	Device installed in I/O slot 11 (30-58 to 30-5F or 3B-XX)	I/O planar or adapter
		Device installed in I/O slot 12 (30-60 to 30-67 or 3C-XX)	I/O planar or adapter
		Device installed in I/O slot 13 (30-68 to 30-6F or 3D-XX)	I/O planar or adapter
		Device installed in I/O slot 14 (30-70 to 30-77 or 3E-XX)	I/O planar or adapter
9CC-103	PCI Bus 03	Device installed in I/O slot 9 (40-58 to 40-5F or 4B-XX)	I/O planar or adapter
		Device installed in I/O slot 10 (40-60 to 40-67 or 4C-XX)	I/O planar or adapter

I/O Drawer 1 of 3 (Secondary)

9CC-104	PCI Bus 04	Device installed in I/O slot 5 (50-58 to 50-5F or 5B-XX)	I/O planar or adapter
		Device installed in I/O slot 6 (50-60 to 50-67 or 5C-XX)	I/O planar or adapter
		Device installed in I/O slot 7 (50-68 to 50-6F or 5D-XX)	I/O planar or adapter
		Device installed in I/O slot 8 (50-70 to 50-77 or 5E-XX)	I/O planar or adapter
9CC-105	PCI Bus 05	Device installed in I/O slot 1 (60-58 to 60-5F or 6B-XX)	I/O planar or adapter
		Device installed in I/O slot 2 (60-60 to 60-67 or 6C-XX)	I/O planar or adapter
		Device installed in I/O slot 3 (60-68 to 60-6F or 6D-XX)	I/O planar or adapter
		Device installed in I/O slot 4 (60-70 to 60-77 or 6E-XX)	I/O planar or adapter
9CC-106	PCI Bus 06	Device installed in I/O slot 11 (70-58 to 70-5F or 7B-XX)	I/O planar or adapter
		Device installed in I/O slot 12 (70-60 to 70-67 or 7C-XX)	I/O planar or adapter
		Device installed in I/O slot 13 (70-68 to 70-6F or 7D-XX)	I/O planar or adapter
		Device installed in I/O slot 14 (70-70 to 70-77 or 7E-XX)	I/O planar or adapter
9CC-107	PCI Bus 07	Device installed in I/O slot 9 (80-58 to 80-5F or 8B-XX)	I/O planar or adapter

		Device installed in I/O slot 10 (80-60 to 80-67 or 8C-XX)	I/O planar or adapter
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I/O Drawer 2 of 3 (Secondary)			
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9CC-108	PCI Bus 08	Device installed in I/O slot 5 (90-58 to 90-5F or 9B-XX)	I/O planar or adapter
		Device installed in I/O slot 6 (90-60 to 90-67 or 9C-XX)	I/O planar or adapter
		Device installed in I/O slot 7 (90-68 to 90-6F or 9D-XX)	I/O planar or adapter
		Device installed in I/O slot 8 (90-70 to 90-77 or 9E-XX)	I/O planar or adapter
9CC-109	PCI Bus 09	Device installed in I/O slot 1 (A0-58 to A0-5F or AB-XX)	I/O planar or adapter
		Device installed in I/O slot 2 (A0-60 to A0-67 or AC-XX)	I/O planar or adapter
		Device installed in I/O slot 3 (A0-68 to A0-6F or AD-XX)	I/O planar or adapter
		Device installed in I/O slot 4 (A0-70 to A0-77 or AE-XX)	I/O planar or adapter
9CC-110	PCI Bus 10	Device installed in I/O slot 11 (B0-58 to B0-5F or BB-XX)	I/O planar or adapter
		Device installed in I/O slot 12 (B0-60 to B0-67 or BC-XX)	I/O planar or adapter
		Device installed in I/O slot 13 (B0-68 to B0-6F or BD-XX)	I/O planar or adapter
		Device installed in I/O slot 14 (B0-70 to B0-77 or BE-XX)	I/O planar or adapter
9CC-111	PCI Bus 11	Device installed in I/O slot 9 (C0-58 to C0-5F or CB-XX)	I/O planar or adapter
		Device installed in I/O slot 10 (C0-60 to C0-67 or CC-XX)	I/O planar or adapter

I/O Drawer 3 of 3 (Secondary)			
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9CC-112	PCI Bus 12	Device installed in I/O slot 5 (D0-58 to D0-5F or DB-XX)	I/O planar or adapter
		Device installed in I/O slot 6 (D0-60 to D0-67 or DC-XX)	I/O planar or adapter
		Device installed in I/O slot 7 (D0-68 to D0-6F or DD-XX)	I/O planar or adapter
		Device installed in I/O slot 8 (D0-70 to D0-77 or DE-XX)	I/O planar or adapter

9CC-113	PCI Bus 13	Device installed in I/O slot 1 (E0-58 to E0-5F or EB-XX)	I/O planar or adapter
		Device installed in I/O slot 2 (E0-60 to E0-67 or EC-XX)	I/O planar or adapter
		Device installed in I/O slot 3 (E0-68 to E0-6F or ED-XX)	I/O planar or adapter
		Device installed in I/O slot 4 (E0-70 to E0-77 or EE-XX)	I/O planar or adapter
9CC-114	PCI Bus 14	Device installed in I/O slot 11 (F0-58 to F0-5F or FB-XX)	I/O planar or adapter
		Device installed in I/O slot 12 (F0-60 to F0-67 or FC-XX)	I/O planar or adapter
		Device installed in I/O slot 13 (F0-68 to F0-6F or FD-XX)	I/O planar or adapter
		Device installed in I/O slot 14 (F0-70 to F0-77 or FE-XX)	I/O planar or adapter
9CC-115	PCI Bus 15	Device installed in I/O slot 9 (G0-58 to G0-5F or GB-XX)	I/O planar or adapter
		Device installed in I/O slot 10 (G0-60 to G0-67 or GC-XX)	I/O planar or adapter

Chapter 6. Loading the System Diagnostics In Service Mode

For more information about using standalone or online diagnostics, see “Using the Standalone and Online Diagnostics” in the *Diagnostic Information for Multiple Bus Systems*.

The system diagnostics can be booted from the default boot list or from the service mode boot list. (The service mode boot list can be modified using the system diagnostics “Display or Change Bootlist” service aid. The service mode boot list cannot be modified under the System Management Services).

Note: The methods described in this section cause the system diagnostics to be loaded with the system in service mode. Another method of loading the system diagnostics in service mode is through the service processor boot mode menu. For a description of boot modes, see “Boot Mode Menu” on page 467.

To load **Standalone Diagnostics** from the default boot list, perform the following procedure:

1. Verify with the system administrator and users that all programs may be stopped, then do so.
2. Turn off the system.

Note: If AIX is running, enter the **shutdown -F** command.

3. Wait until the Power LED stops flashing and remains off, then press the power button to turn the system on.
4. Immediately insert the diagnostic CD-ROM into the CD-ROM drive.
5. When or after the keyboard POST indicator appears during startup, press the number 5 key on a directly attached keyboard (or the number 5 key on an ASCII terminal).
6. Enter any requested passwords.

Online Diagnostics can be loaded by booting from the custom boot list by pressing the number 6 key (on a directly attached keyboard) or the number 6 key on an ASCII terminal.

The procedure for booting from the devices listed in the service mode boot list is the following:

1. Verify with the system administrator and users that all programs may be stopped, then do so.
2. Turn off the system.

Note: If AIX is running, enter the **shutdown -F** command.

3. Wait until the Power LED stops flashing and remains off, then press the power button to turn the system on.
4. When or after the keyboard indicator appears during startup, press the number 6 key on a directly attached keyboard (or the number 6 key on an ASCII terminal).

5. Enter any requested passwords.

After any requested passwords have been entered, the system attempts to boot from the first device of each type found on the list. If no bootable image is found on the first device of each type on the list, the system does not search through the other devices of that type for a bootable image; instead, it polls the first device of the next type.

If all types of devices in the boot list have been polled without finding a bootable image, the system restarts, this gives the user the opportunity to start the System Management Services (by pressing the number 1 key on a directly attached keyboard or the number 1 on an ASCII terminal) before the system attempts to boot again.

Default Boot List and Service Mode Bootlist

The default boot list is as follows:

1. Diskette
2. CD-ROM
3. Tape
4. Hard file
5. Network
 - Token-Ring
 - Ethernet

Pressing the number 5 key on a directly attached keyboard (or the number 5 key on an ASCII terminal) causes the system to load **Standalone Diagnostics** given that a diagnostic CD is present in the CD-ROM drive.

Pressing the number 6 key on a directly attached keyboard (or number 6 key on an ASCII terminal) loads **Online Diagnostics** from the service mode boot list. No diagnostic CD should be in the CD-ROM drive because **Online Diagnostics** is typically run from a hard disk, which is in the boot list defined using the system diagnostics "Display or Change Bootlist" service aid. Like the default boot list, the service mode boot list can contain five entries. The number 6 key works like the number 5 key, with the following exceptions:

- The system searches for a boot record according to the service mode boot list.
- If the service mode boot list is discovered by a cyclical redundancy check to be corrupted, the system rebuilds the service mode boot list according to the default boot list. (The default boot list contains five entries, and for each matching device type found in the system unit, the system makes an entry in the custom boot list.)
- If no service mode boot list is present, the system uses the default boot list.

Chapter 7. Service Processor Menus

The service processor menus make it possible for you to configure service processor options, as well as enable and disable functions.

Service processor menus are available using an ASCII terminal while the system is powering on or when the service processor has detected a server problem (such as a surveillance failure).

The following table contains a summary of the service processor functions and the methods used to invoke them.

Service Processor Functions	Service Processor Menus (ASCII terminals)	AIX Service Aids (ASCII or graphics terminals)	SMS (ASCII or graphics terminals)
Read VPD image from last system boot	Y ³		
Read System POST Errors	Y ³		
Read Service Processor Error Logs	Y ³		
View Progress Indicators from last Boot	Y ³		
Power-off System	Y ²		
Read NVRAM	Y ²		
Start Talk Mode	Y ²		
Enable/Disable Console Mirroring	Y ²		
Setup Reboot/Restart Policy	Y ²	Y ¹	
Enable/Disable Modem	Y ²	Y ¹	
Setup Modem Configuration	Y ²	Y ¹	
Setup Dial-out Phone Numbers	Y ²	Y ¹	
Setup Surveillance	Y ²	Y ¹	
Select Modem Line Speed	Y ²	Y ¹	
Update Service Processor Flash EPROM		Y ¹	
Save/Restore Hardware Maintenance Policies		Y ¹	
Change General Access Password	Y ²		
Change Privileged-access password	Y ²		Y ²
Select Language	Y ²		Y ²
Enable/Disable Unattended Start Mode	Y ²	Y ¹	Y ²

Passwords required (if set):

- ¹ Operating system root password
- ² Privileged-access password
- ³ General access (power-on) password

Service Processor Menus

The service processor menus are divided into two groups:

- General user menus - the user must know the general access password.
- Privileged user menus - the user must know the privileged-access password.

The following section describes these two groups of menus, how to access them, and the functions associated with each option.

If the server is powered on, the service processor menus can be accessed locally or remotely.

Accessing Service Processor Menus Locally

Service processor menus can be accessed locally by connecting an ASCII terminal to either serial port 1 or 2. Because the presence of the ASCII terminal cannot be confirmed by the service processor, you must press a key (any key) on the ASCII terminal to confirm its presence. The key on the ASCII terminal must be pressed during the time when the operator panel display shows the code E07A.

You can recognize when the access time for the service processor menu begins in the following ways:

- The checkpoint prior to the access checkpoint is E04F.
- The system beeps three times as it enters checkpoint E07A.

When you gain access, the service processor prompts you for a password (if set), and when verified, displays the service processor menus.

The service processor menu prompt, represented by 1> or 2> indicates the serial port to which the terminal is connected. A 1> indicates serial port 1, and 2> indicates serial port 2.

Accessing the Service Processor Menus Remotely

If your system has a modem connected and is configured for call-in (see “Modem Configuration Menu” on page 461), the service processor menus can be accessed remotely as follows:

1. With the system powered off, call in from a remote terminal. Wait for at least two rings and hang up. The system powers on upon detecting ring-indicate, and pauses for a return call if call-in is enabled.
2. Wait five minutes and call in again. The service processor prompts you for a password (if set). When verified, the service processor menus display remotely.

Saving and Restoring Service Processor Settings

You can back up all of the settings you make (with the exception of language) from the service processor menus to facilitate either of the following:

- Recovering from a fault that corrupted service processor settings
- Replicating these settings to other servers that include a service processor

You can use the service aid, Save or Restore Hardware Management Policies, 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, as well as the availability of the server. Refer to “Save or Restore Hardware Management Policies,” in the “Introduction to Tasks and Service Aids” section of the *Diagnostic Information for Multiple Bus Systems*, order number SA38-0509.

Returning to Service Processor Menus

When exiting Service Processor menus using option **99**, there is a 10-second delay before the system continues its boot procedure. During that 10 seconds, press any key on the ASCII terminal to return to the menus and select other options.

During the 10-second delay, an information message appears on the display. After the 10-second delay, the service processor menus are no longer available until either the next system boot or the service processor regains control due to a system failure.

Menu Inactivity

To prevent loss of control due to power loss or power surges, the service processor attempts to leave menu mode after 10 minutes of inactivity by simulating the option **99** selection. This attempt is successful on menus containing the **99** option. On the other menus, the attempt is unsuccessful and the following message displays with each attempt:

```
Illegal value entered  
Press Return to continue
```

To hold the server in menu mode, select one of the menus that does not have the **99** option. Boot activity cannot continue if the service processor is in menu mode, and power losses or surges could result in unpredictable server responses.

General User Menus

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 set, to access these menus.

```
GENERAL USER MENU

1. Continue System Boot
2. Read VPD Image from Last System Boot
3. Read Progress Indicators from Last System Boot
4. Read Service Processor Error Logs
5. Read System POST Errors
99. Exit from Menu

1>
```

- **Continue System Boot**

Allows the user to continue with and monitor the system boot already in progress using the current ASCII terminal as the active console.

Make this selection if you want to monitor the IPL progress messages on your terminal. If you do not want to monitor the IPL progress messages, select option **99. Exit from Menu**.

- **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.

- **Read Progress Indicators from Last System Boot**

Displays the boot progress indicators (checkpoints), up to a maximum of 100, from the system boot prior to the one in progress now. This historical information can be useful to help diagnose system faults.

The progress indicators are displayed in two sections. Above the dashed line are progress indicators (latest) from the boot that produced the current sessions. Below the dashed line are progress indicators (oldest) from the boot preceding the one that produced the current sessions.

The progress indicator codes are listed from top (latest) to bottom (oldest). The dashed line represents the point where the latest boot started. For an example, refer to “LCD Progress Indicator Log” on page 478.

- **Read Service Processor Error Logs**

Displays the service processor error logs. For an example, refer to “Service Processor Error Logs” on page 476.

- **Read System POST Errors**

Displays the results of the System Firmware POST (Power-On Self-Test). Your server may be able to start in the presence of POST errors if there are sufficient working

system resources. If POST errors occur during startup, this error log, when used with the diagnostics, helps to isolate faults. For an example, refer to “Service Processor Error Logs” on page 476.

- **Exit from Menus**

Allows the user to continue with the system boot already in progress using the current ASCII terminal as the active console. Make this selection if you *do not* want to monitor the IPL progress messages on your terminal. Exiting from the menus causes the modems to disconnect, but the boot process continues.

Privileged User Menus

The following menus are available to privileged users only. The user must know the privileged-access password, if set, to access these menus.

Main Menu

At the top of the Main Menu is a listing containing:

- Your service processor’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 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. The System Name is set 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: 19990707
Copyright 1999 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
6. Set System Name
99. Exit from Menus

1>
```

- **Service Processor Setup Menu**
See “Service Processor Setup Menu” on page 453 for more information.
- **System Power Control Menu**
See “System Power Control Menu” on page 456 for more information
- **System Information Menu**
See “System Information Menu” on page 457 for more information.
- **Language Selection Menu**
See “Language Selection Menu” on page 459 for more information.
- **Call-In/Call-Out Setup Menu**
See “Call-In/Call-Out Setup Menu” on page 460 for more information.
- **Set System Name**
Allows setting of the system name.

Service Processor Setup Menu

The service processor setup menu shown below 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:
   Currently Enabled
4. Start Talk Mode
5. OS Surveillance Setup Menu
98. Return to Previous Menu
99. Exit from Menus

1>
```

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 the service processor menus or from System Management Services (SMS) utilities (see “Chapter 8. System Management Services” on page 479). 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 correct passwords. The results of not recognizing a correct 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 down 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 displayed
None	Set	Users with the password view the GENERAL USER MENU. Users without the password view the service processor MAIN MENU.
Set	None	Users with the password view the service processor MAIN MENU. Users without password view the GENERAL USER MENU.
Set	Set	Users view menus associated with the entered password

Note: If you *forget* the password, you must remove the battery for at least 30 seconds to disable the password. See Service Guide for details.

- **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 while the privileged-access password is set.

- **Enable/Disable Console Mirroring**

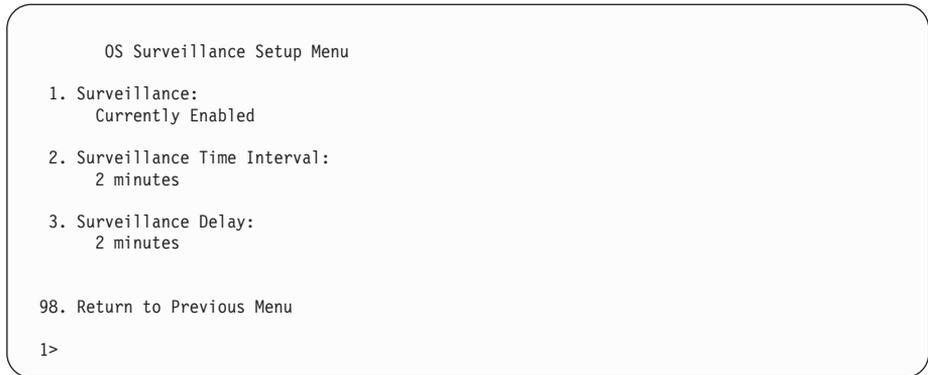
When console mirroring is enabled, the service processor sends information to both serial ports. This capability can be enabled by local or remote users. Providing local users with the capability to monitor remote sessions. Console mirroring can be enabled for the current session only. For more information, see “Console Mirroring” on page 476.

- **Start Talk Mode**

In a console mirroring session, it is useful for those who are monitoring the session to be able to communicate with each other. Selecting this menu item activates the keyboards and displays for such communications while console mirroring is established. This is a full duplex link, so message interference is possible. Alternating messages between users works best.

- **OS Surveillance Setup Menu**

This menu can be used to set up operating system (OS) surveillance.



- **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 474 for more information about surveillance.

System Power Control Menu

This menu can be used to set power control options. Other menus that control boot options are available here:

```
SYSTEM POWER CONTROL MENU

1. Enable/Disable Unattended Start Mode:
   Currently Enabled

2. Reboot/Restart Policy Setup Menu

3. Continue System Boot

4. Power-Off System

5. Boot Mode Menu

98. Return to Previous Menu

99. Exit from Menus

1>
```

- **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 which can also be set through the System Management Services (SMS) menus. is intended to be used on servers that require automatic power-on after a power failure. For more information, see “System Power-On Methods” on page 470.

- **Reboot/Restart Policy Setup Menu**

See “Reboot/Restart Policy Setup Menu” on page 466.

- **Continue System Boot**

Allows the user to continue with and monitor the system boot already in progress using the current ASCII terminal as the active console.

Make this selection if you want to monitor the IPL progress messages on your terminal. If you do not want to monitor the IPL progress messages, select option **99**.

- **Exit from Menus.**

- **Power off System**

Allows the user to power-off the server.

- **Boot Mode Menu**

See “Boot Mode Menu” on page 467.

System Information Menu

Access to system configuration information, error logs, system resources, and processor configuration is available from this menu:

```
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
98. Return to Previous Menu
99. Exit from Menus

1>
```

- **Read VPD Image from Last System Boot**

Displays manufacturer's vital product data (VPD), such as serial numbers and part numbers that were stored from the system boot prior to the one in progress now.
- **Read Progress Indicators from Last System Boot**

Displays the boot progress indicators (checkpoints), up to a maximum of 100, from the system boot prior to the one in progress now. This historical information can be useful to help diagnose system faults.

The progress indicators are displayed in two sections. Above the dashed line the progress indicators (latest) from the boot that produced the current sessions. Below the dashed line are progress indicators (oldest) from the boot preceding the one that produced the current sessions.

The progress indicator codes are listed from top (latest) to bottom (oldest). The dashed line merely represents the point where the latest boot started. For an example, refer to "LCD Progress Indicator Log" on page 478.
- **Read Service Processor Error Logs**

Displays error conditions detected by the service processor. Refer to "Service Processor Error Logs" on page 476 for an example of this error log.
- **Read System POST Errors**

Selecting this item lets you review the results of the POST (Power-On Self-Test). Your server may be able to start in the presence of POST errors if there are sufficient working system resources. If POST errors occur during startup, this error log when used with the diagnostics helps to isolate faults. Refer to "System POST Errors" on page 477 for an example of this error log.
- **Read NVRAM**

Displays nonvolatile random access memory (NVRAM) content.

- **Read Service Processor Configuration**

Displays current service processor configuration.

- **Processor Configuration/Deconfiguration Menu**

Allows the user to change the system processor configuration. If it is necessary to take one of the processors offline, this menu allows you to deconfigure a processor, and then reconfigure the processor at a later time. An example of this menu is shown below:

```
PROCESSOR CONFIGURATION/DECONFIGURATION MENU

To change the configuration, select the processor number:

0. Configured (0x00) 1. Configured (0xFF) 2. Deconfigured (0x81)
3. Deconfigured (0x21) 4. Deconfigured (0x41) 5. Configured (0x00)
6. Configured (0x00) 7. Configured (0xFF)

80. Commit the configuration changes
98. Return to Previous Menu

1>
```

To change the processor configuration, select the processor number first. The processor state changes from Configured to Deconfigured or from Deconfigured to Configured.

After the configuration has been changed, commit the configuration changes by selecting option **80**. The system will reboot after option **80** has been selected.

In the above menu, the character codes shown are defined as follows:

- 0x00** Processor configured by system
- 0xFF** Processor configured by system
- 0x81** Processor has been deconfigured manually
- 0x41** Processor has been deconfigured by system because value of recoverable run-time errors was exceeded.
- 0x21** Processor has been deconfigured due to repeated fatal internal errors.

Processor Card Swapping

If a system fails due to a processor error, the system maintenance procedures direct the replacement of processor cards according to system diagnostic procedures. Do not replace any processor card on a system unless you are directed to by the system diagnostic procedures. Never swap processor cards from one system to another in an attempt to isolate a failing card.

Language Selection Menu

The service processor menus and messages are available in different 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
6. Svenska
98. Return to Previous Menu
99. Exit from Menus
1>
```

Note: Your ASCII terminal must support the ISO-8859 character set in order to correctly display languages other than English.

Call-In/Call-Out Setup Menu

The following menu is used to configure a modem for the service processor to use to support the system:

```
CALL-IN/CALL-OUT SETUP MENU

1. Modem Configuration Menu
2. Serial Port Selection Menu
3. Serial Port Speed Setup Menu
4. Telephone Number Setup Menu
5. Call-Out Policy Setup Menu
6. Customer Account Setup Menu
7. Call-Out Test
98. Return to Previous Menu
99. Exit from Menus
1>
```

Modem Configuration Menu

The first two lines of the Modem Configuration Menu are status lines showing the current selections. Selections are made in the two sections labeled Modem Ports and Modem Configuration File Name. Select the serial port that you want to activate and then select the modem configuration file for the modem on the port. If you want to set up both serial ports with modems, make your selections one port at a time.

```
Modem Configuration Menu

Port 1 Modem Configuration File Name:
Port 2 Modem Configuration File Name: modem_m0_sp

To make changes, First select the port and then the configuration file name

Modem Ports:
 1. Serial port 1
 2. Serial port 2

Modem Configuration File Name:
 3. none
 4. modem_f_sp          9. modem_m0_sp
 5. modem_f0_sp         10. modem_m1_sp
 6. modem_f1_sp
 7. modem_z_sp
 8. modem_z0_sp

30. Save configuration to NVRAM and Configure modem
98. Return to Previous Menu

1>
```

For information on choosing a modem configuration file, see “Sample Modem Configuration Files” on page 619 and “Seamless Transfer of a Modem Session” on page 623.

Serial Port Selection Menu

You can enable and/or disable the call-in and call-out functions of each serial port in any combination from this menu:

```
Serial Port Selection Menu

1. Serial Port 1 Call-Out:
   Currently Disabled

2. Serial Port 2 Call-Out:
   Currently Disabled

3. Serial Port 1 Call-In:
   Currently Disabled

4. Serial Port 2 Call-In:
   Currently Disabled

98. Return to Previous Menu

1>
```

Note: For security, if the service processor detects an operator panel battery failure, the serial port dial-in capability is disabled. See “Service Processor Call-In Security” on page 471 for more information.

Serial Port Speed Setup Menu

Serial port speed can be set for terminal performance or to accommodate modem capabilities using this menu:

```
Serial Port Speed Setup Menu

1. Serial Port 1 Speed:
   Currently 9600

2. Serial Port 2 Speed:
   Currently 9600

98. Return to Previous Menu

1>
```

A serial port speed of 9600 baud or higher is recommended. Valid serial port speeds are as follows:

50	600	4800
75	1200	7200
110	1800	9600
134	2000	19200
150	2400	38000
300	3600	57600
		115200

Telephone Number Setup Menu

This menu can be used to set or change the telephone numbers for reporting a system failure. The service processor allows setting or changing telephone numbers for:

```
Telephone Number Setup Menu

1. Service Center Telephone Number:
   Currently Unassigned

2. Customer Administration Center Telephone Number:
   Currently Unassigned

3. Digital Pager Telephone Number:
   Currently Unassigned

4. Customer Voice Telephone Number:
   Currently Unassigned

5. Customer System Telephone Number:
   Currently Unassigned

98. Return to Previous Menu

1>
```

- **Service Center Telephone Number** is the number of the service center computer. The service center usually includes a computer that takes calls from servers with call-out capability. This computer is referred to as *the catcher*. The catcher expects messages in a specific format to which the service processor conforms. For more information about the format and catcher computers, refer to the README file in the AIX `/usr/samples/syscatch` directory. Contact your service provider for the correct telephone number to enter here. Until you have that number, leave this field unassigned.
- **Customer Administration Center Telephone Number** is the number of the system administration center computer (catcher) that receives problem calls from servers. Contact your system administrator for the correct telephone number to enter here. Until you have that number, leave this field unassigned.
- **Digital Pager Telephone Number** is the number for a numeric pager carried by someone who responds to problem calls from your server. Contact your administration center representative for the correct telephone number to enter here. For test purposes, enter your telephone number here. You can change it later when testing is complete. See note on page 476.
- **Customer Voice Telephone Number** is the telephone number of a phone near the server or answered by someone responsible for the server. This is the telephone number left on the pager for callback. For test purposes, enter your telephone number here. You can change it after testing is completed.
- **Customer System Telephone Number** is the telephone number to which your server's modem is connected. The service or administration center representatives need this number to make direct contact with your server for problem investigation. This is also referred to as the *call-in* phone number.

Call-Out Policy Setup Menu

Callout settings can be set using the following menu:

```
CALL-OUT POLICY SETUP MENU

1. Call-Out policy (First/All):
   Currently First

2. Remote timeout, (in seconds):
   Currently 120

3. Remote latency, (in seconds):
   Currently 2

4. Number of retries:
   Currently 2

98. Return to Previous Menu

1>
```

- **Call-Out policy** may be set to `first` or `all`. If call-out policy is set to `first`, the service processor stops at the first successful call-out to one of the following numbers in the order listed:

1. Service center
2. Customer administration center
3. Pager

If call-out policy is set to `all`, the service processor attempts a call-out to all of the following numbers in the order listed:

1. Service center
2. Customer administration center
3. Pager

- **Remote timeout** and **Remote latency** are functions of your service provider's catcher computer. Use the defaults or contact your service provider for recommended settings.
- **Number of retries** is the number of times you want the server to retry calls that failed to complete.

Customer Account Setup Menu

This menu allows users to enter information that is specific to their account:

Customer Account Setup Menu

1. Customer Account Number:
Currently Unassigned
2. Customer RETAIN Login userid:
Currently Unassigned
3. Customer RETAIN login password:
Currently Unassigned

98. Return to Previous Menu

1>

- **Customer Account Number** is assigned by your service provider for record-keeping and billing. If you have an account number, enter it here. Otherwise, leave this field unassigned.
- **Customer RETAIN Login UserID** and **Customer RETAIN Login Password** apply to a service function to which your service provider may or may not have access. Leave these fields unassigned if your service provider does not use RETAIN.

Reboot/Restart Policy Setup Menu

The following menu controls Reboot/Restart Policy:

```
Reboot/Restart Policy Setup Menu

1. Number of reboot attempts:
   Currently 1

2. Use OS-Defined restart policy?
   Currently Yes

3. Enable supplemental restart policy?
   Currently No

4. Call-Out before restart:
   Currently Disabled

98. Return to Previous Menu

1>
```

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. Values equal to or greater than 0 are valid. Only successive failed reboot/restart attempts are counted.
- **Use OS-Defined restart policy** - Allows the service processor to react or not react the same way as the operating system to major system faults by reading the setting of the operating system parameter **Automatically Restart/Reboot After a System Crash**. This parameter may or may not be defined depending on the operating system or its version/level. If the operating system automatic restart setting is defined, it may 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 Yes.
- **Enable supplemental restart policy** - The default setting is No. If set to Yes, 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.Refer to “Service Processor Reboot/Restart Recovery” on page 471.
- **Call-Out before restart (Enabled/Disabled)** - If a restart is necessary due to a system fault, you can enable the service processor to call out and report the event. This item is valuable if the number of these events becomes excessive, signalling a bigger problem.

Boot Mode Menu

The Boot Mode menu allows a selection of boot options to be selected:

```
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

1>
```

To select boot mode, select a number and press Enter. The item corresponding to the selected number toggles from disabled to enabled. If the same number is selected again, the item toggles from enabled to disabled. If a boot mode is enabled, the Boot mode selected is performed, and the disabled/enabled selection is reset to disabled. Following is a description for each boot mode selection:

- **Boot to SMS Menu**
When enabled, the system boots to the System Management Services (SMS) Menu.
- **Service Mode Boot from Saved List**
This selection causes the system to boot from the saved service mode boot list (saved in NVRAM). This is normally used to try to boot customer diagnostics from the CD-ROM drive. If the system boots AIX from the disk drive and AIX diagnostics are loaded on the disk drive, AIX boots to the diagnostics menu.
- **Service Mode Boot from Default List**
This selection is similar to “Service Mode Boot from Saved List”, except the system boots from the default boot list that is stored in the system firmware.
- **Boot to Open Firmware**
When this selection is enabled, the system boots to the open firmware prompt.

Service Processor Procedures in Service Mode

When the system is in service mode, the following service-processor options are suspended:

- Unattended start mode
- Reboot/restart policy
- Call-out
- Surveillance.

When service mode is exited, the service processor options revert to the customer settings.

Service Processor Functions

This section discusses some of the service processor functions in greater detail. The models S80 and S85 service processor supports the following functions:

Built-in Functions	Initialization and Test	Service Processor BIST
		System Chip Initialization
	Error Data Collection	BIST/POST errors and status
		Isolation to Field Replaceable Unit (FRU) on failure
	Configuration	CPU Complex validation
		VPD Collection
	System Management	Reset and Reboot on System Firmware failure
		Reboot on system failure
Local User Function	User Interface	Local async console
		Text-based menus with NLS
		Operator Panel messages
	Power and Miscellaneous	Power On/Off
		Configurable Reboot Policy
	Status and Data Access	VPD
		Error data (SP)
		Error data (system)
	Service Processor Setup Utilities	Passwords
		Phone numbers
		Language (NLS) selection
		Call-In/Call-Out enable/disable
		System Name
		Modem Configuration
Remote User Functions	Call-Out (Call Home) Reporting	OS termination
		Boot failure
		Surveillance failure
		Checkstop
		Machine check
		Identify system by name
	Call-In	Power-on through ring-indicate
		Password/security check
		Console mirroring

System Power-On Methods

This section discusses the following system power-on methods:

- Power-on Switch - see “Powering On the System” on page 493.
- Remote Power-on via Ring-Indicate Signal

The server automatically powers on when it detects a “ring indicate” signal from a modem attached to one of the integrated serial ports.

A remote user can call the server to activate ring detection by the modem. Listen for a few more rings than the threshold number for starting the system and then hang up. The default threshold is one ring.

Wait five minutes for the server to initialize and then call again using an ASCII terminal. The server responds by requesting a password, if set, or presenting the service processor menus. The remote user now has control of the server.

Note: For security, if the system is powered on by the remote power-on via ring indicate signal and the service processor detects an operator panel battery failure, the service processor causes the system to power off. See “Service Processor Call-In Security” on page 471 for more information.

- Unattended start mode - refer to **Enable/Disable Unattended Start Mode** on page 456.

The service processor can be enabled to recover from the loss of ac power (see Enable/Disable Unattended Power-On Mode in the SYSTEM POWER CONTROL MENU). When ac power is restored, the system returns to the then current power state at the time ac loss occurred. For example, if the system was powered on when ac loss occurred, it reboots/restarts when power is restored. If the system was powered off when ac loss occurred, it remains off when power is restored.

It is recommended that the system rack and I/O rack both receive their ac power from the same building circuit on the same circuit breaker, if not the same electrical outlet box, in such a way that primary power cannot be lost to one rack separately from the other. If such a condition occurs, Unattended Start Mode may not be able to restart system operation when a primary power interruption is restored.

- Timed power-on - refer to the shutdown -t command on servers using AIX.
Working in conjunction with AIX, the service processor in your server can operate a timer, much like the wake-up timer on your clock radio. You can set the timer so that your server powers on at a certain time after shutting down. The timer is battery operated, so power interruptions that occur while the server is off do not affect its accuracy.

Note: If an ac power loss is in progress when the timed power-on attempt occurs, the server may not be able to power on when ac power is restored.

- Follow-up to a Failed Boot Attempt
The service processor initiates a power-on sequence upon detection of a failed boot attempt (due to a hardware or software failure).
- Fast/Slow Boot (IPL) Capabilities

Using the operator-panel functions, you can select the IPL type, mode, and speed of your boot capabilities. For more information, refer to operator panel functions 01 and 02 in “Operator Panel Function Code Descriptions” on page 598.

Attention: Selecting fast IPL results in several diagnostic tests being skipped.

Service Processor Call-In Security

If the service processor detects bad battery-powered storage (indicating that the battery in the operator panel has failed or is disconnected), it maintains server security by disabling the call-in capability to both serial ports.

When call-in is disabled, the system can still be powered on by using the ring-indicator signal, but the service processor then causes the system to power down, preventing access to any system facilities or to AIX.

After battery power is restored, the password(s) must be reset and the call-in function(s) enabled. Both of these operations can be performed from service processor menus. See “Service Processor Setup Menu” on page 453 and “Serial Port Selection Menu” on page 462.

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 invoked. This gives the POST an opportunity to locate and report any problems that may otherwise be untested. For more information on IPL speed, refer to “Values for IPL Types and Speeds” on page 598.

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 service procesSOR SETUP MENU option **Set Surveillance Parameters**). If operating system 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 operating system automatic restart settings (see operating system documentation).

If the operating system is AIX, the menu item under SMIT for setting the restart policy is Automatically Reboot After Crash (True/False), and the default is False. When the setting is True, and if the service processor option "Use OS-Defined Restart Policy" is Yes (the default), 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, or not, by the **Use OS-Defined Restart Policy** menu option.

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 by using the **Enable Supplemental Restart Policy** option.

- **Use OS-Defined restart policy** - The default setting is YES. This causes the service processor to refer to the operating system **Automatic Restart Policy** setting and take action. This is the same action that 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 the **Enable Supplemental Restart Policy** option for its action.

- **Enable supplemental restart policy** - The default setting is NO. If set to YES, 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.

Refer to "Service Processor Reboot/Restart Recovery" on page 471.

The following table lists the relationships among the operating system and service processor restart controls:

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	No ¹	
None	No	Yes	Restarts
None	Yes ¹	No ¹	
None	Yes ¹	Yes	Restarts
False ²	No	No ¹	
False ²	No	Yes ²	Restarts
False ²	Yes ¹	No ¹	
False ²	Yes ¹	Yes	
True	No	No ¹	
True	No	Yes	Restarts
True	Yes ¹	No ¹	Restarts
True	Yes ¹	Yes	Restarts

¹ service processor default

² AIX default

Configuring and Deconfiguring Processors

The models S80 and S85 systems feature Repeat-Gard, an enhanced error detection and prevention function. This function allows the system to deconfigure processors from the system configuration if a processor has an unrecoverable error, or repeating recoverable errors.

If a processor is deconfigured, it remains offline for subsequent reboots until the faulty processor hardware is replaced. The Repeat-Gard function also allows users to manually deconfigure a processor, or re-enable a previously deconfigured processor. See page on page 458 for a description of the service processor menus used to configure or deconfigure a processor.

Processor Deconfiguration During Boot

Processor deconfiguration during system boot is controlled by the system firmware that enables removal of processors from the system configuration. If a processor has a failure that occurs during tests that are performed during the system boot, or if the processor has had prior unrecoverable or recoverable errors, it will be removed from the system configuration. The system uses existing hardware Built-in Self-Tests (BIST) and/or the firmware Power-On Self-Test (POST) to discover and isolate processor hardware failures during the system boot. Using the hardware error-detection logic in the processor, the system captures recoverable and unrecoverable error indications that occurred during prior system operations.

With Repeat-Gard, the processor card can detect and isolate errors. This capability, along with the error-recording facility of the service processor, allows for the recording of significant fault information. This information is recorded when a processor has

reached a threshold of recoverable errors. Information is also recorded if a critical processor failure ever occurs which allows the affected processor to be identified and removed during the next boot. This function is provided in addition to the other services to notify customer support and service support if desired. The service processor is used to report critical failures when AIX cannot be rebooted.

The function provides the capability to remember If a specific processor experiences problems during normal operation, Repeat-Gard can automatically deconfigure it during the next boot. With this deconfiguration, the system need not rely on the processor to fail BIST (Built-In Self-Test) during the boot process in order to be removed from the configuration. Processor failures may be intermittent or not re-creatable during system boot with BIST, but may fail again during normal operation causing systems to experience a series of system failures and reboots until faulty component processor is replaced.

You can override the default deconfiguration of the processor during the system boot. In addition, the menu driven interface allows them to selectively deconfigure or configure additional installed processors. Users thus have control over the number of processors made available to the operating system, which is particularly useful for performing benchmark runs for their applications on various configurations.

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 two 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 through a user selectable option.

If the service processor detects no heartbeats during system IPL (for seven minutes), 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 offers 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.

Operating System Surveillance

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.

Operating system surveillance can be enabled and disabled through:

- Service Processor Menus
- Service Processor Service Aids

For operating system surveillance to work correctly, you must set the following 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 471.

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.

Call-Out (Call-Home)

The service processor can call out (Call Home) when it detects one of the following conditions:

- System firmware surveillance failure
- Operating system surveillance failure (if supported by operating system)
- Restarts
- Critical hardware failure
- Abnormal operating system termination

To enable the call-out feature, do the following:

1. Have a modem connected to serial port 1 or 2.

2. Set up the following using the service processor Menus or Diagnostic Service Aids:
 - Enable call-out for the serial port where the modem is connected.
 - Enter the modem configuration file name.
 - Set up site specific parameters (phone numbers for call-out, call-out policy, number of call-out retries, and so on).
3. To Call-Out before restart, set **Call-out before restart** to ENABLED from the Reboot/Restart Policy Setup menu.

Note: Some modems, such as IBM 7857-017, are not designed for the paging function. Although they can be used for paging, they will return an error message when they do not get the expected response from another modem. Therefore, even though the paging was successful, the error message will cause the service processor to retry, continuing to place pager calls for the number of retries specified in the Call-Out Policy Setup Menu. These retries result in redundant pages.

Console Mirroring

Console mirroring allows a user on a local ASCII terminal to monitor the service processor activities of a remote user. Console mirroring ends when the service processor releases control of the serial ports to the system firmware.

System Configuration

The following describes the configuration for console mirroring:

- Service Processor
- Modem connected to one serial port and enabled for incoming calls
- Local ASCII terminal connected to the other serial port. This local terminal can be connected directly to your server or connected through another modem.

There are two scenarios in which console mirroring can be invoked:

- Remote session first, then local session added:
 1. Remote session already in progress.
 2. Remote user uses service processor menus to enable console mirroring, allowing both consoles to be active.
- Local session first, then remote session added:
 1. Local session is already in progress.
 2. The service processor receives a call from the remote user.
 3. The local user selects the option to enable console mirroring. The service processor immediately begins mirroring service processor menus.

Service Processor Error Logs

The service processor error logs, an example of which is shown below, contain error conditions detected by the service processor.

```

                                Error Log
19970626223337 0. Error detected..
                                4B00F010
                                B455440004B0071070000137000000000000000007420A400010000000
0000000000000000
Press "C" to clear error log, any other key to continue. >
```

Note: The time stamp in this error log is Coordinated Universal Time (CUT), which is also referred to as Greenwich Mean Time (GMT). AIX error logs have more information available and can time stamp with local time.

System POST Errors

If POST (Power-On Self-Test) errors occur during system start, this error log, an example of which is shown below, helps isolate faults when used with the diagnostics.

```

                                Read System POST Errors

Version : 1
Severity : 2
Disposition : 0
Initiator : 0
Event being reported : 0
Extended Error Log Data:
c2 00 84 09 20 09 06 00
19 97 09 03 00 00 49 42
4d 2c 73 70 00 00 00 00
00 00 2b a0 00 13 00 01
00 00 00 00 00 00 00 00
49 42 4d 00 55 30 2e 31
2d 50 31 2d 58 31 00

                                (Press Return to Continue)
```

LCD Progress Indicator Log

The following is an example of the LCD progress indicator log.

The progress indicators (checkpoints) are displayed in two sections. Above the dashed line are progress indicators from the boot that produced the current sessions. Below the dashed line are progress indicators from the boot preceding the one that produced the current sessions.

The progress indicator codes are chronological from bottom to top. The dashed line merely represents the point where the latest boot started.

```
                                LCD Progress Indicator Log
C33744FE
C33644FE
C33544FE
C33444FE
C33344FE
C33244FE
C33144FE
C33044FE
C1022001
C13F2090
C13F2060
C13F2050
C1012001
C1002001
C1000500
C100006E
-----
E075
E07A
E075

Press Return to continue, or 'x' to return to menu. >
```

Chapter 8. System Management Services

Use the System Management Services menus to view information about your system and to perform such tasks as setting a password. Other tasks, such as accessing and changing adapter and device configurations, are performed using system management services.

The text-based open firmware command line (OK prompt) which is available from the System Management Services Utilities menu, allows you to configure certain adapters.

Text-Based System Management Services

To start the text-based System Management Services, do the following:

1. Turn on or restart the system.
2. Watch for the logo to appear on the display.
3. After the logo displays, the POST indicator words, memory, keyboard, network, scsi and speaker, appear across the bottom of the screen.

Press the 1 key after the word keyboard appears, and before the last word speaker appears.

For more information on the POST indicator words, refer to "POST Indicators" on page 4.

After the text-based System Management Services starts, the following screen displays:

```
Utilities

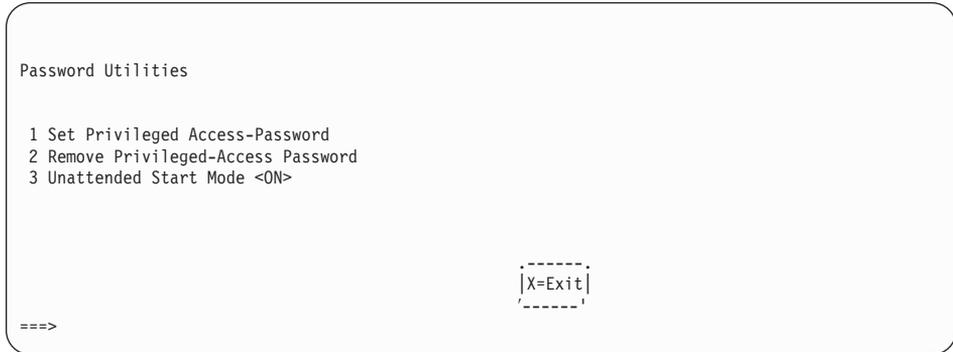
1 Password Utilities
2 Display Error Log
3 Remote Initial Program Load Setup
4 SCSI Utilities
5 Select Console
6 MultiBoot
7 Select Language
8 OK Prompt

                                     |X=Exit|
====>
```

Each option on the System Management Services Utilities menu is described in this section.

Password Utilities

Entering this selection permits access to the options shown on the following screen:



Set Privileged-Access Password: The privileged-access password protects against the unauthorized starting of the system programs. When this option is selected, another screen displays that allows you to set a password.

Both the service processor and System Management Services use this password. The password can be set from either the service processor or System Management Services menus. After the password is set, both the service processor and System Management Services automatically use the same password. The password is limited to eight characters.

Remove Privileged-Access Password: If you previously had set a privileged-access password and want to remove it, select Remove Privileged-Access Password.

Unattended Start Mode <ON>: This selection is used to enable or 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, which is necessary on servers that require automatic power-on after a power failure. The default setting is ON.

Display Error Log

A screen similar to the following displays when you select this option. You can view or clear your system error log.

```

                                     Error Log
-----
      Date      Time      ErrorCode  Location
Entry 1. 99/06/30 02:15:35 25a80011 U1.1-P1.IQ2
Entry 2. 99/07/01 03:18:36 20300026 U1.1-P1.IQ2
-----

|C=Clear Error Log|                |X=Exit Log|
-----
```

Note: The time stamp in this error log is Coordinated Universal Time (CUT), 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.

Remote Initial Program Load Setup

This option allows you to enable and set up the remote startup capability of your system. You must first specify the network parameters as shown in the following screen:

```
Network Parameters
1. IP Parameters
2. Adapter Parameters
3. Ping

                                     [X=Exit]

====>
```

Note: Some applications may require that IP addresses contain leading zeroes for numbers less than 100. For example, 129.132.4.20 may need to be entered as 123.132.004.020.

IP Parameters

Select the IP Parameters option from the Network Parameters menu to display a screen similar to the following:

```
IP Parameters
1. Client IP Address   [9.3.146.162]
2. Server IP Address  [9.3.146.171]
3. Gateway IP Address [0.0.0.0]
4. Subnet Mask        [0.0.0.0]

                                     [X=Exit]

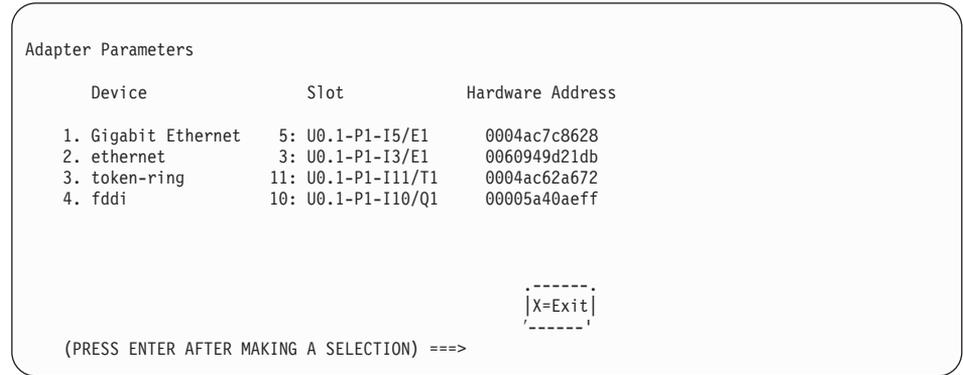
====>
```

To set an address using this menu, do the following:

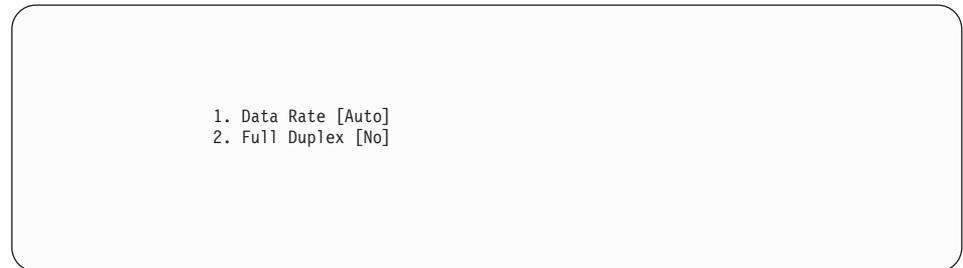
1. Type the number of the selection (1, 2, 3, or 4).
2. Enter the address on the next screen.

Adapter Parameters

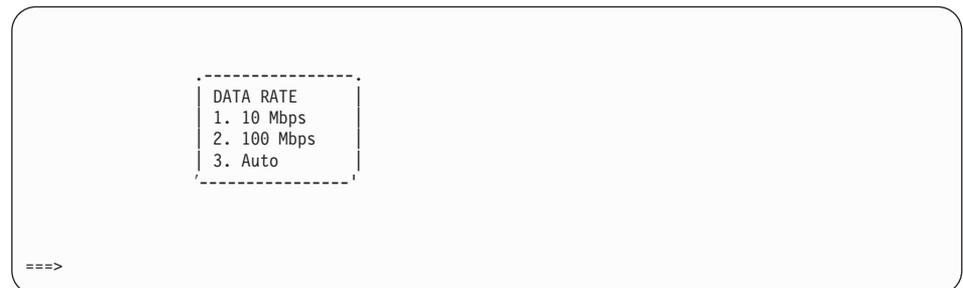
Select the Adapter Parameters option from the Network Parameters menu to view an adapter's hardware address, as well as configure network adapters that require setup. A screen similar to the following displays when you make this selection:



Select an adapter on this screen to display configuration menus for that adapter. If ethernet is selected, you can set parameters that control how the ethernet adapter communicates with the network. For example, the following screen shows the menu for the Ethernet adapter configuration:



Selecting the **Data Rate** option allows you to change the media employed by the Ethernet adapter:



Ping

Select Ping from the Network Parameters menu to test a connection to a remote system unit. After selecting the Ping option, you must choose an adapter to communicate with the remote system.

Device	Slot	Hardware Address
1. Gigabit Ethernet	5: U0.1-P1-I5/E1	0004ac7c8628
2. ethernet	3: U0.1-P1-I3/E1	0060949d21db
3. token-ring	11: U0.1-P1-I11/T1	0004ac62a672
4. fddi	10: U0.1-P1-I10/Q1	00005a40aeff

|X=Exit|

(PRESS ENTER AFTER MAKING A SELECTION) ==>

After determining which adapter to use to ping the remote system, you must provide the addresses needed to communicate with the remote system. Select the appropriate device from the Ping menu to display a screen similar to the following:

PING IP Address

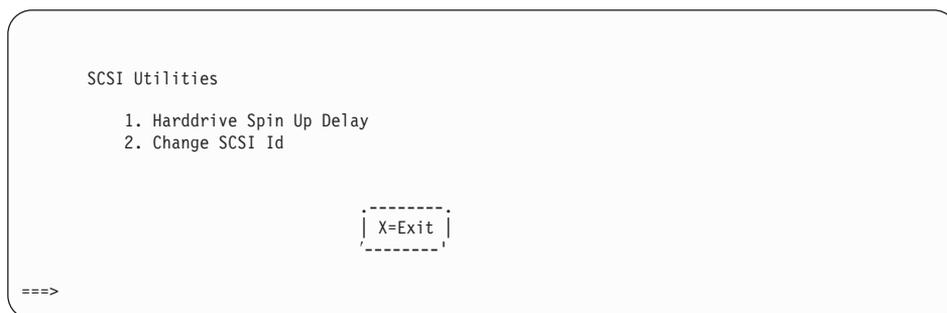
1. Client IP Address	[9.3.146.162]
2. Server IP Address	[9.3.146.171]
3. Gateway IP Address	[0.0.0.0]
4. Subnet Mask	[0.0.0.0]

|X=Execute| |X=Exit|

==>

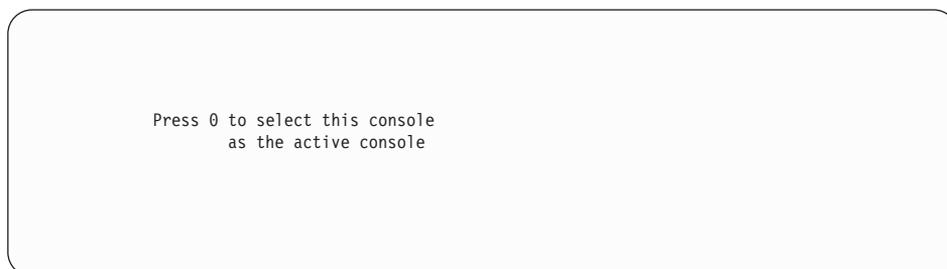
SCSI Utilities

SCSI Utilities allow you to set delay times for the SCSI hard disk spin-up and to set SCSI IDs for SCSI controllers installed in the system.



Select Console

Select this option to define which display is used by the system for system management. If no console is selected, the console defaults to Serial Port 1.



Multiboot

Multiboot allows you to select a method for booting the system.

```
Multiboot
1  Select Software
2  Software Default
3  Select Install Device
4  Select Boot Devices
5  OK Prompt
6  Multiboot Startup <OFF>
```

```
[X=Exit]
```

```
===>
```

Select Software

If this option is supported by the operating system, the names of the operating system installed are shown. This option may not be supported by all operating systems.

If you are running AIX, and you receive the following message:

```
No Operating System Installed
```

this indicates that information in nonvolatile storage could have been lost, as would happen if the battery had been removed. To re-create this value, run the **bootlist** command under AIX with the appropriate parameters. See the **bootlist** command in your AIX documentation.

Software Default

If this option is supported by the operating system, you can select the default operating system to start the system. This option may not be supported by all operating systems.

Select Install Device

Produces a list of devices, for example the CD-ROM, from which the operating system may be installed. Select a device, and the system searches the device for an operating system to install. If the device is supported by the operating system in that device, the name of the operating system displays.

Select Boot Devices

Select this option to view and change the custom boot list, which is the sequence of devices read at startup time. The boot list can contain five devices.

```
Select Boot Devices

1 Display Current Settings
2 Restore Default Settings
3 Configure 1st Boot Device
4 Configure 2nd Boot Device
5 Configure 3rd Boot Device
6 Configure 4th Boot Device
7 Configure 5th Boot Device

                                     |X=Exit|

====>
```

Display Current Settings

Lists the current order of devices in the boot list. The following is an example of this screen.

```
Current Boot Sequence

1. Diskette
2. Ethernet
3. SCSI CD-ROM          id=3  (slot=1)
4. SCSI 4.5GB Hard Disk id=6  (slot=1)
5. SCSI 4.5GB Hard Disk id=5  (slot=5)

                                     |X=Exit|

====>
```

Restore Default Settings

Restores the boot list to the following default sequence:

- Primary diskette drive
- CD-ROM drive
- Tape id=5 (slot=1)
- Hard disk drive id=6 (Slot=1)
- Network device

Selecting any of the **Configure Boot Device** options displays a screen similar to the following.

```
Configure Nth Boot Device

Device      Current      Device
Number      Position     Name
-----
1           1           Diskette
2           2           Ethernet
3           3           SCSI CD-ROM
4           4           SCSI 4.5GB Hard Disk
5           -

                                     |X=Exit|

===>
```

OK Prompt

Provides access to the open firmware command prompt.

Multiboot Startup <OFF>

Toggles between Off and On to select whether the Multiboot menu invokes automatically on startup.

Select Language

Select this option to change the language used by the text-based System Management Services screens and the service processor menus.



Note: To correctly display languages other than English, your ASCII terminal must support the ISO-8859 character set.

OK Prompt

This option provides access to the open firmware command prompt. Use the open firmware command prompt is used to set up an adapter that is not configurable with the System Management Services. Documentation supplied with an adapter may direct you to use this option if it is needed. To exit from the open firmware command prompt, type:

```
reset-all
```

or turn off the system and reboot.

Exiting System Management Services

After you have finished using the text-based System Management Services, type **x** (for exit) when the utilities menu displays to boot your system. Typing **x** on any other screen returns you to the previous screen.

Chapter 9. Removal and Replacement Procedures

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 communication lines.

CAUTION:

This product is equipped with a 3-wire power cable and plug for the user's safety. Use this power cable in conjunction with a properly grounded electrical outlet to avoid electrical shock.

CAUTION:

This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect two power supply cords before servicing.

Handling Static-Sensitive Devices

Attention: Disk drives, tape drives and CD-ROM drives are sensitive to static electricity discharge. These devices are wrapped in antistatic bags 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 bag until you are ready to install the device in the system unit.

- With the device still in its antistatic bag, touch it to a metal frame of the system.
- Grasp cards and boards by the edges. Hold drives by the frame. Avoid touching the solder joints or pins.
- If you need to lay the device down while it is out of the antistatic bag, lay it on the antistatic bag. Before picking it up again, touch the antistatic bag and the metal frame of the system unit at the same time.
- Handle the devices carefully in order to prevent permanent damage.

Powering Off and Powering On the System

This section provides procedures for powering off and powering on the system.

Powering Off the System

If the system is operating under AIX, type the **shutdown -F** command to power off the system.

If you cannot use this method, you can power off the system by using the following operator panel power pushbutton procedure:

Attention: Using the operator panel power pushbutton to power off the system might cause unpredictable results in the data files, and the next IPL will take longer to complete.

1. Open the operator panel cover.
2. Press the power pushbutton (white) on the operator panel.
The operator panel display shows **⓪ ?** (the international power-off symbol) with the **?** blinking.
3. Press the power pushbutton (white) on the operator panel again to confirm.

Note: To cancel the power-off operation, do not press the power pushbutton a second time. Instead, press any other operator panel pushbutton.

The operator panel power-on light starts blinking as the system powers off. The operator panel light stops blinking and stays off when the power-off operation is complete. The green LED on the I/O drawer(s) indicator panel goes to a slow blink, indicating that standby power is on.

4. If the system did not power off successfully, perform the following:
 - a. Press the **↑** or the **↓** pushbutton until function 08 is shown in the operator panel display.
 - b. Press the Enter pushbutton to show error code A100 8008 in the operator panel display.
 - c. Press the power pushbutton (white) on the operator panel.
The operator panel display shows **08 ⓪ ?** (the international power-off symbol) with the **?** blinking.
 - d. Press the power pushbutton (white) on the operator panel again.

The system powers off, and the operator panel power-on light goes off and remains off.

Note: To cancel the power-off operation, do not select function 08. Instead, press any other control panel pushbutton.

This ends the procedure.

Powering On the System

Perform the following steps to power on the system rack and attached I/O drawers:

1. Open the door to the operator panel.
2. Press the power (white) pushbutton on the operator panel.
3. The operator panel power-on light starts blinking as the system is powered on. The operator panel power-on light stops blinking and stays on when power-on is complete.

Hot-Swappable FRUs

Note: You do not have to power off the system to remove a hot-swappable FRU from the system rack or from I/O drawers.

The following FRUs are hot-swappable:

- Disk drives in banks C and D of an I/O drawer
- Blowers in the front of an I/O drawer
- Power supplies in an I/O drawer (if the drawer has two power supplies and only one needs to be removed)
- Bulk power supplies in the system rack
- Blowers in the system rack

System Rack Removal and Replacement Procedures

The procedures in this section comprise the starting point for all removal procedures in the system rack. Perform the following steps:

1. Find the location of the part you are replacing in “Models S80 and S85 Locations” on page 6.
2. Find the FRU you are removing in this section and follow the procedures.
3. When you have completed the removal procedure, install the FRU by reversing the removal procedure unless, otherwise noted.
4. After exchanging an item, refer to “MAP 0410: Repair Checkout” in the *Diagnostic Information for Multiple Bus Systems*.

Note: It is not always necessary to power off the system to exchange a field replaceable unit (FRU). You will be directed through a concurrent exchange, if possible.

Fast Power Up Feature

Note: This feature is only recommended in a service environment because several key system functions are not verified.

The fast power up sequence is as follows:

1. Press the system power pushbutton two times to ensure the power is off.
2. Press the Scroll Up pushbutton one time.
3. Press the Enter pushbutton two times.
4. Press the Scroll Up pushbutton two times.
5. Press the Enter pushbutton one time.
6. Press the system power pushbutton one time

The system powers up, and the system-operator panel displays progress indicators.

Covers

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

Refer to “Operator Panel, Brackets, and Covers (Front View)” on page 544 and “Front, Rear, and Top Covers” on page 540 to locate cover parts. Then perform the following steps:

- To remove the front and rear covers, do the following:
 1. Lift up on the cover.
 2. Pull the cover out and off.
- To remove the top cover, do the following:
 1. Remove the cover mounting screws.
 2. Slide the cover to the front or rear.
 3. Lift the cover up and off.
- To remove the side cover(s), do the following:
 1. Remove the front, rear, and top covers.
 2. Remove the screws from the front and rear of the side cover.
 3. Lift up on the cover.
 4. Pull the cover out and off.

Replacement

Replace in reverse order.

AC Box

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cord.
3. Remove the rear cover (see “Covers” on page 494).

Refer to “AC Box Assembly and Rear Blowers (Rear View)” on page 550 for ac box parts, and perform the following steps:

4. Remove the screws that hold the ac box.
5. Remove the ac box.

Replacement

Replace in reverse order.

Hot-Swappable Front Blowers

Before performing these procedures, read “Safety Notices” on page xiii.

Notes:

1. Do not power off the system.
2. When you install the new blower, some force is required to insert the blower past the spring-loaded flap.

Removal

1. Remove the front cover (see “Covers” on page 494). Refer to “Bulk Power Supplies and Front Blowers (Front View)” on page 548 for blower parts and perform the following steps.
2. Remove the bulk power EMC shield.
3. On the operator panel, do the following:
 - a. Select function 7.
 - b. Press the Enter button.
 - c. Select function 0702.
 - d. Press the Enter button.
 - e. Select 07Fx where x is the blower to be powered off (0=blower 1, 1=blower 2, 2=blower 3, 3=blower 4).
 - f. Press the Enter button. The green LED on the blower will turn off.
4. Remove the blower assembly.
5. The new blower will automatically power on when it is installed.

Replacement

Replace in reverse order.

Hot-Swappable Rear Blowers

Removal

1. Remove the rear cover (see “Covers” on page 494).

Refer to “AC Box Assembly and Rear Blowers (Rear View)” on page 550 for blower parts and perform the following steps:

2. Remove the rear blower EMC shield.
3. On the operator panel, do the following:
 - a. Select function 7.
 - b. Press the Enter button.
 - c. Select function 0702.
 - d. Press the Enter button.
 - e. Select 07Fx where x is the blower to be powered off (0=blower 1, 1=blower 2, 2=blower 3, 3=blower 4).
 - f. Press the Enter button. The green LED on the blower will turn off.
4. Remove the blower assembly.
5. The new blower will automatically power on when it is installed.

Replacement

Replace in reverse order.

Electronic Cards

Before performing these procedures, read “Safety Notices” on page xiii.

This procedure applies when you are removing or replacing the following cards:

- Processor card
- Memory card
- Processor regulator card
- Clock/processor regulator card
- I/O hub card

Removal

Attention: All cards are sensitive to electrostatic discharge (see “Handling Static-Sensitive Devices” on page 491).

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cord.
3. Remove the front or rear cover to access the card you are replacing (see “Covers” on page 494).
4. If you are replacing a card in the front of the system:
 - a. Refer to “System Rack Locations Front” on page 17 for card locations.
 - b. Continue with step 6 on page 497.

5. If you are removing a card from the rear of the system, refer to “System Rack Locations Rear” on page 18 for card locations. Continue with step 6.
6. Remove the EMC shield for the card location that you are accessing.
7. Mark any cables that are attached to the card so you can return them to the correct location during reassembly.
8. Remove the cables attached to the card.
9. Make note of the card position, and then remove the card.

Replacement

Replace in reverse order.

Operator Panel

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

Attention: The operator panel card is sensitive to electrostatic discharge (see “Handling Static-Sensitive Devices” on page 491).

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cord.
3. Remove the front cover to access the operator panel (see “Covers” on page 494).
4. Disconnect the operator panel cables.
5. Remove the operator panel.

Replacement

Replace in reverse order.

Attention: When the operator panel is replaced, the vital product data (VPD) must be reprogrammed. Perform the procedure in “Appendix E. System Vital Product Data” on page 613 before you return the system to normal operations.

1. Use the System Management Interface Tool (SMIT) to reset the system date and time.
2. Advise the customer to reset his passwords. Passwords can be set using the service processor menus. See “Chapter 7. Service Processor Menus” on page 447 for more information. The service processor menus also are used to reset the service processor call-in functions after an operator panel replacement. See “Chapter 7. Service Processor Menus” on page 447 and “Service Processor Call-In Security” on page 471 for more information.

Operator Panel Battery

Removal

CAUTION:

A lithium battery can cause fire, explosion, or severe burn. Do not recharge, disassemble, heat above 100°C (212°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 present a risk of fire or explosion.

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

Dispose of the battery according to local regulations.

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cords from both the system rack and the I/O rack.

Note: If your system’s I/O rack contains drawers that are shared by another system, disconnect the ac power cords from the rear of the I/O drawers that are attached to this system only.

3. Remove the front cover to access the operator panel (see “Covers” on page 494).
4. Pivot the operator panel outward from the system rack by loosening the two retaining screws. Loosen the three retaining screws on the rear of the operator panel and slide the retainer cover to the right.
5. Remove the battery from the back of the operator panel.

Replacement

1. Replace the battery by reversing the steps in the removal procedure.
2. Power on the system (see “Powering Off and Powering On the System” on page 492).
3. Use the System Management Interface Tool (SMIT) to reset the system date and time.
4. Advise the customer to reset his passwords. Passwords can be set using the service processor menus. See “Chapter 7. Service Processor Menus” on page 447 for more information. The service processor menus also are used to reset the service processor call-in functions after a battery replacement. See “Chapter 7. Service Processor Menus” on page 447 and “Service Processor Call-In Security” on page 471 for more information.

Operator Panel Cable (Op-panel to SP Cable)

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

Attention: If the operator panel cable is disconnected, settings for passwords, date and time, as well as service processor call-in functions will be lost. These settings can be reset after the cable is replaced.

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cords from both the system rack and the I/O rack

Note: If your system’s I/O rack contains drawers that are shared by another system, disconnect the ac power cords from the rear of the I/O drawers that are attached to this system only.

3. Remove the front cover to access the operator panel (see “Covers” on page 494).
4. Pivot the operator panel outward from the system rack by loosening the two retaining screws.
5. Loosen the retaining screws on the connector for the operator panel cable and disconnect the cable.
6. Loosen the retaining screws on the connector for the other end of the operator panel cable from the back of the primary I/O drawer and remove the cable.

Replacement

1. Replace the operator-panel cable by reversing the steps in the removal procedure.
2. Power on the system (see “Powering Off and Powering On the System” on page 492).
3. Use the System Management Interface Tool (SMIT) to reset the system date and time.
4. Advise the customer to reset his passwords. Passwords can be set using the service processor menus. See “Chapter 7. Service Processor Menus” on page 447 for more information. The service processor menus also are used to reset the service processor call-in functions after an operator panel cable replacement. See “Chapter 7. Service Processor Menus” on page 447 and “Service Processor Call-In Security” on page 471 for more information.

Hot-Swappable Bulk Power Supply

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

Note: Do not power off the system.

1. Remove the front cover (see “Covers” on page 494).

Refer to “Bulk Power Supplies and Front Blowers (Front View)” on page 548 for bulk power supply parts and continue with the following steps.

2. Remove the bulk power EMC shield.
3. On the operator pane, do the following:
 - a. Select function 7.
 - b. Press the Enter button.
 - c. Select function 0703.
 - d. Press the Enter button.
 - e. Select 07Bx where x is the bulk power supply to be powered off (0=bulk 1, 1=bulk 2, and so on).
 - f. Press the Enter button. The green LED on the bulk power supply will turn off.
4. Remove the bulk power supply.

The new bulk power supply will automatically power-on when it is installed.

Replacement

Replace in reverse order.

Bulk Power Subframe

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Make a note of the locations of parts you remove during this procedure so that you can reinstall them in the correct positions.
2. Power off the system (see “Powering Off and Powering On the System” on page 492).
3. Disconnect the ac power cords.
4. Remove the front and rear system covers (see “Covers” on page 494).
Refer to “Internal Shields (Front and Rear)” on page 542 for shields and then perform the following step from the front of the system.
5. Remove the front power shield covering the bulk power supplies.

Refer to “Bulk Power Supplies and Front Blowers (Front View)” on page 548 for bulk power subframe parts and then perform the following steps from the front of the system.

6. Remove the screws from the bulk power supplies and blower assemblies.
7. Slide out the bulk power supplies and blower assemblies far enough so that they are disconnected from their power connectors.

Refer to “AC Box Assembly and Rear Blowers (Rear View)” on page 550 for ac box and rear blowers, and then perform the following steps from the rear of the system.

8. Remove the ac box.
9. Remove the rear blower EMC shield.
10. Remove the rear blowers.

Refer to “Internal Shields (Front and Rear)” on page 542 for system rack regulator EMC shield and then perform the following steps from the front of the system.

11. Remove the system rack regulator EMC shield that covers the power regulators.
Refer to “Front Electronics Cage and System Backplane Assembly” on page 552 for system rack regulators and then perform the following steps from the front of the system.
12. Mark the regulators and their locations so that you can reinstall them in the correct locations.
13. Remove the power regulators.
Refer to “Rear Electronics Cage” on page 554 for SPCN card and then perform the following step from the rear of the system.
14. Go to “Rear Cage” on page 505 and perform steps 1 through 9 then return here.
15. Carefully remove the top row of screws that are near the alignment pins inside the system rack regulator cage. Do not allow the screws to be dropped down inside the system.
16. Remove the screws that are near the connectors in the lower-left and lower-right corners inside the system rack regulator cage.
17. Remove the screws in the right cage retaining bracket, and remove the bracket.

18. Remove the screws in the sides and bottom of the system rack regulator cage that mount the cage into the rack. Slide the regulator cage out 15 cm (6 inches).
19. Disconnect the power cables that are connected to the lower-right and lower-left corners of the system backplane assembly.

Refer to “Power Subframe (Rear View, 1 of 3)” on page 558 for power subframe assembly parts, and then perform the following steps from the *REAR* of the system.

20. Remove the screws from the top and bottom of the power Subframe Assembly.
21. Remove the power Subframe Assembly.

Replacement

Replace in reverse order.

Programmable Power Regulators

Before performing these procedures, read “Safety Notices” on page xiii.

This procedure is for removing or installing programmable regulator cards in positions R01 - R10. See “Electronic Cards” on page 496 for removal and replacement procedures for the processor regulator cards or the clock/processor regulator card.

Removal

Note: Before removing and installing regulators, the system must be powered off and the ac power cords disconnected from the source.

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cords.
3. Remove the front covers (see “Covers” on page 494).
4. Remove the system rack front power EMC shield that covers the regulators..
5. Make note of the regulator position, and then remove the regulator.

Replacement

Replace in reverse order.

SPCN Card

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Power off the system (see “Powering Off and Powering On the System” on page 492).
2. Disconnect the ac power cord.
3. Remove the rear cover (see “Covers” on page 494).

Refer to “Rear Electronics Cage” on page 554 for SPCN card and then perform the following steps from the rear of the system.

4. Mark the locations and the cables attached to the SPCN card so that you can reinstall the cables to the correct location.
5. Lift the handles and pull the card out.

Replacement

Replace in reverse order.

Note: An SPCN firmware update is required if other than the original version is on the system. Refer to “Appendix F. Firmware Update Procedures” on page 615 for instructions on obtaining, downloading, and installing the latest level firmware. If a BACKUP set of diskettes exists from a prior update, these diskettes can be used.

System Backplane Assembly

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Make a note of the locations of parts you remove during this procedure so that you can reinstall them in the correct positions.
2. Power off the system (see “Powering Off and Powering On the System” on page 492).
3. Disconnect the ac power cord.
4. Remove the front and rear system covers (see “Covers” on page 494) .

Refer to “Front Electronics Cage and System Backplane Assembly” on page 552 for system backplane assembly parts and perform the following steps from the front of the system.

5. Disconnect the operator panel cable.
6. Loosen the two thumbscrews on the operator panel and swing out the operator panel assembly.
7. Disconnect the cables from the operator (op) panel assembly.
8. Remove the operator panel assembly from the frame.
9. Remove the upper and lower front cage EMC shields.
10. Remove the upper front and right brackets from the front cage.
11. Remove the screws that hold the cage to the frame. These screws are on the left side and bottom of the front cage.
12. Mark the processor cards, processor regulator cards, memory cards, regulator cards, and filler cards and their locations in the front cage so you can return the cards to their correct location during reassembly.
13. Remove the processor cards, processor regulator cards, memory cards, regulator cards, and filler cards from the front cage.

Refer to “Front Electronics Cage and System Backplane Assembly” on page 552 and perform the following steps from the rear of the system.

14. Mark the RIO cables, SPCN cable, and the JTAG cable and then disconnect them from the system rack.
15. Remove the upper and lower EMC shields from the rear cage assembly.
16. Mark the SPCN card, memory cards, processor cards, clock/processor regulator card, I/O hub card, and filler cards and their locations in the top and bottom of the rear cage so that you can return the cards to their correct location during reassembly.
17. Remove the SPCN card, memory cards, processor cards, clock/processor regulator card, I/O hub card, and filler cards from the top and bottom of the rear cage.
18. Disconnect the operator panel cable and remove it.
19. From the rear of the system, remove the 8 screws that mount the rear cage to the front cage and system backplane assembly.
20. From the front of the system rack, slide the front cage and system backplane assembly forward far enough to allow access to the power connections on the lower rear side of the assembly.
21. Unplug the cables attached to the lower-left and right corners of the front cage and system backplane assembly (this is done from the rear of the system rack).

Refer to “Front Electronics Cage and System Backplane Assembly” on page 552 for front cage/system backplane assembly and perform the following steps from the front of the system rack.

22. **Attention:** The front cage and system backplane assembly is heavier on the rear than it is on the front. The front cage/system backplane assembly can tip to the rear if it is not properly handled.
Use two people to remove the front cage and system backplane assembly from the front of the system.

CAUTION:

This unit weighs between 18 kg (39.7 pounds) and 32 kg (70.5 pounds). Two persons are required to safely move it. Using less than two persons to move it can result in injury.

23. Place the front cage/system backplane assembly on the floor with the cage facing downward.

Replacement

Replace in reverse order.

Note: When reconnecting the large power cables to the new system backplane assembly, be sure to push the cables completely onto the pins.

Rear Cage

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

Refer to “Rear Electronics Cage” on page 554 for rear cage parts and perform the following steps from the rear of the system.

1. Remove the upper and lower EMC shields from the rear cage assembly.
2. Remove the EMC brackets from around the rear cage in the following order:
 - Top
 - Left and Right
3. Mark the SPCN card, regulators, memory, and filler cards and their locations in the top and bottom of the rear cage so that you can return the cards to their correct location during reassembly.
4. Remove the SPCN card, regulators, memory, and filler cards from the top and bottom of the rear cage.
5. Remove the mounting screws from the lower part of the rear cage.
6. Remove the two Cable EMC shields from the rear cage.
7. Remove the Air Baffle in the lower center of the rear cage.
8. Unplug the cables attached to the upper-left and upper-right corners of the front cage/system backplane assembly.
9. Remove the 6 'starred' screws that mount the rear cage to the front cage/system backplane assembly.

CAUTION:

This unit weighs between 18 kg (39.7 pounds) and 32 kg (70.5 pounds). Two persons are required to safely move it. Using less than two persons to move it can result in injury.

10. Remove the rear cage assembly from the back of the system.

Replacement

Replace in reverse order.

Dual Line Cord

This section provides procedures for removing and replacing the dual line cord feature.

Removal

1. Power off the system (see “Powering Off and Powering On the System” on page 492.)
2. Disconnect the AC power cord from power source.
3. Remove the front and rear system covers (see “Covers” on page 494). Refer to the “Internal Shields (Front and Rear)” on page 542 and then perform the following steps from the front of the system
4. Make a note of the locations of parts you remove during this procedure so that you can reinstall them in the correct positions.

5. Remove the front power shield covering the bulk power supplies. Refer to “Bulk Power Supplies and Front Blowers (Front View)” on page 548.
6. Remove the screws from the bulk power supplies, and blower assemblies. (Note the screws for the bulk power supplies should be saved for use later when reinstalling the supplies).
7. Slide out the bulk power supplies and blower assemblies far enough so that they are disconnected from their connectors.
8. Move to the rear of the system. Mark and remove all cables at the rear of the system
9. Refer to “AC Box Assembly and Rear Blowers (Rear View)” on page 550 for AC box and rear blowers, and then perform the following steps from the rear of the system.
10. Remove the rear blower EMC shield.
11. Remove the rear blowers. Refer to “Internal Shields (Front and Rear)” on page 542 for the regulator EMC shield and then perform the following steps from the rear of the system.
12. Remove the regulator EMC shield that covers the power regulators. Refer to “Rear Cage” on page 505 and “System Backplane Assembly” on page 503 for system rack regulators and then perform the following steps from the rear of the system.
13. Mark the regulators and their locations so that you can reinstall them in the correct locations.
14. Remove the power regulators.
15. Remove the SPCN card assembly.
16. Label and remove the processor, adapter, and memory cards.
17. Carefully remove the top row of screws that are near the alignment pins inside the CEC/regulator cage. Do not allow the screws to be dropped down inside the system.
18. Remove the screws that are near the connectors in the lower-left and lower-right corners inside the CEC/regulator cage.
19. Remove the screws from the right cage retaining bracket and remove the bracket.
20. Remove the screws in the sides and bottom of the CEC/regulator cage and slide the cage out 15 cm (6 inches).
21. Disconnect the power cables that are connected to the lower-right and lower-left corners of the regulator backplane assembly. Refer to “Power Subframe (Rear View, 1 of 3)” on page 558 for power subframe assembly parts and then perform the following steps from the rear of the system.
22. Remove the screws from the top and bottom of the power subframe assembly. Save these screws to replace the power subframe.
23. Remove the power subframe assembly, EMC shield, and ac box as one unit and set aside.

Replacement

Replace in reverse order.

I/O Rack Removal and Replacement Procedures

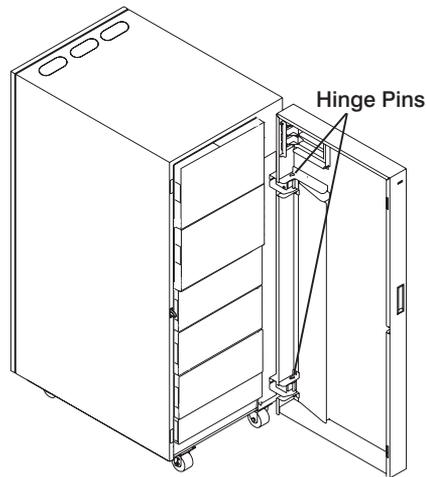
This section provides procedures for removing and replacing components in the I/O rack.

Front Door

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Open the front door.
2. Remove the C-clip from the bottom of the hinge pins.
3. Remove the pins from the door hinges and lift the front door off the hinges.
4. If required, the hinge assemblies can be removed for better access to the sides of some drawers.



Replacement

Replace in reverse order.

Installing a 10 EIA-Unit I/O Drawer into an I/O rack

Before performing these procedures, read “Safety Notices” on page xiii.

The procedure for installing a 10 EIA-unit I/O drawer begins with installing rails in the rack, installing the anti-tilt rails in the rack, and then mounting the I/O drawer on the rails. Continue below to install a 10 EIA-unit I/O drawer in an I/O rack.

Install the Rails and Mounting Hardware for the 10 EIA-Unit I/O Drawer

Note: The anti-tilt rails must be installed in the EIA position directly above the sides of the 10 EIA-unit I/O drawer, to prevent the drawer from tipping out of the rack unit while in the service position.

CAUTION:

The stabilizer must be firmly attached to the bottom front of the rack to prevent the rack from turning over when the drawers are pulled out of the rack. Do not pull out or install any drawer or feature if the stabilizer is not attached to the rack.

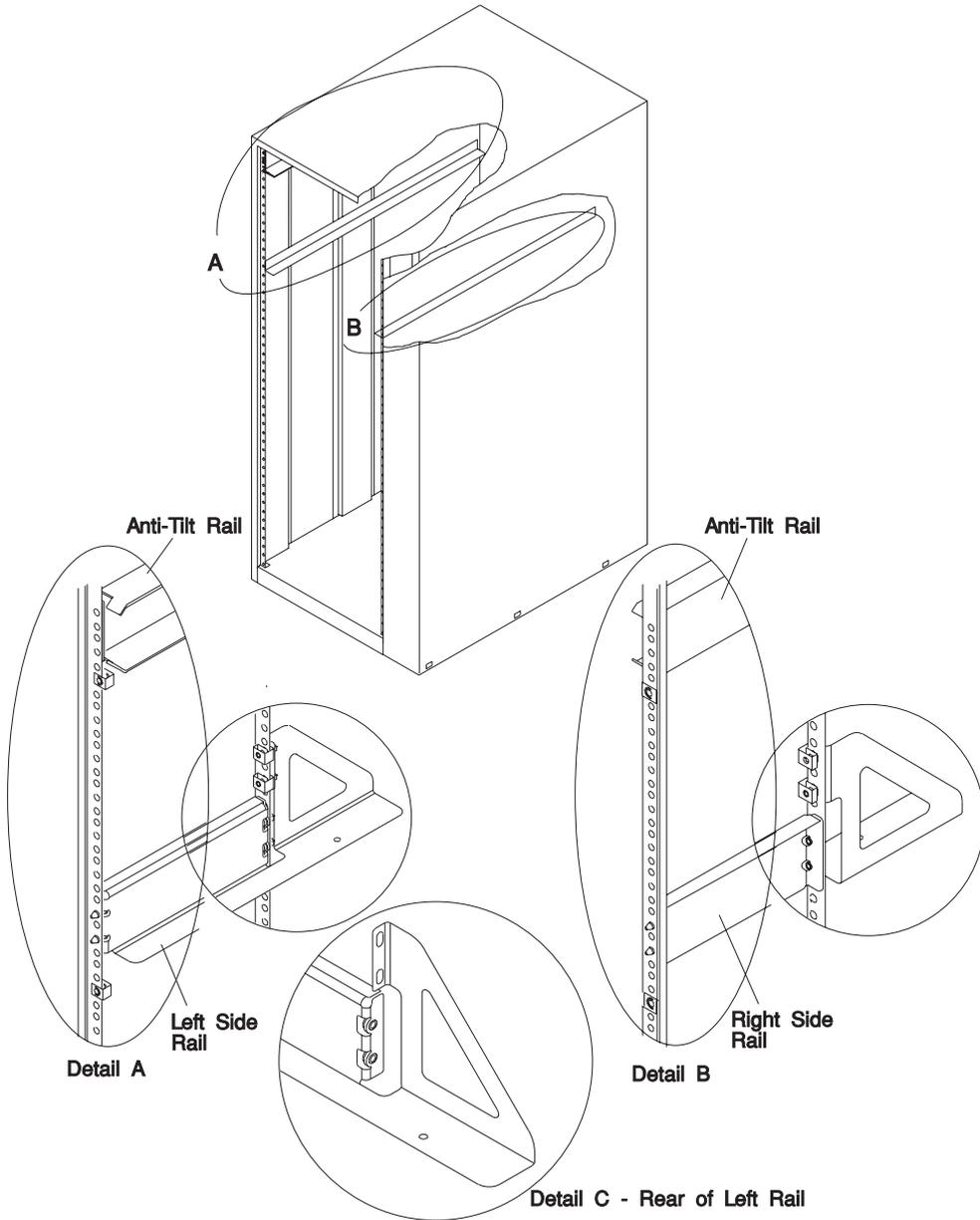
Note: Racks have EIA numbers that are visible from the rear and which go from 1 (at the bottom) to 32 (at the top). The lowest EIA number completely occupied by a drawer is said to be that drawer's EIA position. Therefore, the rail surface that a drawer sets upon is approximately in line with the lower edge of the EIA position for that drawer. An EIA number is also used in identifying cables attached to that drawer. The 10 EIA-unit I/O drawer occupies 10 EIA units. This procedure is for installation in the topmost position in the rack unit.

1. Install one (1) nut clip on hole 8 from the top on each side at the front of the rack.
2. Install one (1) nut clip on hole 21 and another on hole 23 from the top on each side at the rear of the rack.
3. From the rear of the rack, insert the two pins at the front of each rail into holes 26 and 28 from the top on each side of the rack.
4. Align the top nut clips at the rear of the rack with the top hole at the rear of each rail. Install each rail to the rack, using four M5x14 hex-head screws that are supplied with this unit.
5. Install the anti-tilt brackets in the uppermost position on each side of the rack so that the M4x14 hex-head screws go through hole 1 and hole 4 of the rack

Typical Rail Installation for the 10 EIA-Unit I/O Drawer

Note: Rack is shown with front door and hinges removed.

Mounting Hardware for Rack Drawer



Install the 10 EIA-Unit I/O Drawer

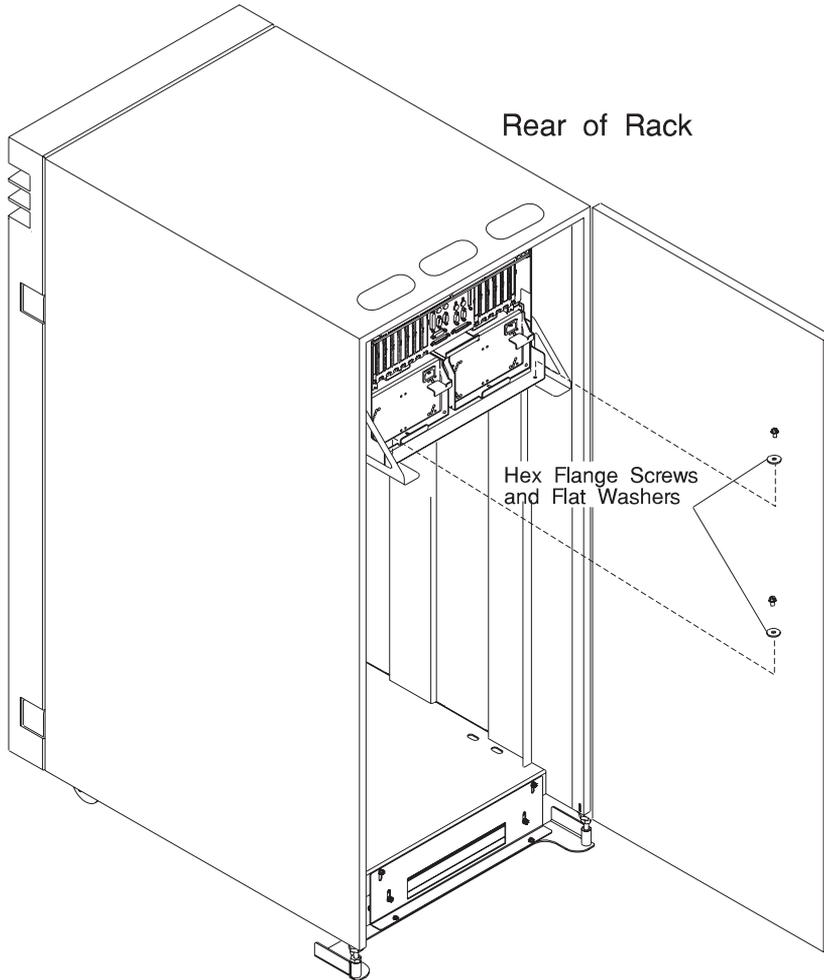
When fully configured:

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.

This drawer is very heavy. This procedure is designed to reduce the weight of the drawer to below 55 kg (121.2 pounds) so it can be moved safely by three people.

1. Remove front door from the I/O rack. See “Front Door” on page 507.
2. Slide the shipping box containing the 10 EIA-unit I/O drawer in front of the rack.
3. Remove the following parts to lower the weight of the drawer to under 55 kg (121.2 pounds), which enables three people to safely lift the drawer into the rack:
 - Both power supplies
 - Front DASD cover
 - All hot-swap drive disk drives (ensure that the drive location is labeled)
 - All blowers
 - Front top cover
 - Rear top cover
4. Use three people to safely lift the drawer onto the support rails, and slide it *slowly* into the rack.
5. Continue sliding the drawer into the rack until the front of the 10 EIA-unit I/O drawer rests against the nut clips on the rack.
6. Attach the rear of the 10 EIA-unit I/O drawer to the rack rails with the two (2) M4 screws and the two (2) M4 washers provided with the 10 EIA-unit I/O drawer. This secures the drawer to the rack.



7. Using four (4) M5 x 14 hex-head screws supplied with this unit, attach the 10 EIA-unit I/O drawer to the two nut clips and the rails in the front of the rack at the sides.
8. Replace the parts that you removed earlier:
 - Rear top cover
 - Front top cover
 - All blowers
 - All hot-swap drive disk drives
 - Front DASD cover
 - Both power supplies
 - Front I/O rack door.

Service Position

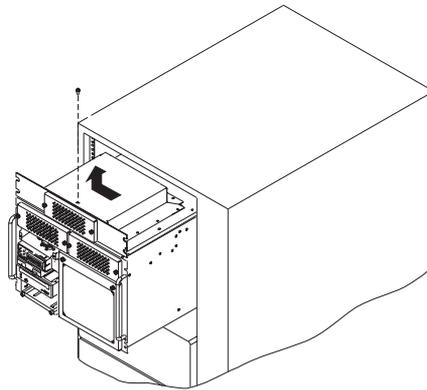
Before performing these procedures, read “Safety Notices” on page xiii.

CAUTION:

The stabilizer must be firmly attached to the bottom front of the rack to prevent the rack from turning over when the drawers are pulled out of the rack. Do not pull out or install any drawer or feature if the stabilizer is not attached to the rack.

To gain access to the front of the drawer, follow these steps:

1. “Powering Off the System” on page 492.
2. Open the I/O rack doors.
3. Remove the ac power cords from the rear of the drawer.
4. Remove other cables as required from the rear of the drawer.
5. Remove the four screws that attach the front of the drawer to the rack.
6. Remove the two screws that attach the drawer to the rear of the rails in the rack.
7. Pull the drawer out until it stops (about 12 inches).
8. Remove the screws that attach the top cover and remove it from the drawer (the cover of a 10 EIA-unit I/O drawer is removed by sliding it to the left and then lifting it up and off).



9. Return to the procedure that directed you to place the drawer into the service position.

Operating Position

Before performing these procedures, read “Safety Notices” on page xiii.

To place the drawer into the operating position, follow these steps:

1. Install all air ducts and covers on the drawer.
2. Slide the drawer into the rack. If the drawer does not slide all the way in, go to the rear of the rack and realign the drawer, and then slide it in the rest of the way.

3. Replace the two screws that attach the drawer to the rear of the rails in the rack.
4. Replace the four retainer screws to the front of the drawer.
5. Plug the ac power cords into the rear of the drawer.
6. Perform the procedure in “Powering On the System” on page 493.

10 EIA-Unit I/O Drawer Removal and Replacement Procedures

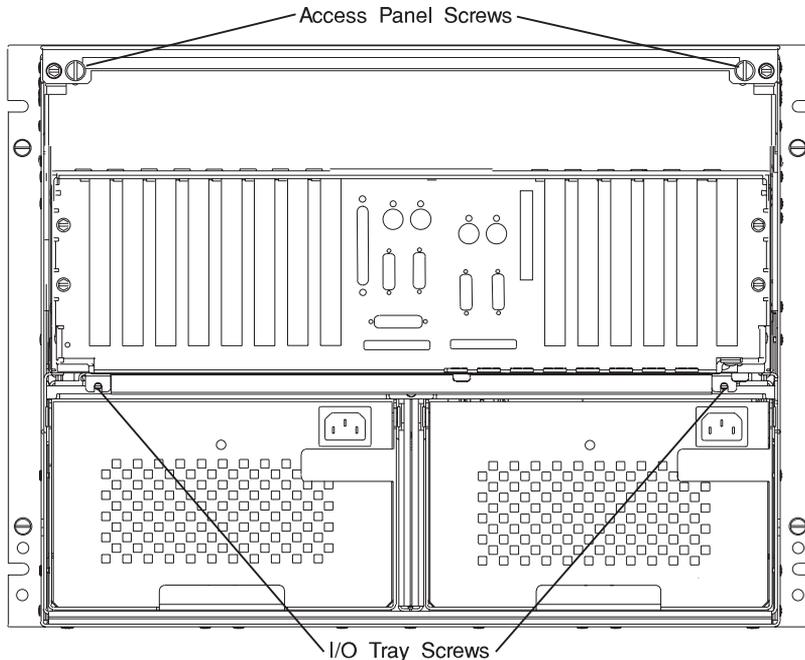
This section provides procedures that are specific to the 10 EIA-unit I/O drawer.

I/O Tray

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Remove the ac power cords from the rear of the drawer.
2. Make a note of where all cables are attached to the rear of the drawer and then disconnect them.
3. Remove the access panel above the rear of the I/O tray.
4. Remove the screws that attach the I/O tray to the 10 EIA-unit I/O drawer.



5. Slide the tray out one to two inches. The internal cables will restrict the tray from being removed at this point.

Note: The clearance allowed with the tray in this position allows easier access to the fan monitor control card and the power distribution card. To completely remove the tray from the 10 EIA-unit I/O drawer, make a note of cables that are connected to the I/O planar, service processor card, and installed adapters and then disconnect these cables.

6. Slide the I/O tray all the way to the rear and remove it from the 10 EIA-unit I/O drawer.

Replacement

Replace in reverse order

Hot-Swappable Blower Assembly

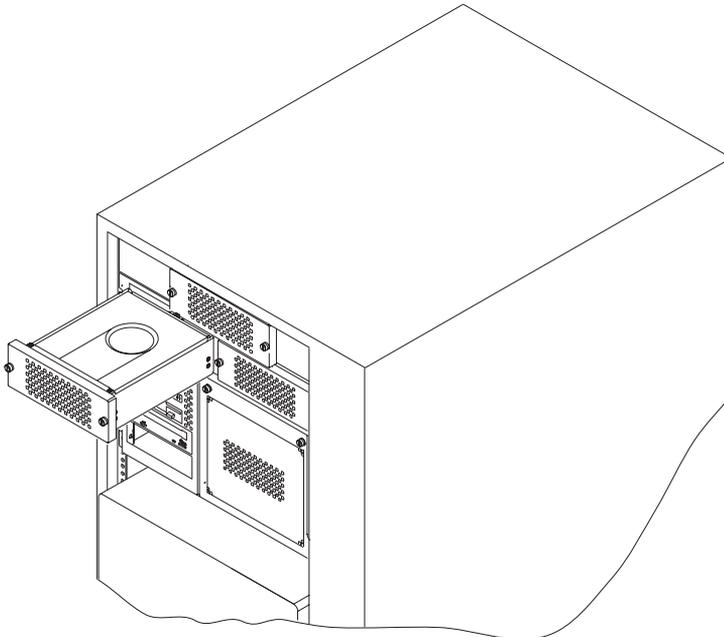
Before performing these procedures, read “Safety Notices” on page xiii.

Note: You do not have to power off the system to remove a blower assembly from the 10 EIA-Unit I/O Drawer.

Removal

1. Open the front door of the I/O rack.
2. Loosen the two retained screws that hold the blower assembly in position.
3. Remove the blower assembly by pulling it out.

Note: Rack is shown with front door and hinges removed.



Replacement

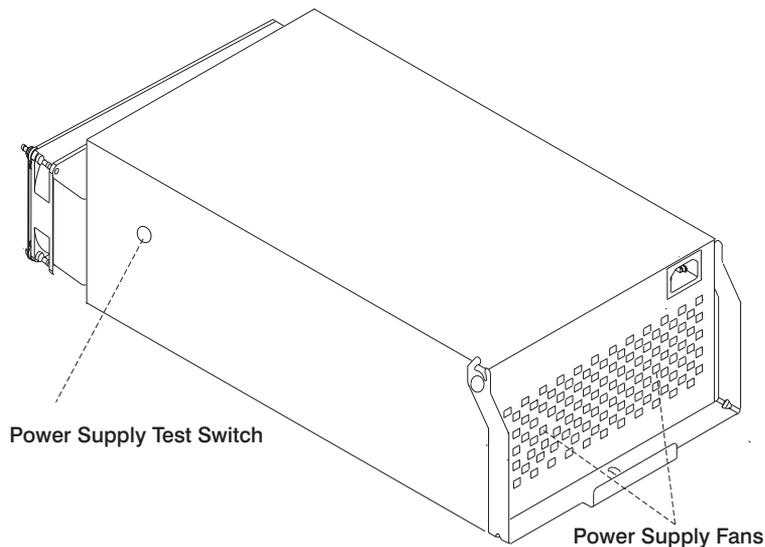
Replace in reverse order. Ensure that the retained screws are correctly engaged, because they draw the blower assembly into the blower connectors.

Power Supply Test Switch Procedure

Before performing these procedures, read “Safety Notices” on page xiii.

Before you replace a power supply, you can perform this test to determine if the power supply needs replacing.

1. Perform steps 1 through 6 in “Hot-Swappable Power Supplies and Power Supply Fan Assemblies” on page 516.
2. Replug the power cord into the power supply.
 - If the LED on rear of the power supply is not blinking, continue with step 7 in “Hot-Swappable Power Supplies and Power Supply Fan Assemblies” on page 516.
 - If the LED on rear of the power supply is blinking, use a pencil to press the test switch on the side of the power supply.



- If the LED on rear of the power supply is on steady and the fans spin, the power supply is good and can be returned to the system.
- If the LED on rear of the power supply is not on steady and the fans do not spin, continue with step 7 in “Hot-Swappable Power Supplies and Power Supply Fan Assemblies” on page 516.

Hot-Swappable Power Supplies and Power Supply Fan Assemblies

Before performing these procedures, read “Safety Notices” on page xiii.

Notes:

1. The 10 EIA-unit I/O drawer has two power supplies. You can replace each supply separately. The removal and replacement procedures are the same for each power supply.
2. If only one power supply needs to be removed, you do not have to power off the system.
3. Each power supply has a test switch. See “Power Supply Test Switch Procedure” on page 515.
4. You need a 6-mm nutdriver to perform this procedure.

Removal

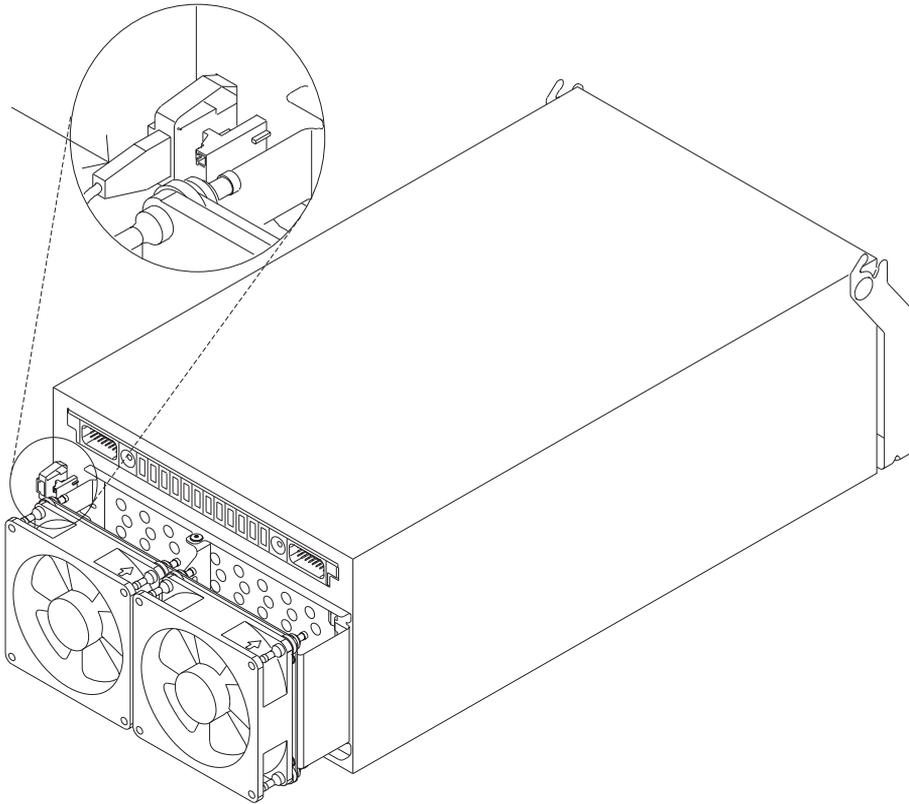
DANGER

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

Attention: Do not perform the hot-swap procedure for a power supply if the ambient temperature is greater than 32°C (90°F), because it can cause loss of data or data corruption.

Be sure that the replacement power supply is ready to install, because the 10 EIA-unit I/O drawer can encounter problems if the power supply is removed for longer than *five* minutes.

1. If you have not already done so, open the rear door of the rack unit and locate the drawer you need to work on.
2. Unplug the power cord from the power supply.
3. Reposition any other cables necessary to allow the removal of the power supply.
4. Remove the screw from the center of the power supply handle and save it for replacement.
5. Grasp the handle of the power supply and pivot it upward.
6. Pull the power supply out of the drawer.
7. Remove the external fan assembly from the power supply and save it for replacement.
 - a. Use your fingernail to depress the tab on each plug, and pull to remove the two fan cables from the front of the power supply.



- b. Loosen, but do not remove the screw that holds the fan assembly to the power supply.
- c. Slide the fan assembly off the power supply.

Replacement

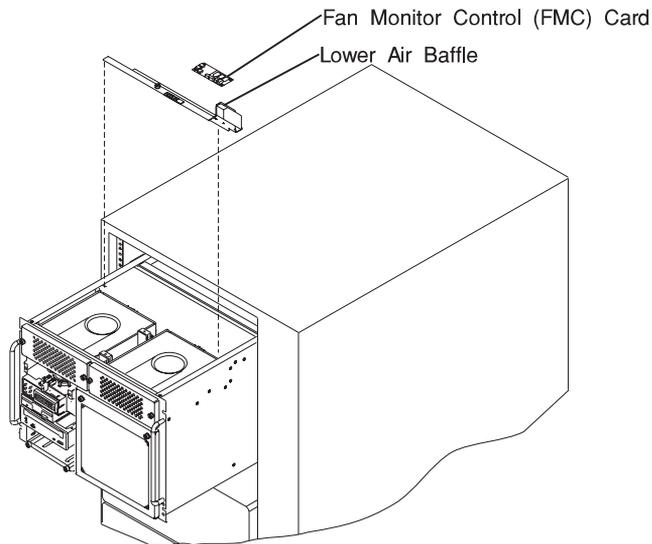
Replace in the reverse order.

Fan Monitor Control (FMC) Card

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Perform the procedure in “Powering Off the System” on page 492.
2. Open the I/O rack doors.
3. Do the steps in “I/O Tray” on page 513 that allow you to move the I/O tray a few inches to the rear. Leave the internal cables connected to the I/O planar and installed adapters.
4. Note the locations and then disconnect the cables attached to the fan monitor control card.
5. Place the I/O drawer in the service position. See “Service Position” on page 512.
6. Remove the lower air baffle by loosening the captive screw and then lifting the air baffle up and out of the drawer.



7. Remove the screws from the fan monitor control card and remove the card from the lower air baffle.

Replacement

To replace the fan monitor control card, do the removal steps in the reverse order.

Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

Power Distribution Board Assembly

Before performing these procedures, read “Safety Notices” on page xiii.

Attention: Note the bay locations of all disk drives in each bank before you attempt to remove them from the drawer.

Removal

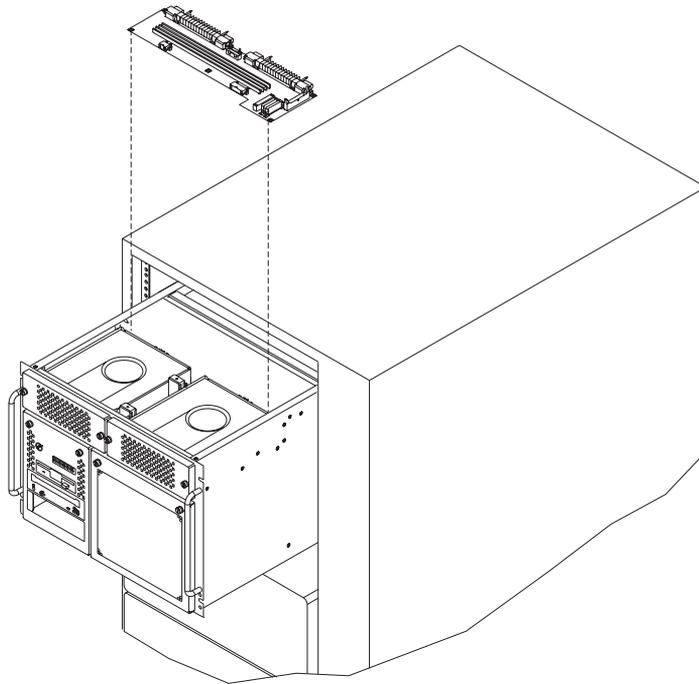
1. Perform the procedure in “Powering Off the System” on page 492.
2. Open the I/O rack doors.
3. Remove the power supplies, as described in “Hot-Swappable Power Supplies and Power Supply Fan Assemblies” on page 516.
4. Do the steps in “I/O Tray” on page 513 that allow you to move the I/O tray a few inches to the rear. Leave the internal cables connected to the I/O planar and installed adapters.
5. Place the drawer in the service position, as described in “Service Position” on page 512.
6. Remove the screws that attach the front drawer cover and remove the cover.
7. Note the locations and then disconnect the cables attached to the fan monitor control card.
8. Remove the lower air baffle by loosening the captive screw and then lifting the baffle up and out of the drawer.

Note: It is not necessary to remove the fan monitor control card from the lower air baffle to remove it from the drawer.

9. Note the locations of the cables that attach to the power distribution board, and then disconnect the cables.
10. Remove the six screws that hold the power distribution board in place.

Note: If cables running between the front and rear sections of the drawer interfere with removal of the power distribution board, note their locations and disconnect them before lifting the power distribution board out of the drawer in the next step.

11. Remove the power distribution board by lifting the right side up and pulling it out.



Replacement

Attach the new power distribution board to the bracket, and replace in reverse order.

Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

Media Devices (CD-ROM Drive, Tape Drive, Diskette Drive)

Before performing these procedures, read “Safety Notices” on page xiii.

CAUTION:

Do not open the drive; no user adjustments or serviceable parts are inside.

CAUTION:

A class 3 laser is contained in the device. Do not attempt to operate the drive while it is disassembled. Do not attempt to open the covers of the drive as it is not serviceable and is to be replaced as a unit.

Notes:

1. This procedure is the same for any media device that is supported by this drawer.
2. For additional information regarding the operation of the media drives, see the installation and user's guide provided with the drives.

Removal

1. If the rack unit has a front door, open it.

2. Place the drawer in the service position, as described in “Service Position” on page 512 .
3. Loosen the two retained screws at the top of the media bank cover and remove it from the media bank.
4. Slide the device forward to remove.
5. Note which cables are connected to the device. Label them to ensure that each cable is returned to the correct location when replacing them.
6. Disconnect the power and signal cables from the device you are removing.

Replacement

1. If there is an interposer, remove it from the device.
2. Remove the metal plate from the device you just removed.
3. Attach the metal plate to the replacement device.
4. Attach the interposer that you removed earlier to the replacement device.
5. Connect the power and signal cables to the device you are installing, making sure that the correct cables are connected to each device.
6. Slide the device into the proper media bay. You may need to arrange the cables at the rear of the device while sliding the device in, to prevent any pinching of the cables.
7. Place the drawer in the operating position, as described in “Operating Position” on page 512.

Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

Hot-Swappable Disk Drives

Before performing these procedures, read “Safety Notices” on page xiii.

Note: You do not have to power off the system to remove a hot-swap drive assembly from the I/O drawer. Before you perform these procedures, ensure that the customer has taken the appropriate actions to back up the data for the drive you are removing, and that the drive has been removed from the configuration. Physically removing a hot-swap drive from the I/O drawer before it has been removed from the system configuration, can cause unrecoverable data corruption.

Unconfiguring (Removing) or Configuring a Disk Drive

Use this procedure if you are removing or installing a drive while the system power is turned on.

Unconfiguring (Removing)

To unconfigure (remove) a disk drive, do the following:

1. Log in as root user.
2. Enter the **smit** command.
3. Select **Devices**.

4. Select **Fixed Disk**.
5. Select **Remove a Fixed Disk**.
6. From the list on the screen, select the disk you want to remove.
7. When you get to the Keep Definition option, select **Yes**. This retains the details of the drive in the device configuration database.
8. Select the **Do** option to remove the drive.
9. The drive can now be removed from the drawer. Return to the procedure that directed you here.

Configuring (Replacing)

To configure (replace) a disk drive, do the following:

1. Log in as root user.
2. Enter the **smit** command.
3. Select **Devices**.
4. Select **Fixed Disk**.
5. Select **Configure a Defined Disk**.
6. Select the disk that you made "Defined" earlier.
7. Return to the procedure that directed you here.

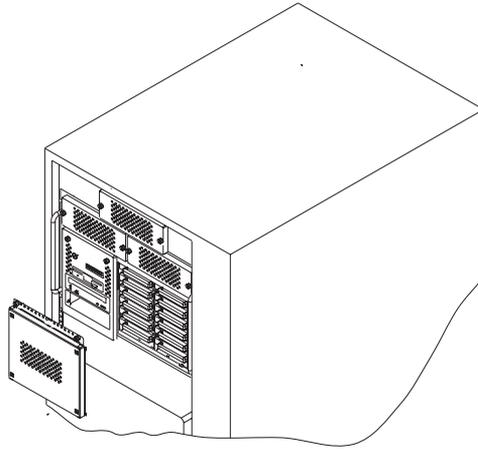
Removal

This procedure describes how to remove hot-swap disk drives from a hot-swap bay while the 10 EIA-unit I/O drawer is powered on.

If you remove a hot-swap disk drive when the 10 EIA-unit I/O drawer power is off, step 4 does not apply.

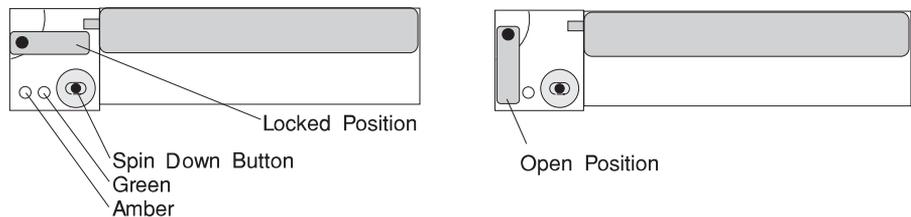
Attention: Use caution when handling all hard disk drives. Drives are more likely to be damaged during installation and service. Bumping or handling drives roughly causes latent failures. Do not stack drives, and always use appropriate ESD practices. For ESD information. See "Handling Static-Sensitive Devices" on page 491. A drop of as little as 6.5 mm (.25 inches) can cause latent failures. Media can take 30 seconds to spin down, so ensure at least a 30 second delay has passed after switching off hot-swappable drives for removal.

1. Open the front door of the I/O rack.
2. Loosen the screws that hold the disk drive cover to the drawer and remove the disk drive cover from the drawer, storing it in a safe place.



Attention: Physically removing a hot-swap drive from the 10 EIA-unit I/O drawer before it has been removed from the system configuration, may cause unrecoverable data corruption.

3. Go to “Unconfiguring (Removing) or Configuring a Disk Drive” on page 521 and verify that the device has been removed from the system configuration, then return here. The yellow LED on the hot-swap disk drive should be off.
4. For SCSI drives, press the spin down button on the hot-swap disk drive; observe the green flashing LED.
5. Rotate the carrier latch to the open position.



6. Pull the hot-swap disk drive out of the hot-swap bay, keeping it straight to prevent damage.
7. Place the hot-swap disk drive in an antistatic bag.
8. Replace the disk drive cover.

Replacement

This procedure describes how to replace a hot-swap disk drive while the 10 EIA-unit I/O drawer is powered on.

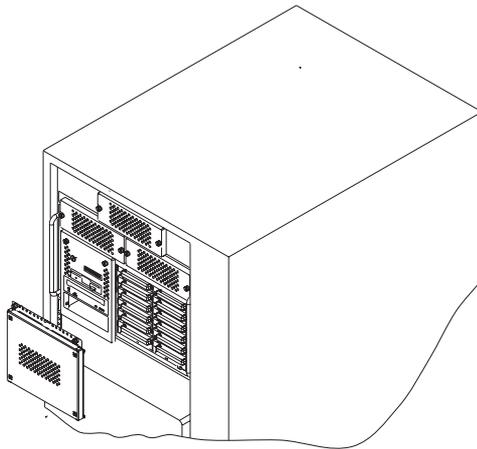
Attention: Do not open the drive; no user adjustments or serviceable parts are inside.

Notes:

1. This procedure is the same for any hot-swap disk drive that is supported by this drawer.
2. For additional information regarding the operation of the hot-swap disk drives. See the installation and user's guide provided with the drives.

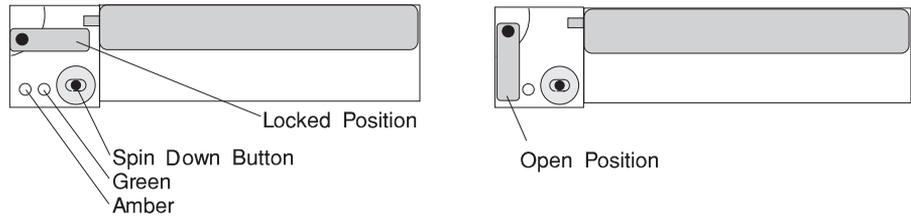
This section gives the instructions for replacing hot-swap disk drives in the disk drive banks.

1. If the rack unit has a front door, open it.
2. Loosen the screws that hold the disk drive cover to the drawer and remove the disk drive cover from the drawer, storing it in a safe place.

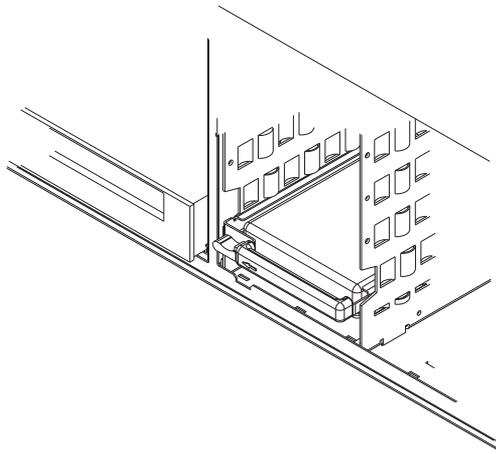
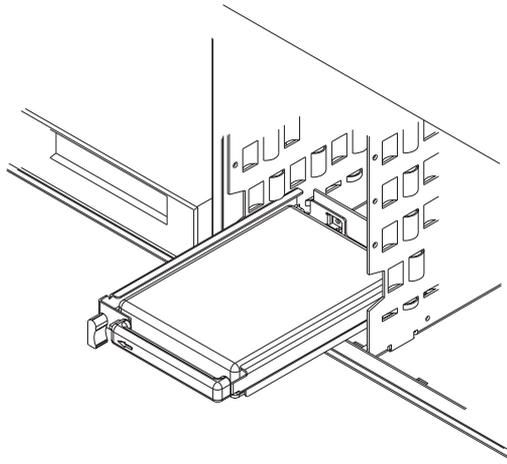


3. Each hot-swap disk drive you plan to replace must have the hot-swap SCSI disk drive carrier attached.
Attention: Handle the hot-swap disk drive with care because it is very fragile and can be easily damaged if exposed to shock, electrostatic discharge, or rough handling.
4. Locate the position in Bank B or Bank C from which a drive was removed.
Attention: Do not attach SCSI address jumpers on the hot-swap disk drive. SCSI IDs are automatically set when the drive is installed. Attaching jumpers can cause service problems, multiple drives at the same address, or confusion in locating the correct drive.

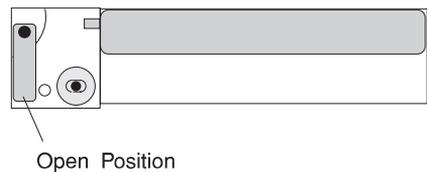
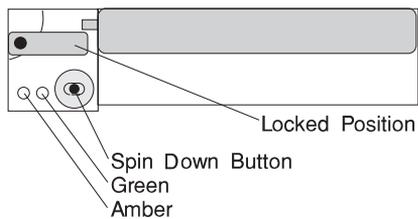
- a. Rotate the carrier latch to the open position.



- b. Position the drive carrier assembly horizontally, with the connector facing into the bay.
- c. Align the side of the carrier with the raised guides on the left of the bay.
- d. Slide the carrier into the bay gently to keep from damaging the hot-swap disk drive. Slide the carrier to the rear of the bay until it is seated into the connector, as shown in the following illustration.



- e. Move the carrier latch to the locked position. If the carrier does not lock, check that the drive carrier is fully seated in the backplane. When the drive carrier is fully seated and power is turned on, the green LED on the drive carrier is illuminated.



The following table describes the meaning of the green and amber status lights and spin down button on a SCSI disk drive.

SCSI Disk Drive Status Lights		
Light or Button	Status	Definition
Amber	On	Drive spinning
	Off	Drive not spinning
Green	On	Power On
	Off	Power Off
	Blinking	Power Off/Drive identify
Spin down	Depressed	Spin down drive and remove power

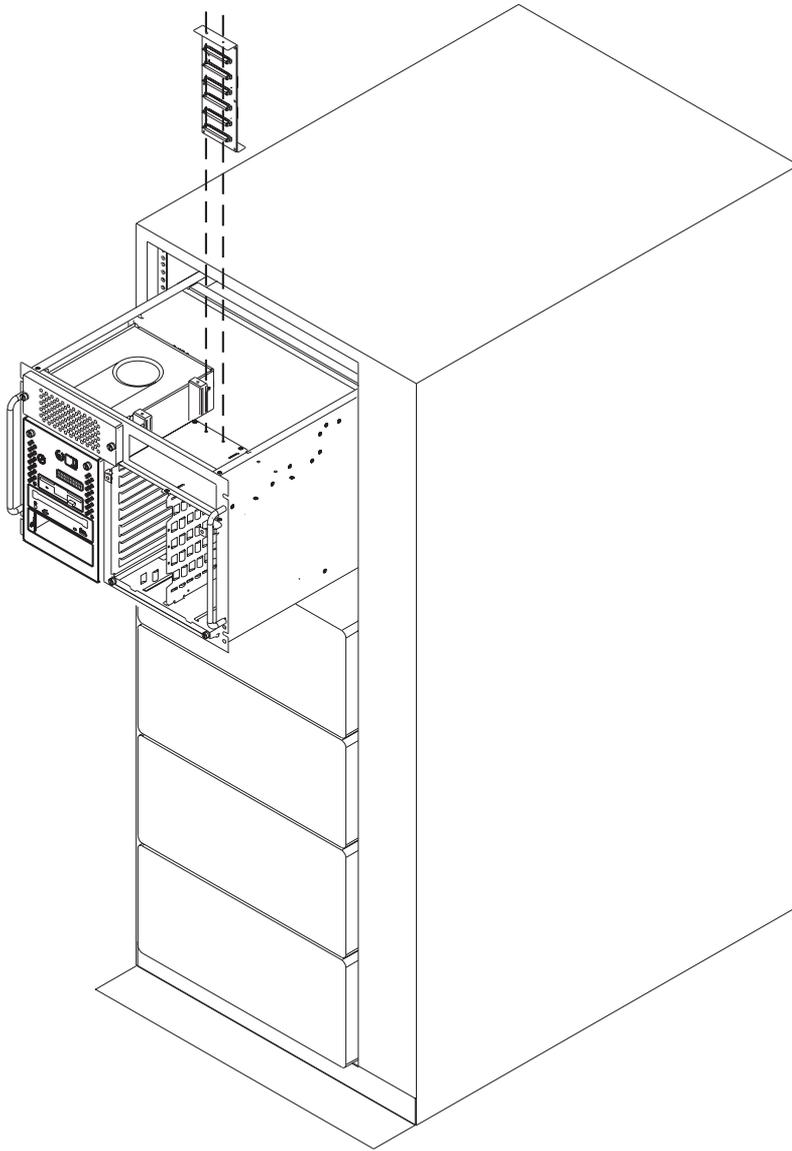
5. Go to “Unconfiguring (Removing) or Configuring a Disk Drive” on page 521 and perform the steps to add the disk drive back into the system configuration, then return here. The yellow LED on the hot-swap disk drive should be on.
6. If you do not have any other procedures to perform, replace the disk drive cover that you removed in step 2 on page 524.
7. Close the I/O rack door.

SCSI Backplane

Before performing these procedures, read “Safety Notices” on page xiii.

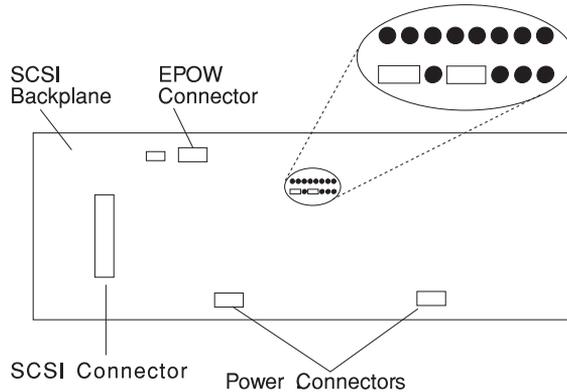
Removal

1. Place the drawer in the service position, as described in “Service Position” on page 512.
2. Loosen the two retained screws at the top of the disk drive cover, and remove the disk drive cover from the front of the drawer.
3. Disconnect the disk drive carriers from the backplane and slide them out just enough that they clear the backplane connectors.
4. Remove the blower from over the disk drive banks to get to the access hole for the backplane screw.
5. Note the locations and then disconnect the cables attached to the fan monitor control card.
6. Remove the lower air baffle by loosening the captive screw and then lifting the air baffle up and out of the drawer.
7. Remove the screw that holds the backplane card in place.
8. Note the locations of the cables that attach to the backplane card.
9. Disconnect the cables that attach to the backplane card.
10. Remove the card by pulling it up and out through the top of the drawer.



Replacement

If you installed a SCSI backplane, check the jumpers on the new backplane for proper setting. The jumpers should be set as shown in the following illustration.



Replace in reverse order.

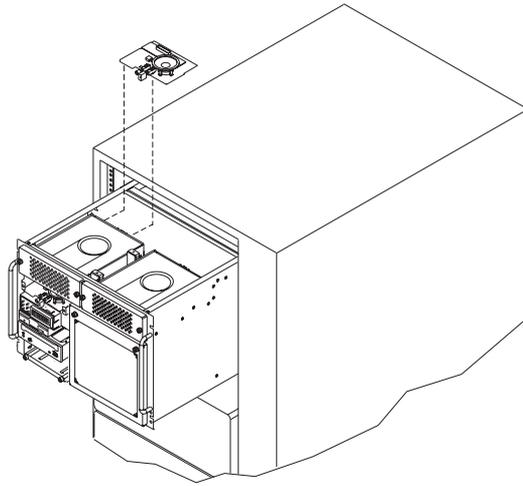
Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

Drawer Indicator Panel Assembly

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Place the drawer in the service position, as described in “Service Position” on page 512.
2. Remove the blowers, as described in “Hot-Swappable Blower Assembly” on page 514.
3. Follow the steps described in “Media Devices (CD-ROM Drive, Tape Drive, Diskette Drive)” on page 520.
4. Remove the diskette drive, as described in “Media Devices (CD-ROM Drive, Tape Drive, Diskette Drive)” on page 520.
5. Note the locations of the cables that attach to the card.
6. Disconnect all cables from the drawer indicator panel assembly.
7. Release the assembly by compressing the spring clip at each side of the assembly.
8. Remove the card by pushing it to the rear and pulling it up.



Replacement

Replace in reverse order.

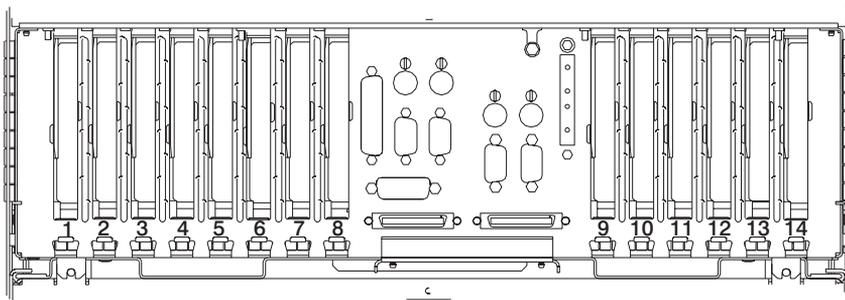
Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

Service Processor Card

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. If possible, record the customer’s settings for bootlist, modem configuration, call-in, call-out, and so on.
2. Perform the procedure in “Powering Off the System” on page 492.
3. Open the I/O rack doors.
4. Do the steps in “I/O Tray” on page 513 that allow you to move the I/O tray a few inches to the rear. Leave the internal cables connected to the I/O planar and installed adapters.
5. The service processor is in slot 8 of the primary I/O drawer.



6. Note the location of any cables connected to the service processor card, and then disconnect them.
7. If SCSI cables are routed over the service processor card, disconnect them from the SCSI adapter.
8. Remove the screw that secures the service processor card bracket to the system chassis.
9. Remove the service processor card by pulling it straight up.

Replacement

Replace in reverse order.

Note: A service processor firmware update is required if other than the original version is on the system. Refer to “Appendix F. Firmware Update Procedures” on page 615 for instructions on obtaining, downloading, and installing the latest level firmware. If a backup set of diskettes exists from a prior update, these can be used.

Attention: When the service processor card is replaced, the vital product data (VPD) must be reprogrammed. perform the procedure in “Appendix E. System Vital Product Data” on page 613 before you return the system to normal operations.

1. Use the System Management Interface Tool (SMIT) to reset the system date and time
2. Advise the customer to reset his passwords. Passwords can be set using the service processor menus. See “Chapter 7. Service Processor Menus” on page 447 for more information. The service processor menus also are used to reset the service processor call-in functions after a service processor card replacement. See “Chapter 7. Service Processor Menus” on page 447 and “Service Processor Call-In Security” on page 471 for more information.

Attention: To prevent damage to cards in the drawer, refer to the figure on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure that the cables are routed correctly.

Adapters

Removal

Before performing these procedures, read “Safety Notices” on page xiii.

1. Perform the procedure in “Powering Off the System” on page 492.
2. Open the I/O rack rear door.
3. Remove the ac power cords from the rear of the drawer.
4. Remove the rear cover from the 10 EIA-unit I/O drawer.
5. Remove the access panel above the rear of the I/O tray.
6. Note the slot number of the adapter you are removing.
7. If there are any external cables attached to the adapter, disconnect them.
8. Loosen and remove the screw on top of the adapter’s bracket.
9. If there are any internal cables attached to the adapter, disconnect them.
10. Carefully pull the adapter out of the slot.
11. If you are installing another adapter in this expansion slot, follow the instructions given under “Replacement” below.
12. If you are not installing another adapter in this expansion slot, replace the expansion-slot cover, as follows:
 - a. Slide the cover over the open expansion slot.
 - b. Tighten the expansion-slot screw on the top of the expansion-slot cover.

Replacement

To replace an adapter, perform the removal steps in the reverse order.

Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

I/O Planar

Note: Before performing these procedures, read “Safety Notices” on page xiii, and the safety notices at the start of this chapter.

Removal

1. Do the removal procedure in “I/O Tray” on page 513.
2. Do the removal procedure in “Adapters”.
3. Do the removal procedure in “Service Processor Card” on page 530.
4. Note the locations of all cables that are connected to the I/O planar and then disconnect them all from the planar.
5. Remove the screws that attach the I/O planar to the 10 EIA-unit I/O drawer tray.
6. Remove the screw that holds the separator in the rear of the I/O tray and remove the separator.
7. Remove the four standoffs from the RIO connectors (RIO 0 and RIO 1) on the rear bulkhead.

8. Slide the planar toward the front of the system unit, tilt the rear of the I/O planar upward, and remove it from the I/O tray.

Replacement

To replace the I/O planar, do the removal steps in the reverse order.

Attention: To prevent damage to cards in the drawer, refer to drawing on “10 EIA-Unit I/O Drawer Cable Routing” on page 42, and ensure the cables are routed correctly.

Bulkhead Card

Before performing these procedures, read “Safety Notices” on page xiii.

Removal

1. Turn off the system power.
2. Remove the ac power cords from the rear of the I/O drawer.
3. Open the rear I/O rack door.
4. If required to gain access to the bulkhead card, do the removal procedure in “Adapters” on page 532.
5. If required to gain access to the bulkhead card, do the removal procedure in “Service Processor Card” on page 530.
6. Remove the screw that holds the separator in the rear of the I/O tray and remove the separator.
7. Note the connector locations and disconnect all cables connected to the bulkhead card.
8. Remove the standoff screws from each of the connectors on the bulkhead card from the rear of the I/O drawer.

Note: The screws are color-coded. Note the location of the screws as you remove them. The screws must be installed in the same positions on the new bulkhead card.

Replacement

Replace in reverse order.

Chapter 10. Models S80 and S85 Parts

This chapter contains the following parts information for the models S80 and S85:

- Part-Name to Part-Number Index
- System rack parts
- I/O rack parts.

Part-Name to Part-Number Index

The following tables identify each part by name and provide the part number. If you are directed to replace a part, these tables provides a quick cross-reference for the name that is called out in the diagnostic procedures to the part number for the part. The complete parts listings for the model S80 and S85 system follow these table.

System Rack		
FRU Name	FRU Number	CCIN Number (FC)
256MB Memory Card	23L7566	4A85
512MB Memory Card	23L7570	4A84
1024MB Memory Card	23L7577	4A83
2048MB Memory Card	23L7589	4A82
4096MB Memory Card	23L7595	4A81
8192MB Memory Card	04N5531	4A8C
AC Box, Domestic (US), single phase	93H3753	
AC Box, World Trade, single phase	93H3682	
AC Box, World Trade, two of three phase	93H3734	
Blower	21H6959	
Bulk Power Supply (AC)	21H7719	
Clock/Processor Regulator Card (requires 74G6385 Oscillator Card also for FRU, CCIN #25AC)	04N5763	25AA
I/O Hub Card	04N2204	273A
JTAG Cable (Internal)	90H6513	
Memory Regulator Assembly	23L3603	
Operator Panel Assembly	91H1381	
Op Panel Cable (Internal, system rack)	21H6996	
Operator Panel Cable (Internal)	21H7760	
Operator Panel Battery	16G8095	
Power Distribution Harness	23L3393	
Processor Card, Type 1 (Model S80)	23L7434	246A
Processor card, Type 1 (Model S85)	21P4511	246F
Processor Card, Type 2 (Model S80)	23L7447	246B
Processor card, Type 2 (Model S85)	21P4517	246E
Processor Regulator Card	23L3613	2714
Programmable Regulator Assembly	21H7763	
SPCN Card Assembly	04N2389	
System Backplane Assembly	23L7598	

I/O Rack

FRU Name	FRU Number
Power Distribution Bus, single phase	93H6661
Power Distribution Bus, two of three phase	93H6662
Power Distribution Bus, three phase	93H6663
Y Power Cable, Power Dist Bus to Drawer	89X2629

Cables, System Rack to I/O Drawers

FRU Name	FRU Number
JTAG Cable 3M	21H7375
OP Panel Cable 5M	21H7374
RIO Cable 3M	44L0005
RIO Cable 6M	97H7490
RIO Cable 15M	97H7491
SPCN Cable 2M	87G6235
SPCN Cable 6M	21F9469
SPCN Cable 15M	21F9358

10 EIA-Unit I/O Drawer

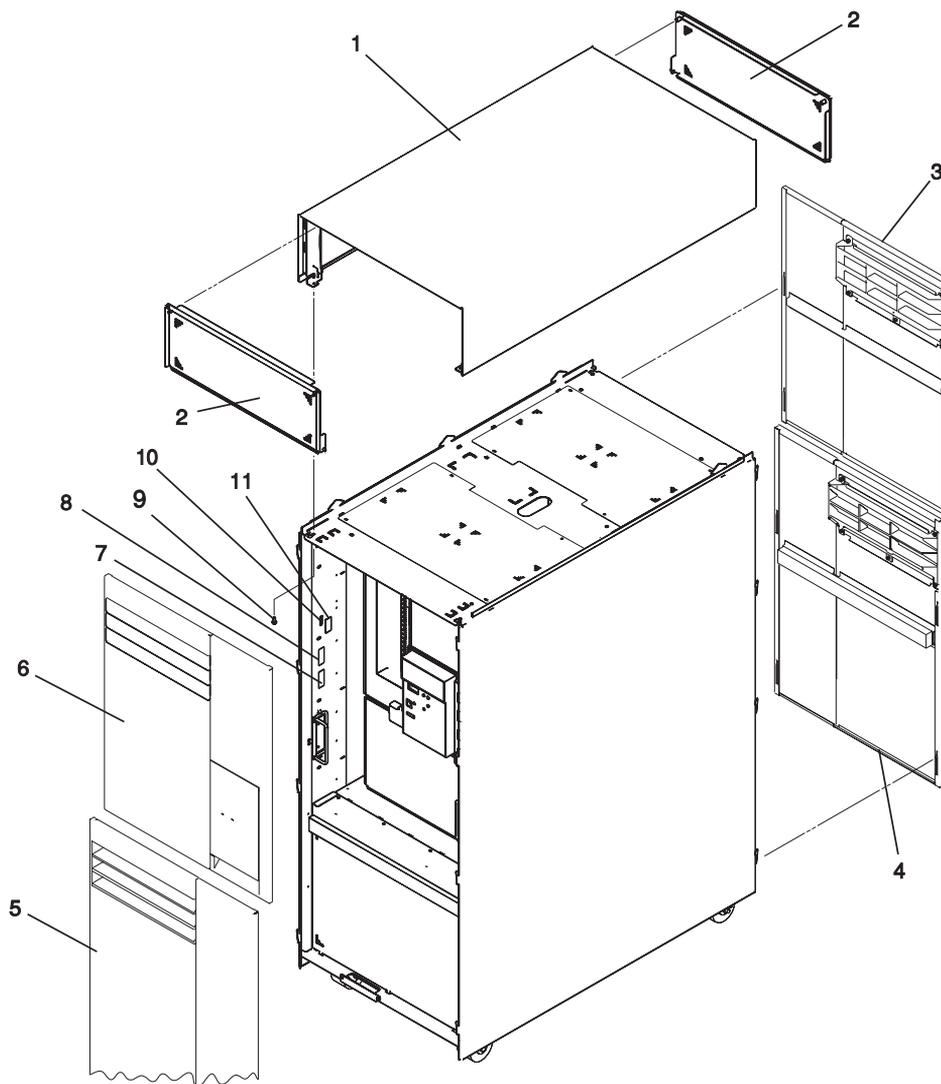
FRU Name	FRU Number
35A SCSI Backplane	08L1468
+5 V dc I/O Planar Power Cable, Power Distribution Board to I/O Planar	97H9470
AC Power Cable, Power Distribution Bus to AC Power Supply	42F6841
Blower	41L6269
Bulkhead Card	93H8185
DASD Power Cable, Power Distribution Board to DASD Banks	93H8571
DASD Bank Power Cable	93H8876
DASD Reset Cable, DASD Banks to I/O Planar	97H9473
Diskette Drive Cable, Service Processor Card to Diskette Drive	93H2454
Drawer Indicator Panel Card and Cable Assm.	07L9514
Fan Assembly, DASD	93H8868
Fan Monitor Control (FMC) card	93H8686
Fan Power Logic Cable, Power Distribution Board to I/O Planar	97H9472
FMC Power Cable 1, Power Distribution Board to FMC Card	97H9471
FMC Power Cable 2, Power Distribution Board to FMC Card	07L9540
I/O Planar (10 EIA-Unit I/O Drawer)	08L1438
I/O Planar Power Cable, Power Distribution Board to I/O Planar	97H9467
Keyboard/Mouse Cable, Service Processor to Bulkhead	93H2453
LCD Indicator Panel	06H7082
LCD Indicator Panel Cable	93H1816
Media Bay SCSI Cable, Ultra SCSI Adapter to Media Bay, 4 Drop	93H2455
Media Power Cable, Power Distribution Board to Media Docking Cable	93H8572
Media Docking Cable	93H8875

Operator Panel Cable, Service Processor to Bulkhead	93H2452
Parallel Port Cable, Service Processor to Bulkhead	93H8043
Power Distribution Board	97H9465
Power Supply	08L1336
Serial Port Cable, Service Processor to Bulkhead	93H8046
Service Processor Card	03N2655
SPCN Control Cable, I/O Planar to Bulkhead	93H2451
Speaker Cable, Service Processor Card to I/O Planar	97H9474
Ultra SCSI Cable, Ultra SCSI Adapter to SCSI Backplane (35A)	06H6876

System Rack Parts

This section contains parts information for the system rack.

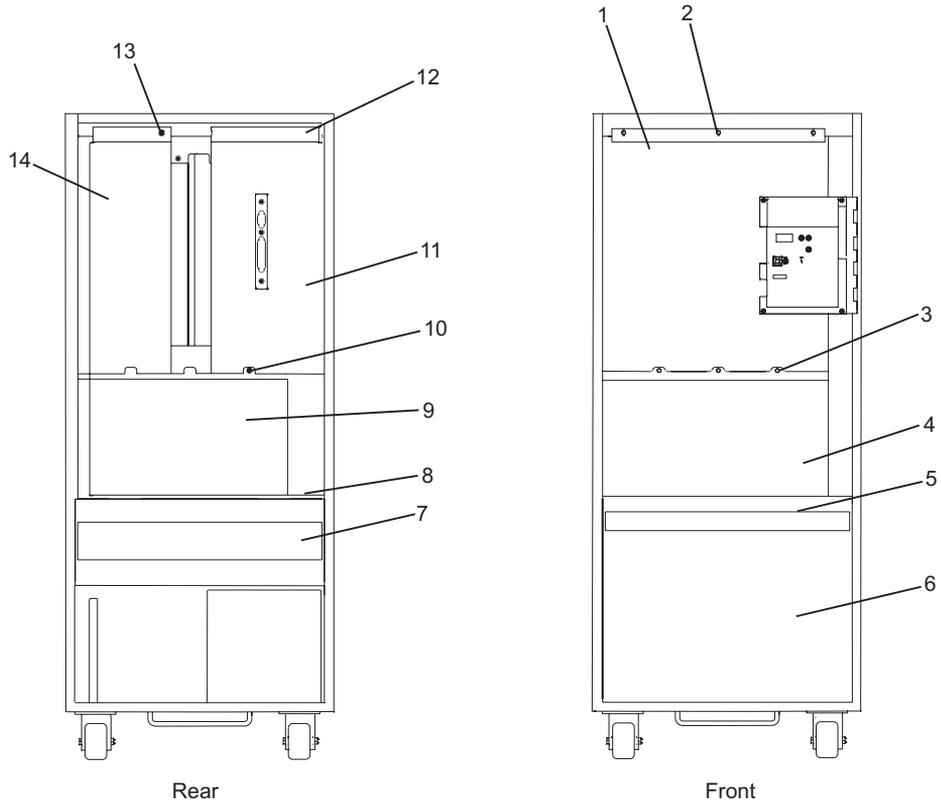
Front, Rear, and Top Covers



Index	FRU Part Number	Units Per Assembly	Description
1	21H7211	1	Cover, top
2	21H7523	2	EMC shield
3	93H5373	1	Upper rear cover assembly
4	93H5374	1	Lower rear cover assembly
5	93H5374	1	Lower front cover assembly
6	93H5363	1	Upper front cover assembly
7	44H8386*	1	Label, S/N Barcode
8	44H8386*	1	Label, MFG work unit control
9	1621811	4	Screw, top cover mounting
10	90H6339*	2	Label, serial number
11	46G3577*	1	Label, security

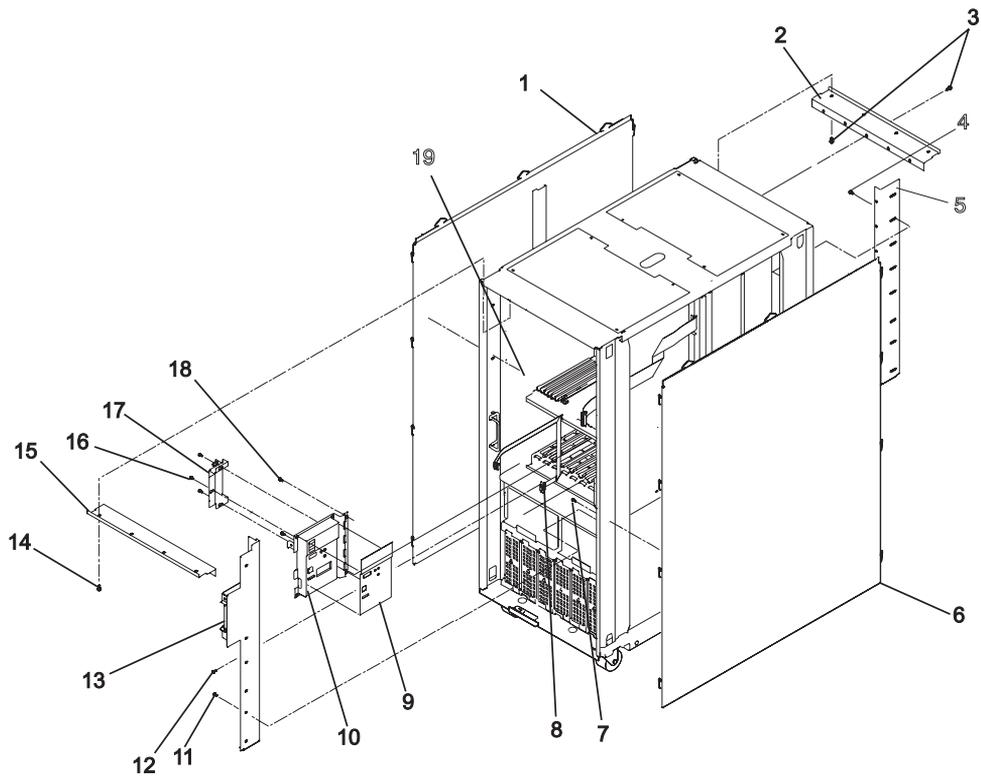
* For reference only.

Internal Shields (Front and Rear)



Index	FRU Part Number	Units Per Assembly	Description
1	21L3365	1	Shield, front processor/memory
2	1621811	3	Screw, front processor/memory shield
3	1621811	3	Screw, regulator shield
4	23L3367	1	Shield, regulator
5	1621811	4	Screw, front power shield mounting
6	21H7516	1	Shield, front power
7	21H7517	1	Shield, rear blower
8	1621811	4	Screw, blower shield mounting
9	23L3368	1	Shield, rear regulator
10	1621811	4	Screw, M4 x 10
11	23L3447	1	Shield, rear processor/memory
12	1621811	5	Screw, M4 x 10
13	1621811	2	Screw, M4 x 10
14	23L3366	1	Shield, rear processor/memory

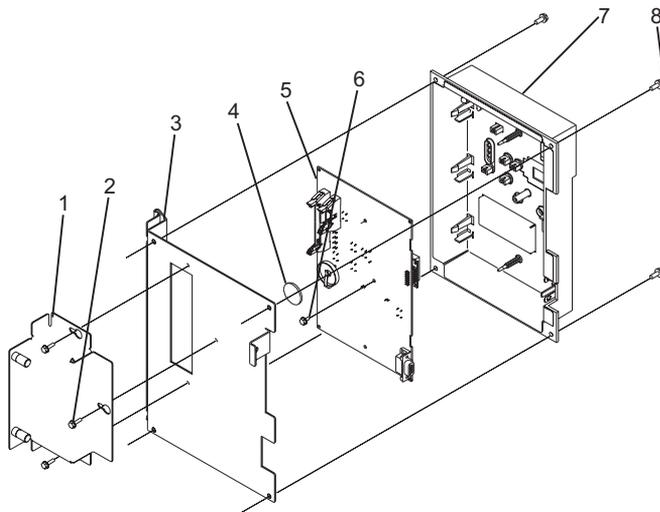
Operator Panel, Brackets, and Covers (Front View)



Index	FRU Part Number	Units Per Assembly	Description
1	93H5464	1	Left side cover
2	23L3428	1	Bracket, upper rear
3	1621811	9	Screw, rear left
4	1621811	17	Screw, rear right
5	23H3427	1	Bracket, rear right
6	93H5465	1	Right side cover
7	1621811	9	Screw, side cover
8	21H6996	1	Op Panel Cable (internal, system rack)
9	91H1373	1	Label, operator panel
10	91H1381	1	Operator panel assembly
11	1621811	15	Screw, side cover
12	1614920	2	Hex Standoff, operator panel cable
13	21H7508	1	Bracket, front right
14	1621811	6	Screw, front upper
15	23L3428	1	Bracket, Upper Front
16	1621811	3	Screw, connector cover
17	21H3733	1	Cover, operator panel connector
18	1621811	2	Screw, upper system rack
19	1621811	8	Screw, side cover

* For reference only.

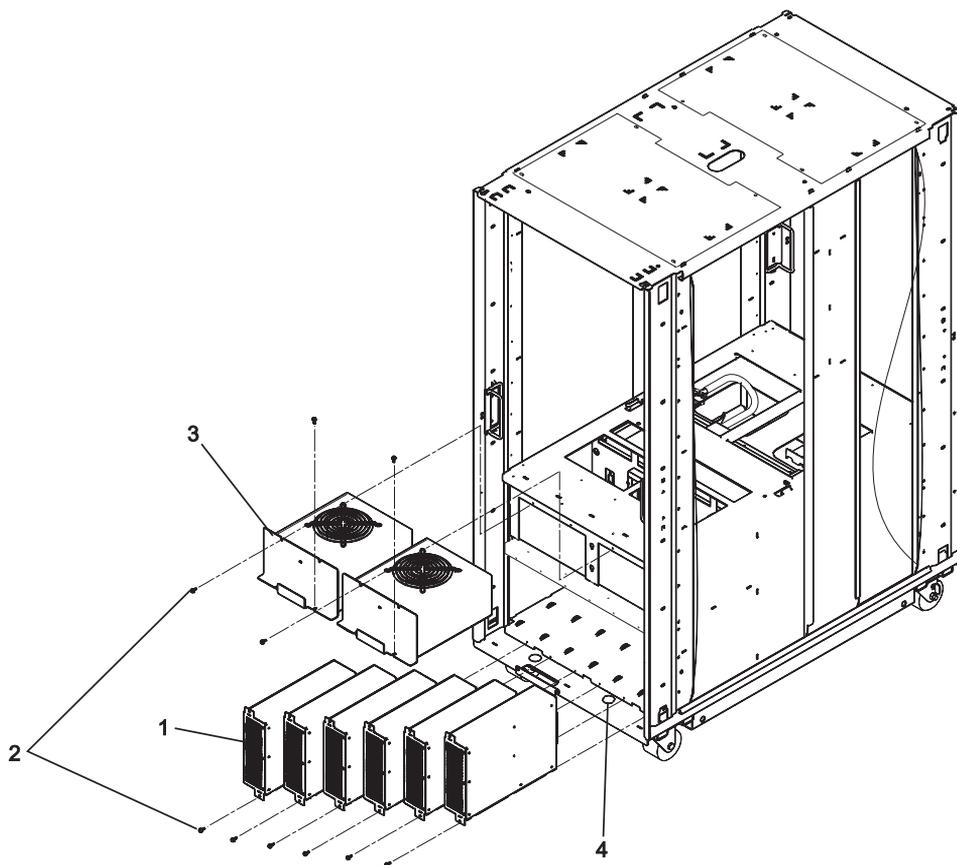
Operator Panel Assembly



Index	FRU Part Number	Units Per Assembly	Description
1	21H3733	1	Connector cover
2	1621812	3	Connector cover screws
3	21H3732*	1	Mounting bracket
4	16G8095	1	Battery
5	91H1383*	1	Card assembly
6	1622673	2	Card assembly screws
7	21H3729*	1	Bezel assembly
8	1621812	4	Bezel assembly screws

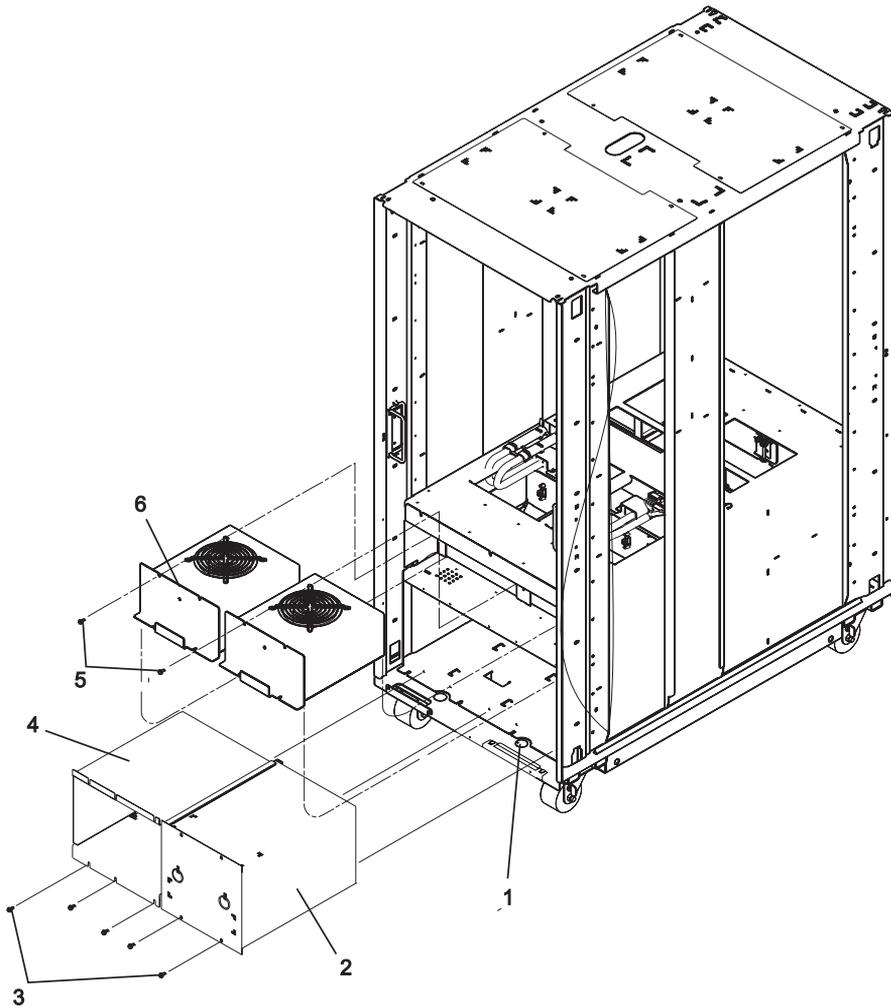
* For reference only.

Bulk Power Supplies and Front Blowers (Front View)



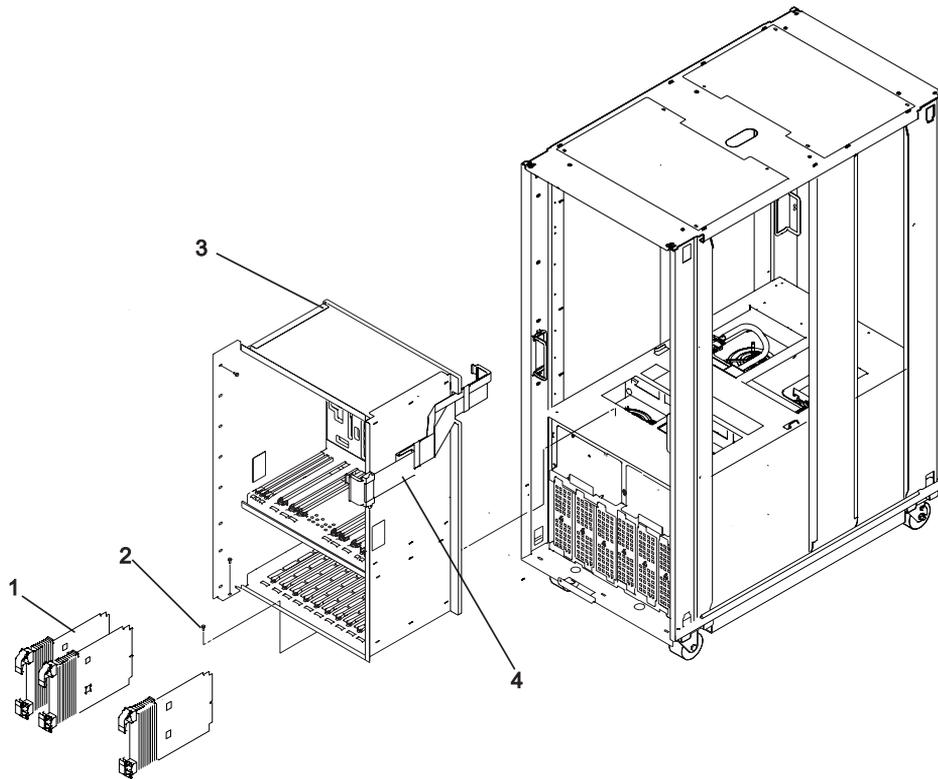
Index	FRU Part Number	Units Per Assembly	Description
1	21H7719	Up to 5	Bulk Power Supplies, (AC)
	87G6045	Up to 1	Bulk Filler
2	1621811	20	Screws, M4 x 10
3	21H6959	2	Blowers
4	90H6343	2	Plug

AC Box Assembly and Rear Blowers (Rear View)



Index	FRU Part Number	Units Per Assembly	Description
1	90H6343	4	Plug
2	93H3753	1	AC box, Domestic (US), single phase
	93H3682	1	AC box, World Trade, single phase
	93H3734	1	AC box, World Trade, two of three phase
3	1621811	10	Screws, blower mounting
4	93H5454	1	Shield, EMC
5	1621811	8	Screws
6	21H6959	2	Blowers

Front Electronics Cage and System Backplane Assembly



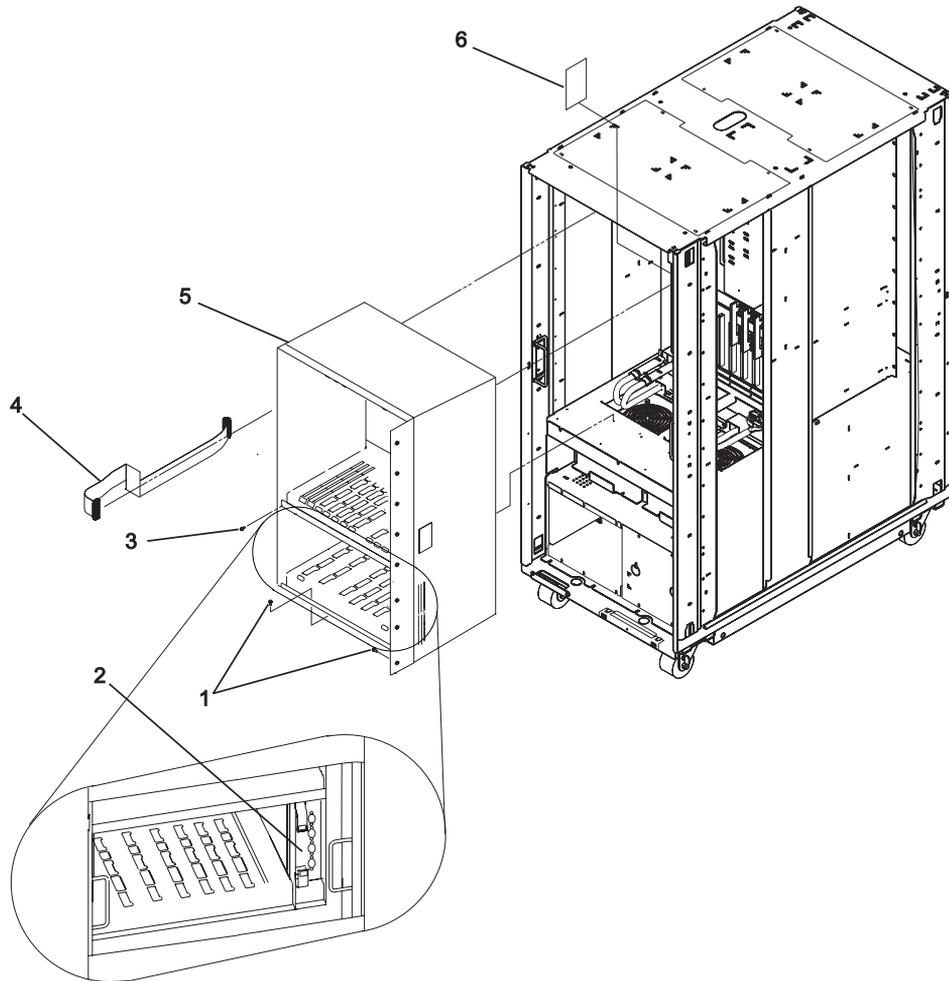
Note: For processor card and memory card locations, see “System Rack Locations Front” on page 17.

Parts listings for electronic cards in the system rack are listed in “Electronic Cards” on page 556.

Index	FRU Part Number	Units Per Assembly	Description
1	21H7763	Up to 9	Programmable regulator assembly (See note below)
	23L3603	1	Memory regulator assembly (See note below)
	21H7475	Up to 2	Regulator filler assembly (See note below)
2	1621811	12	Screws, cage mounting
3	23L7598	1	System backplane assembly (consists of the system backplane, power backplane, cage, and mounting hardware)
4	21H7760	1	Operator panel cable (Internal)

Note: Refer to “Models S80 and S85 Locations” on page 6 and “Memory Locations and Ordering Rules” on page 27 for location information.

Rear Electronics Cage



Note: For processor card and memory card locations, see “System Rack Locations Rear” on page 18.

Parts listings for electronic cards in the system rack are listed in “Electronic Cards” on page 556.

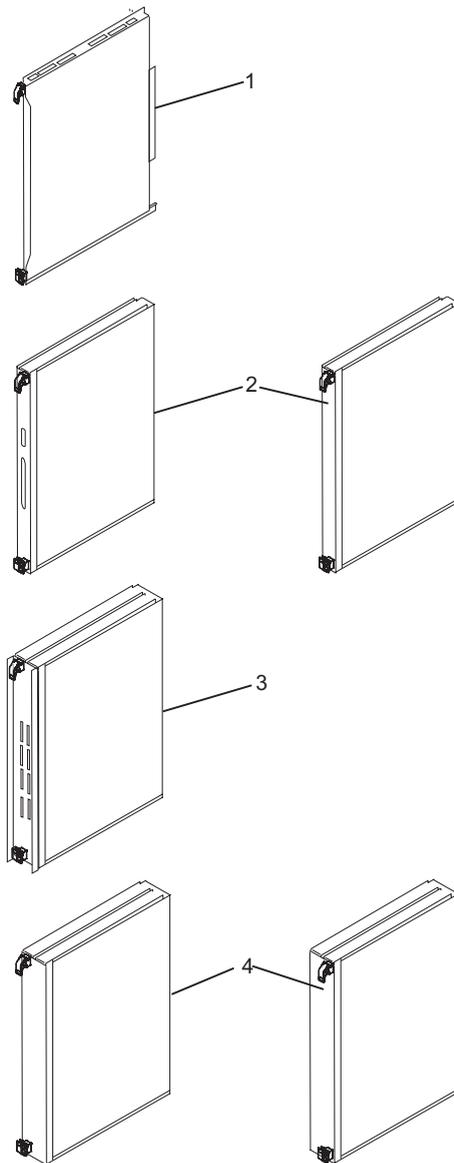
Index	FRU Part Number	Units Per Assembly	Description
1	1621811	13	Screws, cage mounting
2	04N2389	1	SPCN card assembly (see note)
3	1624766	8	Machine screw, system backplane assembly mounting
4	21H7760	1	Operator panel cable (internal)
5	23L3385	1	Rear cage
6	65X2932*	1	Label, VCCI

* For reference only.

Note: For processor card and memory card locations, see “System Rack Locations Rear” on page 18.

Parts listings for electronic cards in the system rack are listed in “Electronic Cards” on page 556.

Electronic Cards



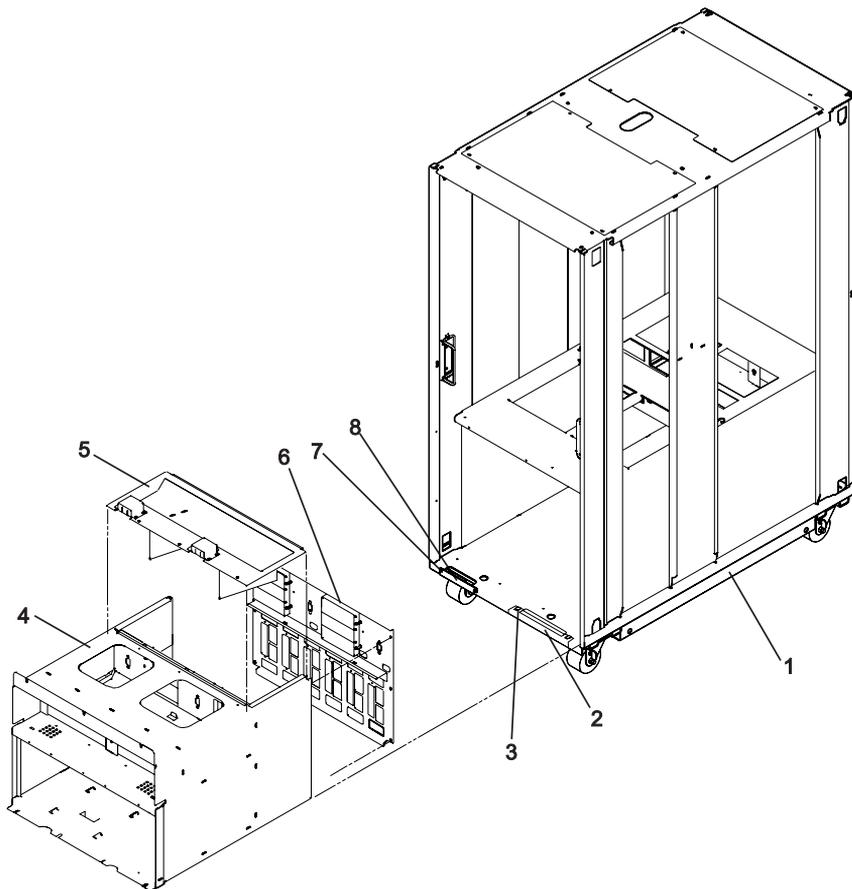
Index	FRU Part Number	Units Per Assembly	Description	CCIN (FC)
1	23L7566	Up to 16	256MB memory card	4A85
	23L7570	Up to 16	512MB memory card	4A84
	23L7577	Up to 16	1024MB memory card	4A83
	23L7589	Up to 16	2048MB memory card	4A82
	23L7595	Up to 16	4096MB memory card	4A81
	04N5531	Up to 16	8192MB memory card	4A8C
	21H6950	Up to 12	Memory filler card	
2	04N5763	1	Clock/processor regulator card (does not include oscillator card, also order 74G6385 to replace the complete FRU)	25AA
	74G6385	1	Oscillator card	25AC
	23L3613	Up to 2	Processor regulator card	2714
3	04N2204	1	I/O hub card	273A
4	23L7434	1	Processor card, Type 1 (Model S80)	246A
	21P4511	1	Processor card, Type 1 (Model S85)	246F
	23L7447	Up to 3	Processor card, Type 2 (Model S80)	246B
	21P4517	Up to 3	Processor card, Type 2 (Model S85)	246E
	04N5635	Up to 3	Processor terminator/filler card	246D

Notes:

1. Refer to “Models S80 and S85 Locations” on page 6 and “Memory Locations and Ordering Rules” on page 27 for location information.
2. The part numbers for the electronic cards are printed on labels that are applied to the cards. The numbers on the labels represent the part number, serial number and other information about the card. The format for the label is shown in the following diagram:



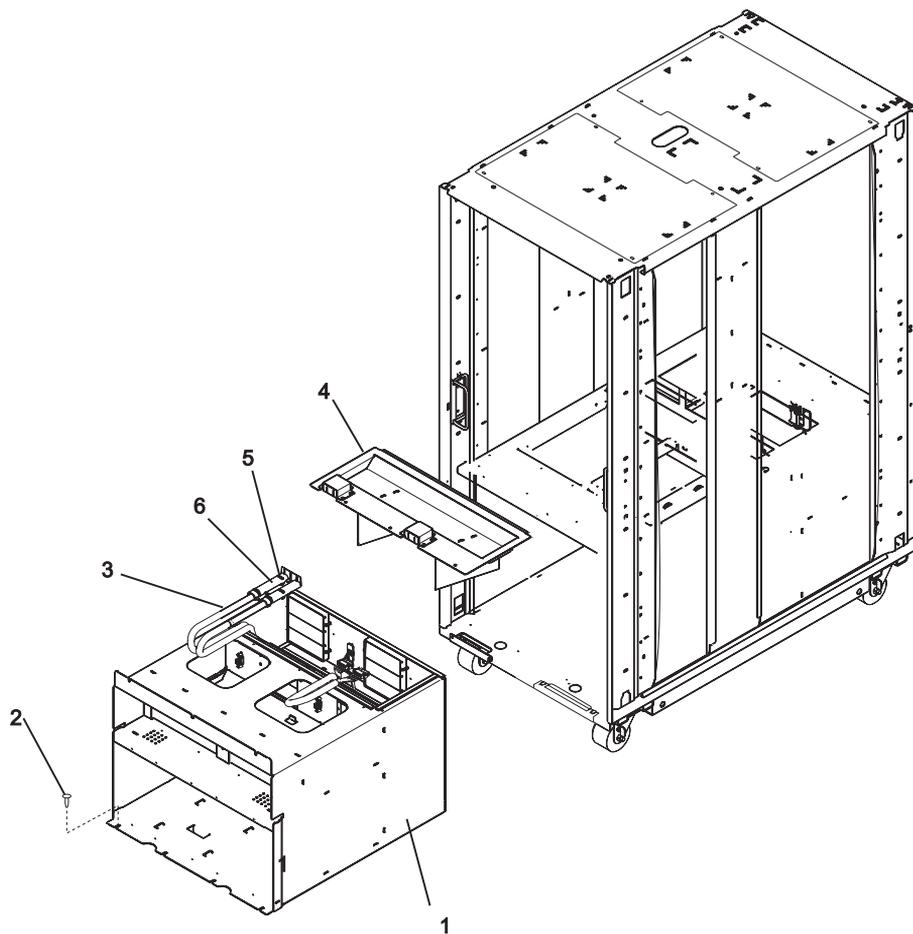
Power Subframe (Rear View, 1 of 3)



Index	FRU Part Number	Units Per Assembly	Description
1	23L3658	1	Frame Assembly
2	23L3647	1	Cable retainer
3	1621811	2	Screw, cable retainer mounting
4	21H7531*	1	Power subframe assembly
5	21H7513*	1	Top cover
6	21H7259*	1	Back cover
7	1621811	4	Screw, cable retainer mounting
8	21H7248	2	Cable retainer

* For reference only.

Power Subframe (Rear View, 2 of 3)



Index	FRU Part Number	Units Per Assembly	Description
1	21H7531*	1	Power Subframe Assembly
2	1621811	10	Screw, power subframe
3	23L3393	1	Power distribution harness
4	21H7513*	1	Top cover
5	21H3754	1	Insulator
6	0533783	2	Cable ties

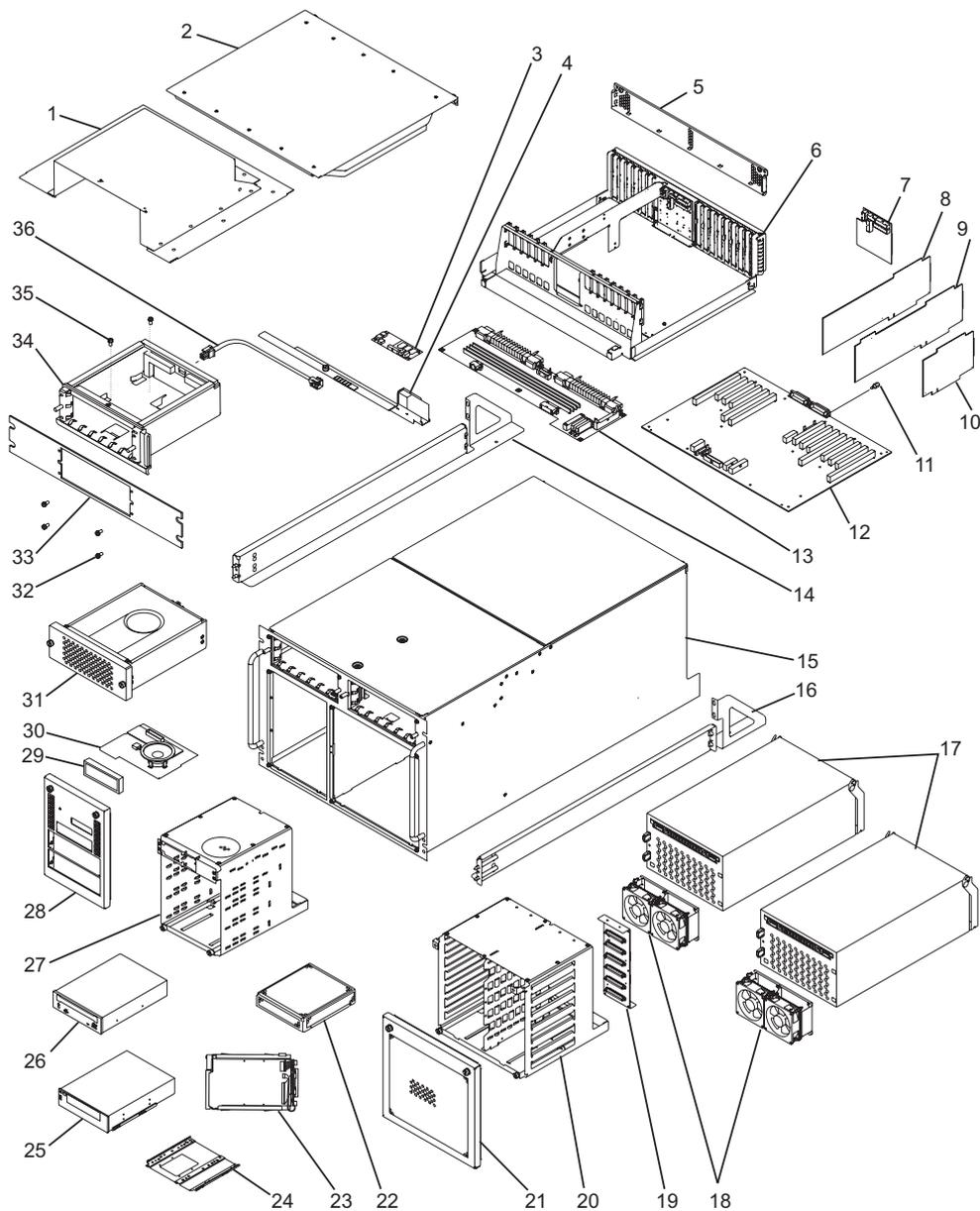
* For reference only.

Index	FRU Part Number	Units Per Assembly	Description
1	21H7531*	1	Power Subframe Assembly
2	1621811	6	Screw, back mounting
3	0533783	4	Tie wrap
4	21H7259*	1	Back cover
5	90H6284	16	Shoulder screw
6	1621814	8	Screw, power distribution harness
7	23L3393	1	Power distribution harness (ac)
8	21H7468	2	Insulator
9	21H7467	2	Insulator

I/O Drawer Parts

This section contains parts information for the I/O drawer.

10 EIA Unit I/O Drawer Parts



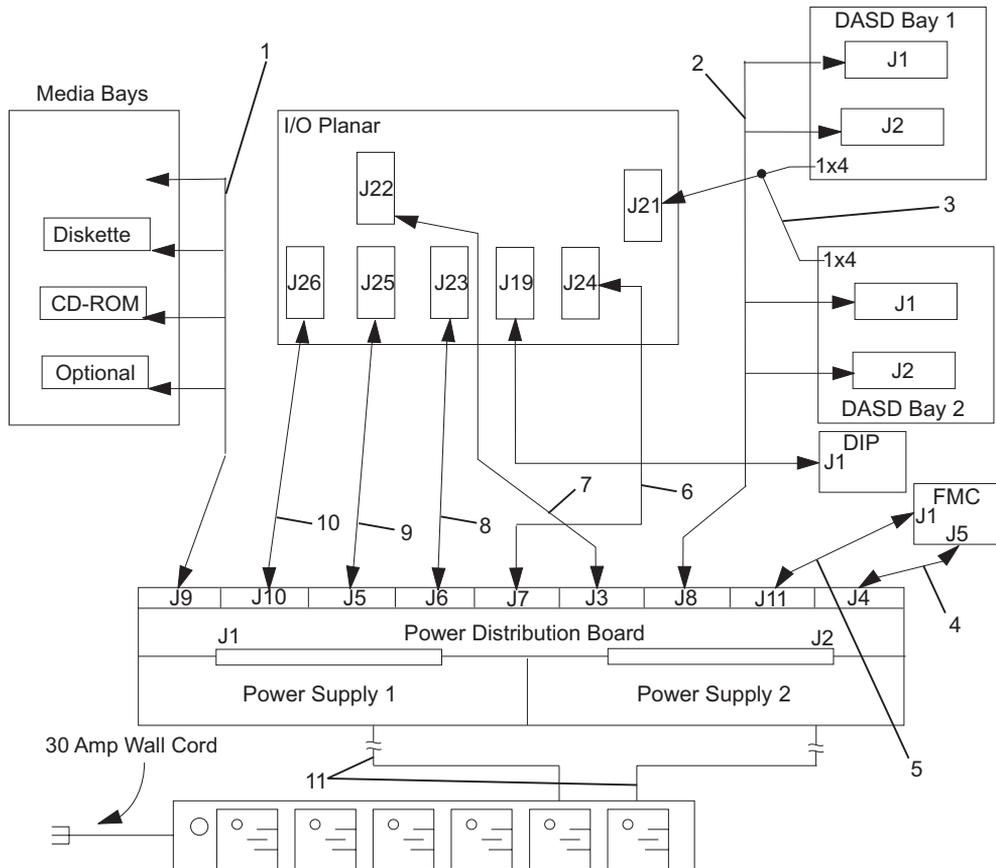
Index	Part Number	Units Per Assembly	Description
1	08L0411	1	Cover, top (covers blower housing)
2	97H9497	1	Top cover, back
3	93H8686	1	Fan monitor control (FMC) card
	94H0800	4	Screw, FMC card
4	97H9483	1	Lower air baffle
5	97H9502	1	Cover plate (rear)
6	97H9485	1	I/O tray housing
	00G1268	2	Screw, I/O tray housing
7	93H8185	1	Bulkhead card
	93H8028	6	Standoff (black, SPCN connector)
	1622344	6	Lockwasher, (SPCN connector)
	93H6316	6	Standoff (Op, S1, S2 connectors)
	1622344	6	Lockwasher (Op, S1, S2 connectors)
	0438548	4	Screw (K, M, PCI connectors)
8	03N2655	1	Service processor card
9	See note.		Adapters other than primary drawer Ultra SCSI.
10	See note.	2	Ultra SCSI adapters
11	46G3537	4	RIO standoff
12	08L1438	1	I/O planar
13	97H9465	1	Power distribution board
14	93H9156	1	Rail, left side
15	93H8819	1	Chassis
16	93H9159	1	Rail, right side
17	08L1336	2	Power supply
18	93H8868	1	DASD fan assembly
19	08L1468	1-2	SCSI backplane (35A)
20	93H8840*	1	DASD cage (included in chassis, 93H8819)
21	07L7747	1	DASD Banks Cover
22	See note.	Up to 12	Disk drive, SCSI
23	See note.	Up to 12	Disk drive carrier assembly
24	06H2792	1	Plate assembly
25	See note.	0-1	Tape drive
26	See note.	1	CD-ROM drive
	07L7814	1	3.5 Inch diskette drive
27	93H8837*	1	Media cage (included in chassis, 93H8819)
28	97H9479	1	Media bank cover
29	06H7082	1	LCD indicator panel
	93H1816	1	LCD indicator panel cable
30	07L9514	1	Drawer indicator panel card
31	41L6269	3	Blower
32	00G1268	4	Screw, bezel to center blower housing
33	08L0415	1	Bezel, center blower
34	08L0471	1	Housing, center blower
35	00G1268	3	Screw
36	08L0416	1	Blower power cable (center blower)
36	93H8564	1	Blower power cable (left blower)

Index	Part Number	Units Per Assembly	Description
36	93H9563	1	Blower power cable (right blower)

* For reference only.

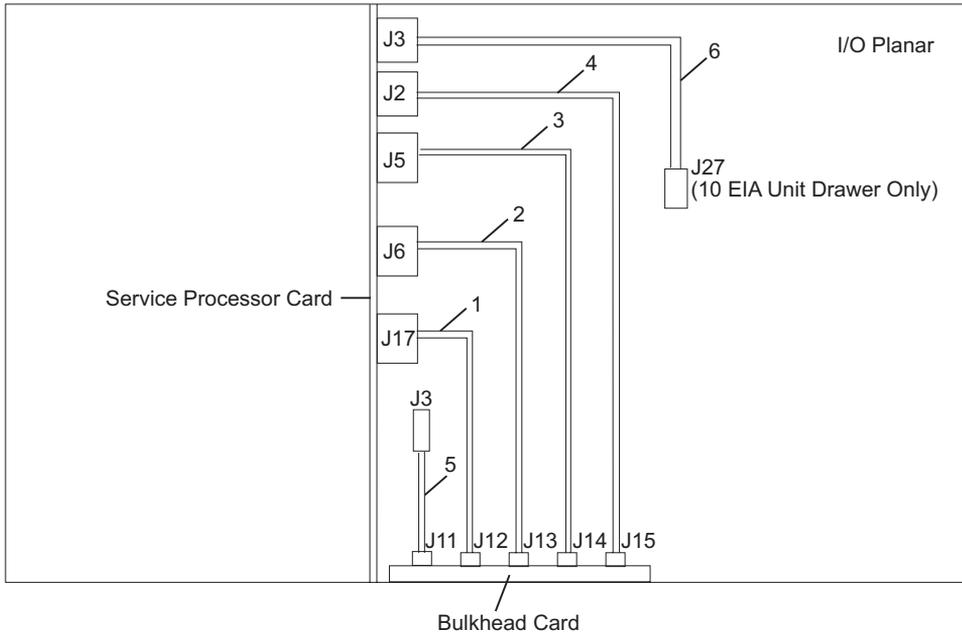
Note: See *Diagnostic Information for Multiple Bus Systems* for part numbers.

10 EIA-Unit I/O Drawer Power Cables



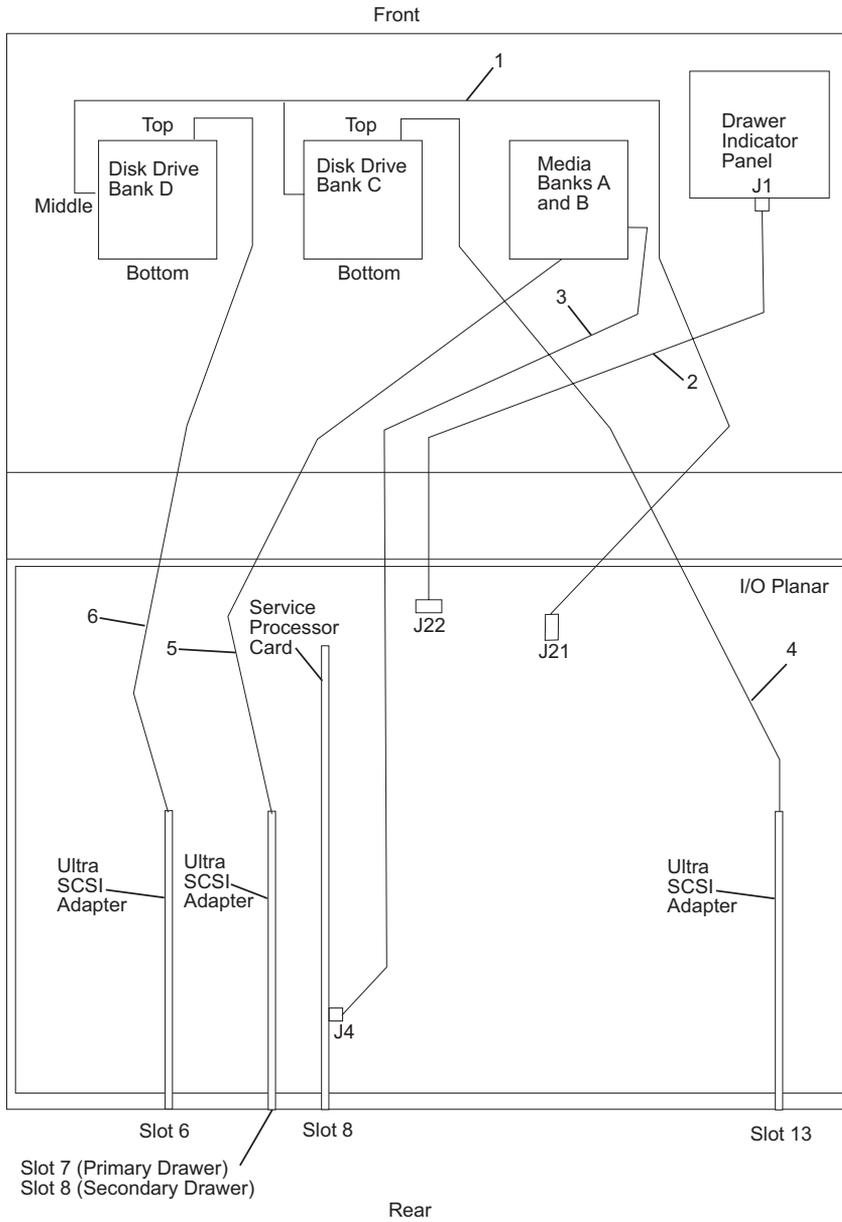
Index Number	FRU Part Number	Units Per Assembly	Description
1	93H8572	1	Media power cable, power distribution board to media docking cable
	93H8875	1	Media docking cable
2	93H8571	1	DASD power cable, power distribution board to DASD banks
	93H8876	1	DASD bank power cable
3	97H9473	1	DASD reset cable, DASD banks to I/O planar
4	97H9471	1	FMC power cable 1, power distribution board to FMC card
5	07L9540	1	FMC power cable 2, power distribution board to FMC card
6	97H9470	1	+5 V dc I/O planar power cable, power distribution board to I/O planar
7	97H9472	1	Fan power logic cable, power distribution board to I/O planar
8	97H9469	1	+5 V dc to planar cable, power distribution board to I/O planar
9	97H9468	1	+3.3 V dc to planar cable, power distribution board to I/O planar
10	97H9467	1	I/O planar power cable, power distribution board to I/O planar
11	42F6841	2	AC power cable, power distribution bus to AC power supply

I/O Planar to Bulkhead Cabling 10 EIA-Unit Drawers



Index Number	FRU Part Number	Units Per Assembly	Description
1	93H2452	1	Operator Panel Cable, service processor to bulkhead
2	93H2453	1	Keyboard/mouse cable, service processor to bulkhead
3	93H8043	1	Parallel port cable, service processor to bulkhead
4	93H8046	1	Serial port cable, service processor to bulkhead
5	93H2451	1	SPCN control cable, I/O planar to bulkhead
6	97H9474	1	Speaker cable, service processor card to I/O planar (Primary 10 EIA-Unit I/O Drawer)

SCSI Signal Cabling 10 EIA-Unit I/O Drawer



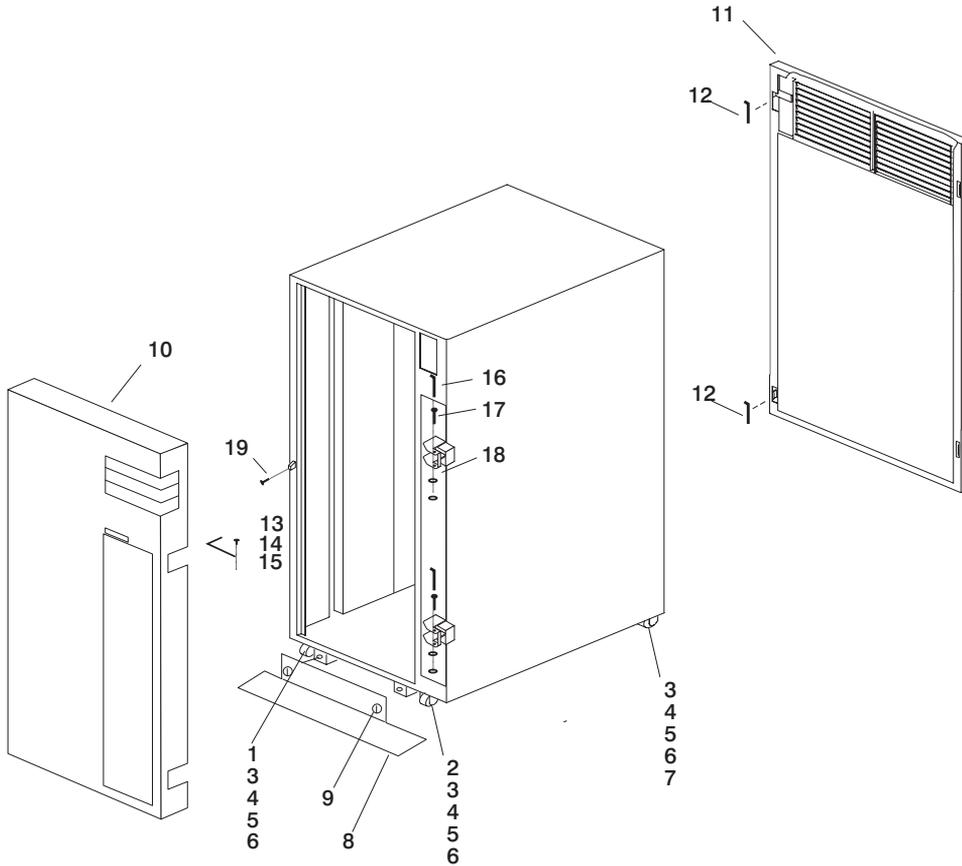
Note: The SP System Attachment PCI adapter must be installed in slot 10.

Index Number	FRU Part Number	Units Per Assembly	Description
1	97H9473	1	DASD bank SCSI reset cable to I/O planar
2	07L9514	1	Drawer indicator panel card and cable assembly
3	93H2454	1	Diskette drive cable, service processor card to diskette drive
4	06H6876	1	Ultra SCSI cable, Ultra SCSI adapter to SCSI backplane (35A) bank C
5	93H2455	1	Media bay SCSI cable, Ultra SCSI adapter to media bay, 4 drop
	88G3977	1	Media bay SCSI cable terminator
6	06H6876	1	Ultra SCSI cable, Ultra SCSI adapter to SCSI backplane (35A) bank D

I/O Rack Parts

This section contains parts information for the S80 I/O rack.

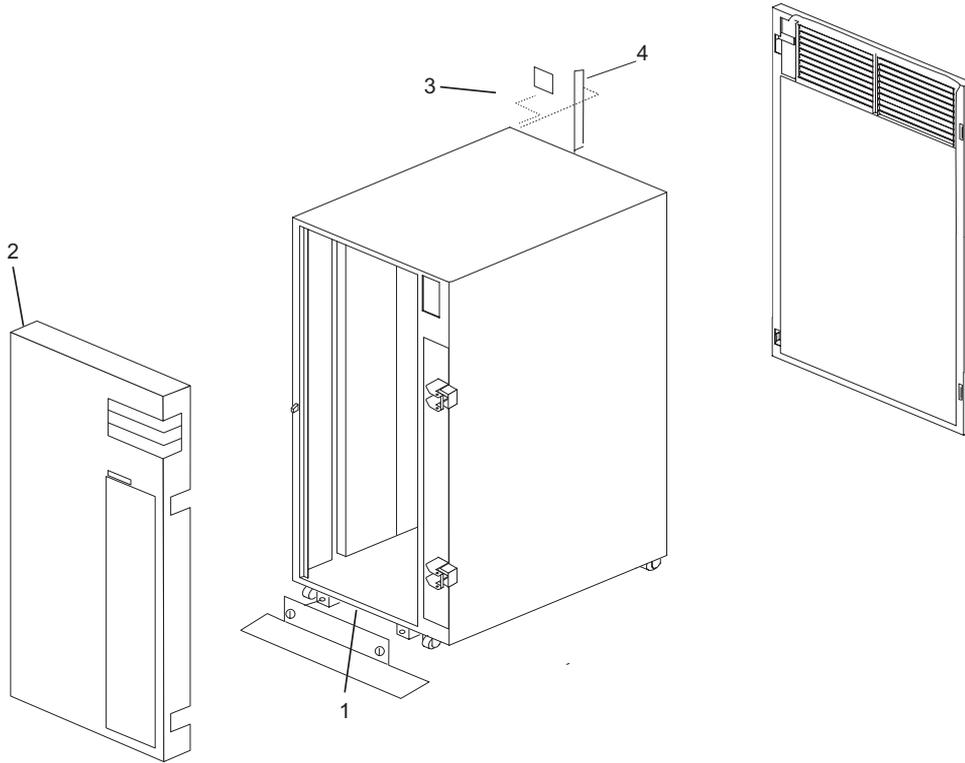
I/O Rack Covers



Index	FRU Part Number	Units Per Assembly	Description
1	89X2627	1	Caster, (offset) left
2	89X2628	1	Caster, (offset) right
3	1621823	16	Screw, hex Hd w/washer, self-tap, M6 x 16
4	1622306	16	Washer
5	1622320	16	Lock washer
6	1621596	16	Screw
7	62X3601	2	Caster, Swivel
8	1	Stabilizer	
9	93H9182	2	Thumbscrews
10	93H7817	1	Front Door
11	93H8220	1	Rear Door
12	11F0118	2	Hinge pin, rear door
13	1621098	2	Screws
14	93H7378*	1	Ground Strap
15	1622348	2	Star Washers
16	93H7372*	2	Pins
17	93H7374*	2	Bearings
18	0027760	2	Washers
19	07L7168	1	Door Ramp Mounting Screw, M3 x 10

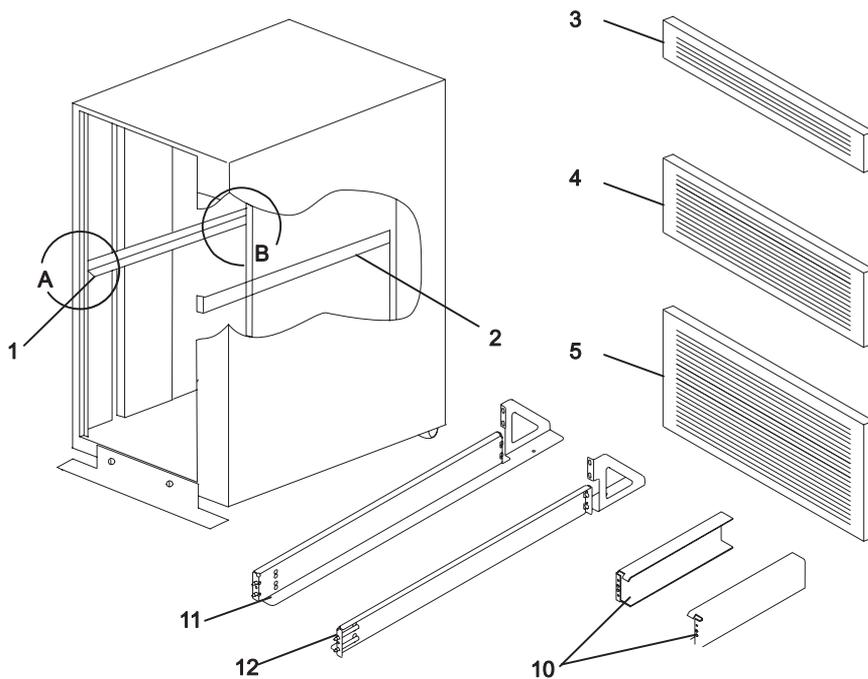
* For reference only.

I/O Rack Labels

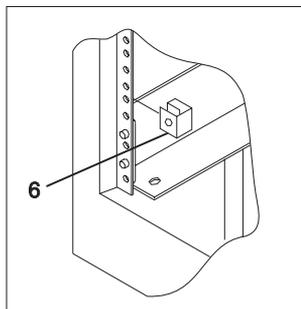


Index	FRU Part Number	Units Per Assembly	Description
1	69X1264	1	Label, safety (English)
1	62X3442	1	Label, safety (U.K./English)
1	62X3476	1	Label, safety (Spanish)
1	62X3477	1	Label, safety (Norwegian)
1	62X3478	1	Label, safety (Dutch)
1	62X3479	1	Label, safety (Finnish)
1	62X3483	1	Label, safety (Italian)
1	62X3493	1	Label, safety (German)
1	62X3531	1	Label, safety (Danish)
1	62X3532	1	Label, safety (French)
1	62X3533	1	Label, safety (French/Dutch)
1	62X3534	1	Label, safety (Japanese)
1	62X3538	1	Label, safety (Swedish)
1	69X1279	1	Label, safety (Portuguese)
1	69X1281	1	Label, safety (Italy/Germany/France)
1	69X1264	1	Label, safety (Canada/French)
2	59F3003	1	Nameplate, U.S.
3	69X1262	1	Label, rack identifier
4	62X3561	1	Label, EIA identifier

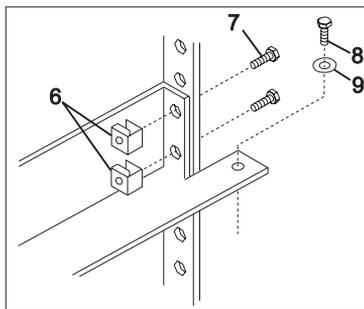
Rails and Front Bezels



Detail A - Front of Rail

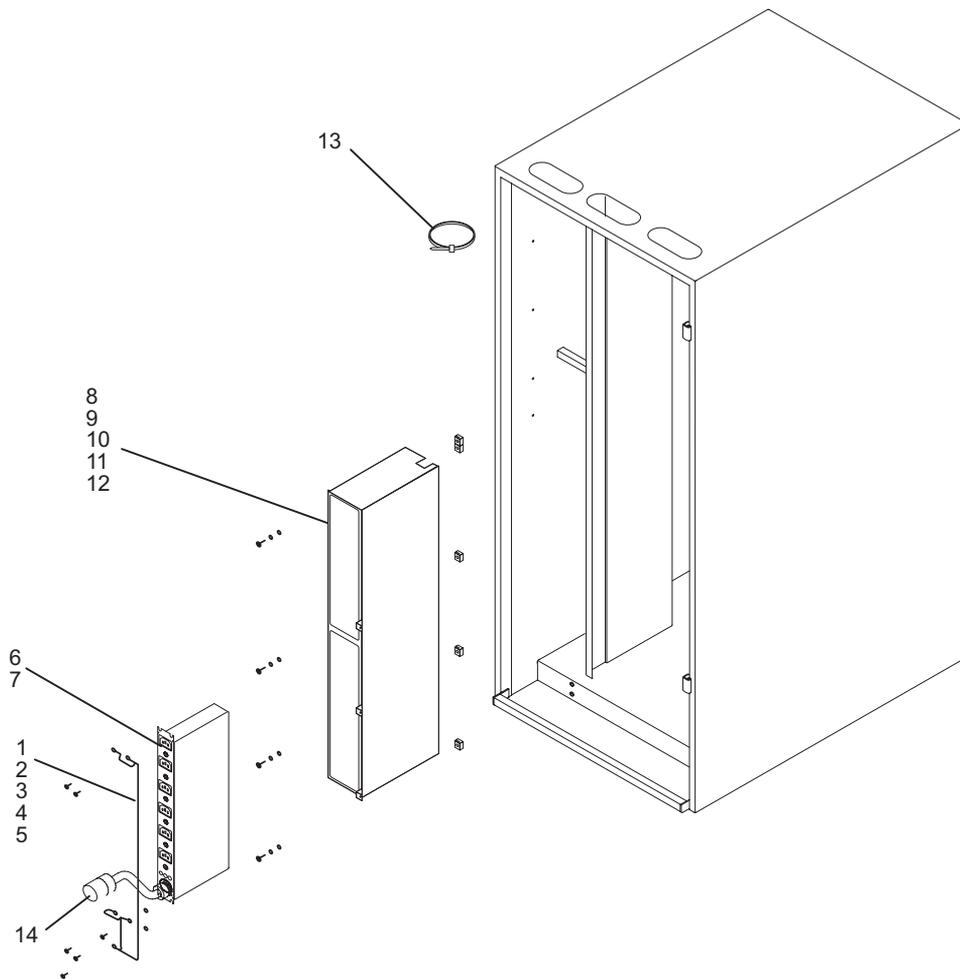


Detail B - Rear of Rail



Index Number	FRU Part Number	Units Per Assembly	Description
1	40H4915	1	Rail, left
2	40H4916	1	Rail, right
3	97H9754	1	Front bezel (for empty drawer position), 1 EIA unit
4	97H9755	1	Front bezel (for empty drawer position), 3 EIA units
5	97H9756	1	Front bezel (for empty drawer position), 5 EIA units
6	0375867	6	Nut clip
7	73H2932	6	Screw, rail mounting
8	00G1268	2	Screw, M4
9	1622290	2	Washer
10	08L1132	2	Anti-tilt brackets (left and right)
11	93H9156	1	Rail, left
12	93H9159	1	Rail, right

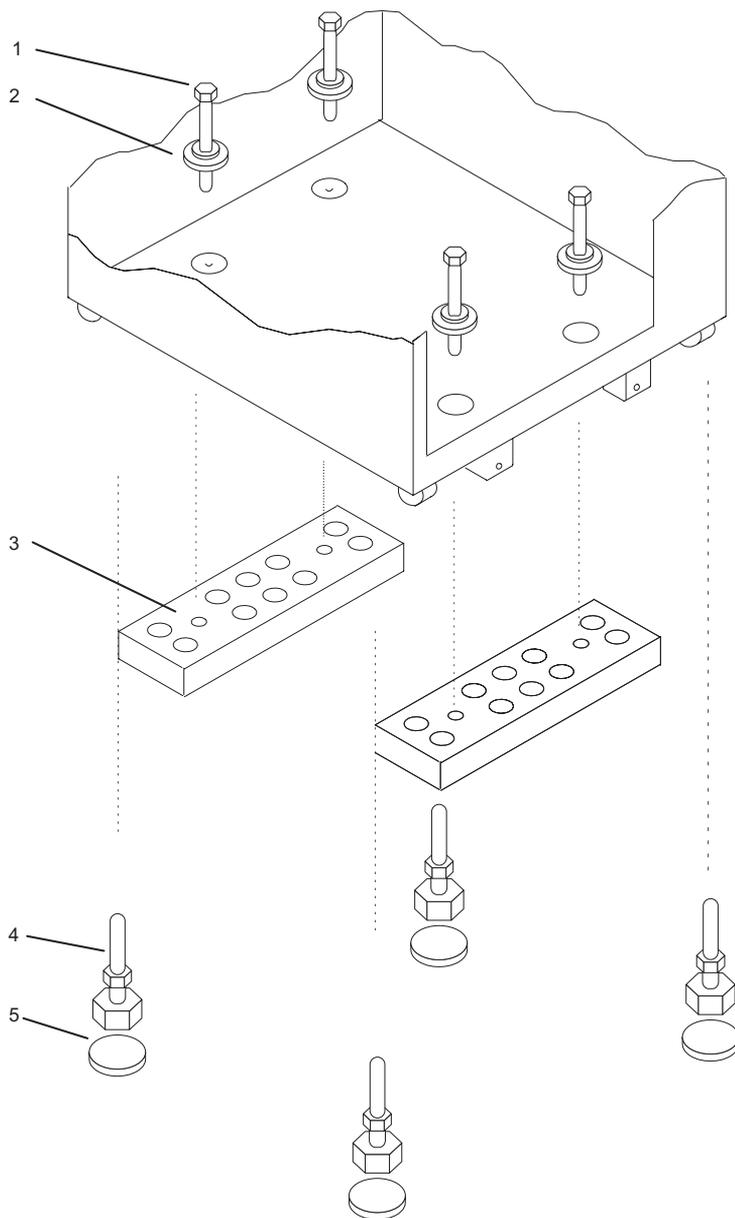
Power Distribution Bus



Index Number	FRU Part Number	Units Per Assembly	Description
1	88G0165	1	Ground wire harness
2	1624779	1	Screw
3	00G1268	1	Screw
4	1622347	1	Lock washer
5	1622346	1	Washer
6	93H6661	Up to 2	Power distribution bus - single phase
	93H6662	Up to 2	Power distribution bus - two of three phase, WT
	93H6663	Up to 2	Power distribution bus - three phase (Switzerland)
7	1624779	4	Screw
8	52G6112	1	Enclosure
9	1624779	4	Screw
10	1622347	4	Lock washer
11	1622305	4	Washer
12	0375867	3	Nut clip
13	32G0111		Cable restraint strap
14	*See note		Cord, power

Note: See “Power Cables” on page 584 for power cord part numbers.

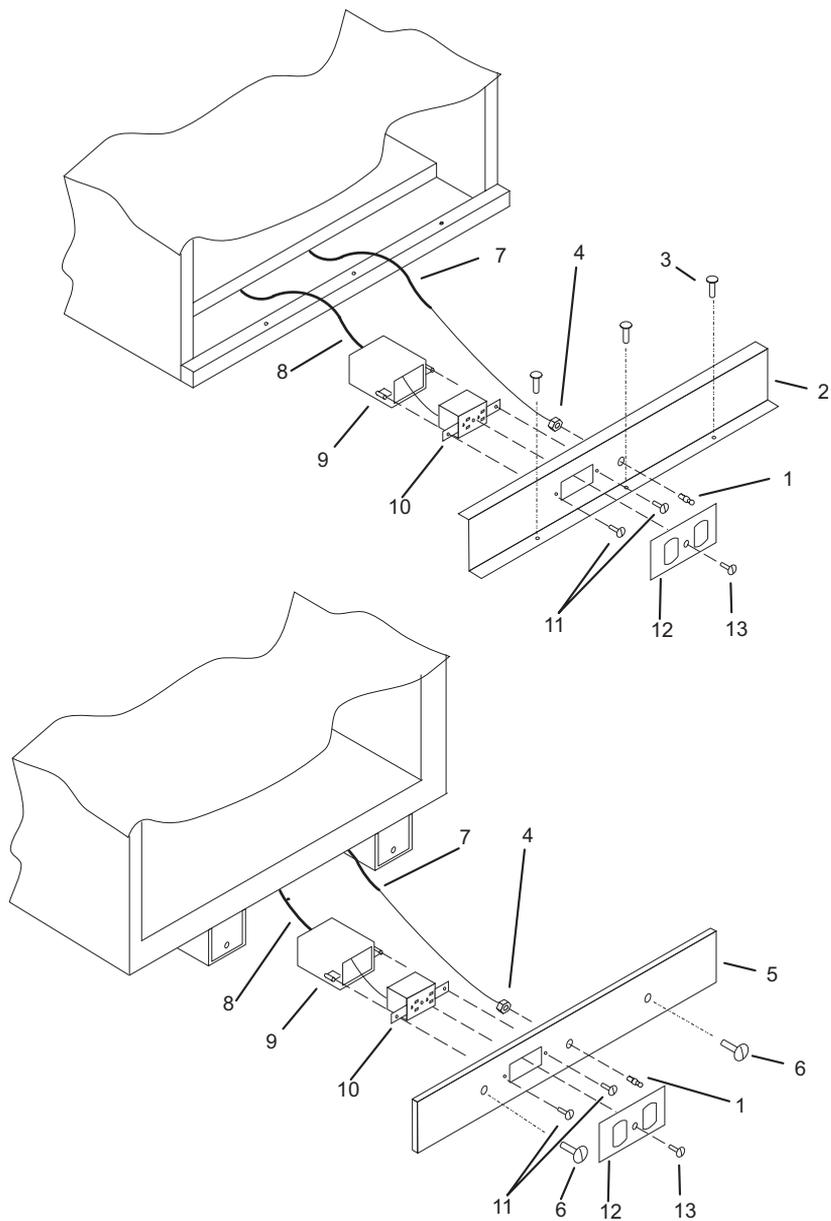
Leveling Feet and Bolt Down Hardware



Index Number	FRU Part Number	Units Per Assembly	Description
1	88G4725*	4	Mounting Bolts
2	65G3593	4	Plastic isolator Washer, 15.8mm
3	52G5650*	2	Mounting Plates
4	52G6058*	4	Levelling Feet
5	88G4727*	4	Plastic Isolator Pads

* For reference only.

Accessory Electrical Outlet Mounting Plates



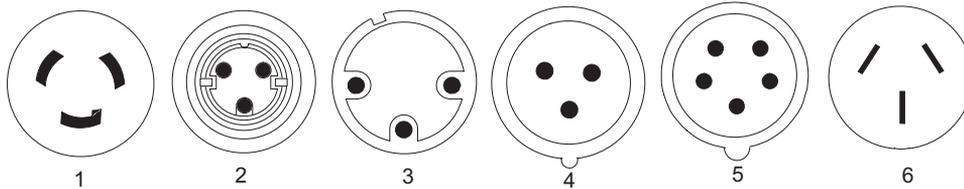
Index Number	FRU Part Number	Units Per Assembly	Description
1	52G5643*	1 per plate	Clip Stud for Grounding Wire
2	1	Rear Electrical Mounting Plate	
3	1624779	3	M5 x 14mm Mounting Screws
4	1622403	1 per plate	M4 x 0.7 Nut for Grounding Wire
5	1	Front Electrical Mounting Plate	
6	93H9182	2	Thumbscrews
7	40H0455	1	Grounding Cable
8	n/a	1	Power Cable
9	n/a	1	AC Outlet Box
10	n/a	1	AC Outlet
11	n/a	2	AC Outlet Mounting Screws
12	n/a	1	AC Outlet Cover Plate
13	n/a	1	AC Outlet Cover Plate Mounting Screw

* For reference only.

Note: Part numbers 8 through 13 in this diagram are customer-supplied and maintained parts. These parts are not FRUs.

Accessories

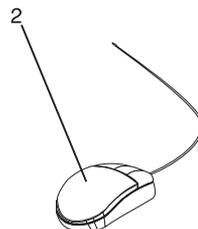
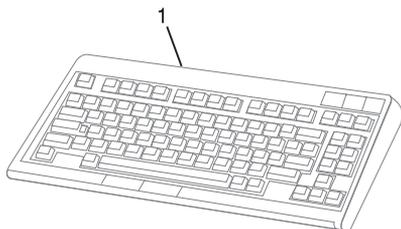
Power Cables



Index Number	FRU Part Number	Units Per Assembly	Description
1	11F0113	2	For system rack or I/O rack, U.S. standard, type 12 plug, L6-30P, 250V, single phase, 14 ft., 30A Canada, U.S.A.
1	11F0114	2	For system rack or I/O rack, U.S. Chicago, type 12 plug, L6-30P, 250V, single phase, 6 ft., 30A Chicago, Illinois, U.S.A.
1	11F0115	2	For system rack or I/O rack, AFE, type 12 plug, L6-30P, 250V, single phase, 14 ft., 30A Argentina, Bahamas, Bangladesh, Barbados, Bermuda, Bolivia, Brunei, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Hong Kong, India, Indonesia, Jamaica, Japan, Maco, Malaysia, Mexico, Myanmar, Netherlands Antilles, Panama, Peoples Republic of China, Peru, Philippines, Singapore, Sri Lanka, Suriname, Uruguay, Venezuela
2	46F4593	2	For system rack or I/O rack, U.S. Chicago, WP, type 40 plug, R&S 3750, 250V, single phase, 6 ft., 30A Chicago, Illinois U.S.A
2	46F4594	2	For system rack or I/O rack, U.S., WP, type 40 plug, R&S 3750, 250V, single phase, 14 ft., 30A U.S.A.
3	11F0106	2	For system rack or I/O rack, Wilco WP, type PDL, 250 V, single phase, 14ft., 30A Australia
3	11F0107	2	For system rack or I/O rack, Wilco WP, type PDL, 250 V, single phase, 14ft., 30A, right angle New Zealand

Index Number	FRU Part Number	Units Per Assembly	Description
4	21H7693	2	For system rack or I/O rack, IEC 309, type 46 (2P+G), 250 V, single phase, 14ft., 32A New Zealand Belgium, Bahrain, Egypt, France, Greece, Iceland, Iraq, Ireland, Italy, Jordan, Kuwait, Lebanon, Malawi, Norway, Oman, Portugal, Qatar, Saudi Arabia, Spain, Turkey, U.K., United Arab Emirates
5	88G4763	1	For I/O rack, IEC 309, type 46 (3P+N+G), 250 V, two of three phase, 14ft., 32A Austria, Czech Republic, Denmark, Estonia, Finland, Israel, Latvia, Lithuania, Netherlands, Norway, Pakistan, Portugal, Russia, South Africa, Sweden, Turkey
5	88G4764	1	For I/O rack, IEC 309, type 46 (3P+N+G), 250 V, three phase, 14ft., 16A Switzerland
6	87G6067	2	For system rack or I/O rack, type KP, right angle, 250V, single phase, 14 ft., 30A Korea

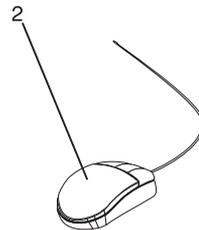
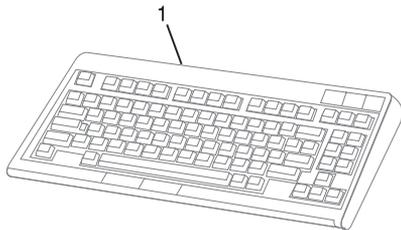
Keyboards and Mouse



Index Number	FRU Part Number	Units Per Assembly	Description
1	93H8120	1	Keyboard, 101 United States English (ID 103P)
	93H8121	1	Keyboard, 102 Canada French (ID 058)
	93H8122	1	Keyboard, 102 Canada French (ID 445)
	93H8123	1	Keyboard, 102 Spanish (ID 171)
	93H8124	1	Keyboard, 104 Brazil Portuguese (ID 275)
	93H8125	1	Keyboard, 102 Arabic (ID 238)
	93H8126	1	Keyboard, 102 Belgium French (ID 120)
	93H8127	1	Keyboard, 102 Belgium (ID 120)
	93H8128	1	Keyboard, 102 Bulgarian (ID 442)
	93H8129	1	Keyboard, 102 Czech (ID 243)
	93H8130	1	Keyboard, 102 Danish (ID 159)
	93H8131	1	Keyboard, 102 Dutch (ID 143)
	93H8132	1	Keyboard, 102 French (ID 189)
	93H8133	1	Keyboard, 102 German (ID 129)
	93H8134	1	Keyboard, 102 Greek (ID 319)
	93H8135	1	Keyboard, 101 Hebrew (ID 212)
	93H8136	1	Keyboard, 102 Hungarian (ID 208)
	93H8137	1	Keyboard, 102 Iceland (ID 197)
	93H8138	1	Keyboard, 102 Italy (ID 142)
	93H8139	1	Keyboard, 102 Norwegian (ID 155)
	93H8140	1	Keyboard, 102 Polish (ID 214)
	93H8141	1	Keyboard, 102 Portuguese (ID 163)
	93H8142	1	Keyboard, 102 Romanian (ID 446)
	93H8143	1	Keyboard, 101 Russian (ID 443)
	93H8144	1	Keyboard, 102 Serbian (ID 118)
	93H8145	1	Keyboard, 102 Slovak (ID 245)
	93H8146	1	Keyboard, 102 Spanish (ID 172)
	93H8147	1	Keyboard, 102 Sweden/Finland (ID 153)
	93H8148	1	Keyboard, 105 Swiss F/G (ID 150)
	93H8149	1	Keyboard, 102 Turkish (ID 179)
	93H8150	1	Keyboard, 102 Turkish (ID 440)
	93H8151	1	Keyboard, 102 UK English (ID 166)
	93H8152	1	Keyboard, 102 Latvia (ID 234)
	93H8153	1	Keyboard, US English ISO9995 (ID 103P)
	93H8154	1	Keyboard, 106 Japan (ID 194)

Index Number	FRU Part Number	Units Per Assembly	Description
	93H8155	1	Keyboard, 101 Chinese/US (ID 467)
	93H8156	1	Keyboard, 103 Korea (ID 413)
	93H8157	1	Keyboard, 101 Thailand (ID 191)
2	76H5084	1	Three Button Mouse

Keyboards and Mouse (Black)



Index Number	FRU Part Number	Units Per Assembly	Description
1	07L9446	1	Keyboard, 101 United States English (ID 103P)
	07L9447	1	Keyboard, 102 Canada French (ID 058)
	07L9448	1	Keyboard, 102 Canada French (ID 445)
	07L9449	1	Keyboard, 102 Spanish (ID 171)
	07L9450	1	Keyboard, 104 Brazil Portuguese (ID 275)
	07L9451	1	Keyboard, 102 Arabic (ID 238)
	07L9452	1	Keyboard, 102 Belgium French (ID 120)
	07L9453	1	Keyboard, 102 Belgium (ID 120)
	07L9454	1	Keyboard, 102 Bulgarian (ID 442)
	07L9455	1	Keyboard, 102 Czech (ID 243)
	07L9456	1	Keyboard, 102 Danish (ID 159)
	07L9457	1	Keyboard, 102 Dutch (ID 143)
	07L9458	1	Keyboard, 102 French (ID 189)
	07L9459	1	Keyboard, 102 German (ID 129)
	07L9460	1	Keyboard, 102 Greek (ID 319)
	07L9461	1	Keyboard, 101 Hebrew (ID 212)
	07L9462	1	Keyboard, 102 Hungarian (ID 208)
	07L9463	1	Keyboard, 102 Iceland (ID 197)
	07L9464	1	Keyboard, 102 Italy (ID 142)
	07L9465	1	Keyboard, 102 Norwegian (ID 155)
	07L9466	1	Keyboard, 102 Polish (ID 214)
	07L9467	1	Keyboard, 102 Portuguese (ID 163)
	07L9468	1	Keyboard, 102 Romainian (ID 446)
	07L9469	1	Keyboard, 101 Russian (ID 443)
	07L9470	1	Keyboard, 102 Serbian (ID 118)
	07L9471	1	Keyboard, 102 Slovak (ID 245)
	07L9472	1	Keyboard, 102 Spanish (ID 172)
	07L9473	1	Keyboard, 102 Sweden/Finland (ID 153)
	07L9474	1	Keyboard, 105 Swiss F/G (ID 150)
	07L9475	1	Keyboard, 102 Turkish (ID 179)
	07L9476	1	Keyboard, 102 Turkish (ID 440)
	07L9477	1	Keyboard, 102 UK English (ID 166)
	07L9478	1	Keyboard, 102 Latvia (ID 234)
	07L9479	1	Keyboard, US English ISO9995 (ID 103P)
	07L9480	1	Keyboard, 106 Japan (ID 194)

Index Number	FRU Part Number	Units Per Assembly	Description
	07L9481	1	Keyboard, 101 Chinese/US (ID 467)
	07L9482	1	Keyboard, 103 Korea (ID 413)
	07L9483	1	Keyboard, 101 Thailand (ID 191)
2	08L0362	1	Three Button Mouse (Black)

Appendix A. Environmental Notices

Product Recycling and Disposal

This unit contains materials such as circuit boards and connectors with lead 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. This manual contains specific information on batteries where applicable. This product may contain nickel-cadmium and/or lithium batteries. 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 nickel cadmium batteries in this product, please contact IBM at 1-800-426-4333. For information on battery disposal outside the United States, contact your local waste disposal 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 I ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Unit Emissions

The unit-related emission value is equal to or lower than 70dB(A).

Der Geräuschpegel der Einheit ist kleiner oder gleich 70 db(A).

Appendix B. Notices

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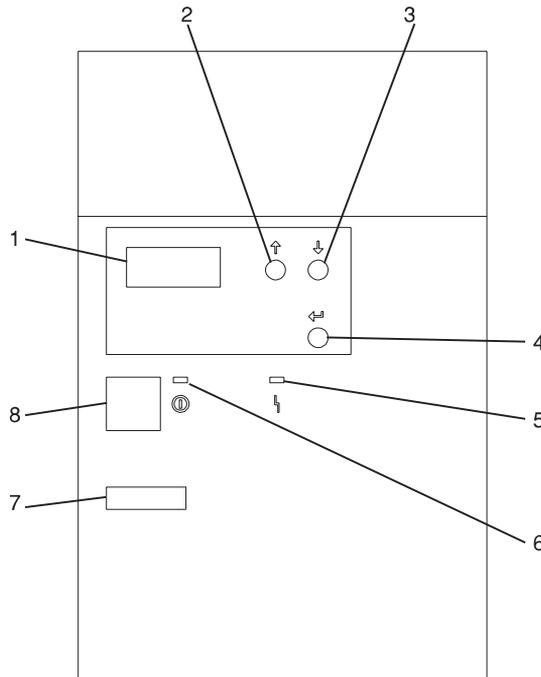
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Appendix C. Operator Panel Function Codes

The operator panel is used to control the system power and other functions. This appendix describes operator panel function codes.

System Rack Operator Panel

The following diagram shows the locations of the operator panel display and the operator panel pushbuttons.



- 1 Operator Panel Display
- 2 Scroll Up Pushbutton
- 3 Scroll Down Pushbutton
- 4 Enter Pushbutton
- 5 Attention LED
- 6 Power-On LED
- 7 Serial Number
- 8 Power Pushbutton

Function Code Table

The following table lists the operator panel functions and descriptions. For details about the function, see “Operator Panel Function Code Descriptions” on page 598.

Notes:

1. The x can be any number 0 through 9, any letter A through F, or a blank.
2. If the function was being performed by the customer, verify why the function was selected and if it is complete.
3. If you cannot change the Function/Data display or complete the selected function, go to “Starting Point for All Problems” in the Problem Analysis information for your system.
4. Bold function codes indicate supported codes for trained service personnel.

Table 9. Operator Panel Function Codes

Function Code	Function Selected
01 xxxx xxxx	Pressing the Enter button toggles between: <ul style="list-style-type: none"> • Display the currently selected IPL type. • Display the currently selected IPL speed override for the next IPL.
02 xxxx xxxx	<ul style="list-style-type: none"> • Pressing the Enter button once allows selection of the IPL types A or B Attention: IPL types C and D are for trained service personnel only and may cause data loss if used improperly. • Pressing the Enter button twice allows selection of an IPL speed override for the next IPL. Subsequent IPLs are performed at the system selected speed.
03 xxxx xxxx	Start an IPL and load the system. The IPL uses the selected IPL options. Note: This may cause the system to power off and then back on.
04 xxxx xxxx	Lamp test; all displays and indicators are switched on.
05 xxxx xxxx	Informational System Power Control Network (SPCN) system reference code (SRC); displays an SRC on the operator panel. Note: Function 5 reference codes will only be displayed if the function code is changed from the default function 11 position.
06 xxxx xxxx	Reserved
07 xxxx xxxx	Attention: This function allows concurrent maintenance to be performed by trained service personnel. Inadvertent use may cause system failures.
08 xxxx xxxx	Fast power off.
09 xxxx xxxx through 10 xxxx xxxx	Reserved
11 xxxx xxxx through 19 xxxx xxxx	System reference code (SRC); displays an SRC on the operator panel. Note: Function 12 displays informational status codes and is not used.

Table 9. Operator Panel Function Codes (continued)

Function Code	Function Selected
20 xxxx xxxx	Reserved
21 xxxx xxxx	Reserved
22 xxxx xxxx	Initiates AIX dump.
23 xxxx xxxx	Reserved
24 xxxx xxxx	Reserved
Note: Do not use functions 25 or higher unless directed to by service support personnel.	
25 xxxx xxxx	The service representative switch 1 is set; this function is the first step necessary to set the service function range from 50 to 70. This function is for service representatives only
26 xxxx xxxx	The service representative switch 2 is set; this function is the second step necessary to set the service function range from 50 to 70. This function is for service representatives only
27 xxxx xxxx through 31 xxxx xxxx	Reserved
32 xxxx xxxx	Reserved
33 xxxx xxxx	Reserved
34 xxxx xxxx	Reserved
35 xxxx xxxx through 49 xxxx xxxx	Reserved
50 xxxx xxxx	System processing unit stop.
51 xxxx xxxx	System processing unit status. Displays the following values: B0 register contents, System instruction address register (IAR) address, Current task dispatching element (TDE) contents.
52 xxxx xxxx	System processing unit start.
53 xxxx xxxx	Path switch and reset.
54 xxxx xxxx	Reserved
55 xxxx xxxx	Display low-level diagnostic service processor log buffer.
56 xxxx xxxx	Display low-level diagnostic service processor code area.
57 xxxx xxxx	Reserved
58 xxxx xxxx	Display low-level diagnostic IPL parameters area.
59 xxxx xxxx	Set first character of base address for function 62 display.
60 xxxx xxxx	Set second character of base address for function 62 display.
61 xxxx xxxx	Set third character of base address for function 62 display.
62 xxxx xxxx	Display service processor control storage.
63 xxxx xxxx	System status SRC trace.
64 xxxx xxxx	Service processor diagnostic status SRC trace.
65 xxxx xxxx	Reserved
66 xxxx xxxx	Reserved
67 xxxx xxxx	Reserved

Table 9. Operator Panel Function Codes (continued)

Function Code	Function Selected
68 xxxx xxxx	Reserved
69 xxxx xxxx	Reserved
70 xxxx xxxx	Reserved
You cannot find the code in this chart.	If you cannot find the function code in this chart, the customer support for added features or devices may not have been available when this information was produced. Look for any supplement unit function code information for the function code you have displayed on the operator panel. If you do not find any additional function code information, go to "Function 04 - Lamp Test" on page 600 and verify that the lamps are working correctly.

Operator Panel Function Code Descriptions

The following describes operator panel functions in more detail.

Values for IPL Types and Speeds

See Table 10 and Table 11 for tables of valid IPL types and speeds used in operator panel functions 01 and 02.

Table 10. IPL Types

IPL Type	Description
A	IPL using copy A of the system firmware.
B	IPL using copy B of the system firmware.
C	Attention: Not supported; may cause data loss if used.
D	Attention: Not supported; may cause data loss if used.

Table 11. IPL Speeds

IPL Speed	Description	Details
F:	Fast Override	Fast diagnostics run. The following are skipped: <ul style="list-style-type: none"> Mainstorage tests CEC Inter-chip interface tests (wire test) Extended Logical Built-in Self Tests Also, cache data is not provided in mainstorage dumps.
S:	Slow Override	Full hardware diagnostics run. Use whenever hardware is changed, for intermittent hardware failures and on the first install IPL.
V = (F or S):	Use system selected speed	

Function 01 - Display Selected IPL Type, Mode and Speed

This function allows you to display the IPL type and IPL speed. Pressing the Enter button in Function 01 toggles between:

- Display IPL type (A or B)
- Display IPL speed (F, S, or V = F or V = S)

Table 12. Function 01

Function/Data	Description
01 _ _ _ _ _	Use the scroll up or scroll down buttons and scroll to Function 01.
01 _ _ _ A _ _	Press Enter to enter Function 01 Selected IPL Type display. Valid types, which appear in the sixth character position of the Function/Data display are A or B. See Table 10 on page 598 for descriptions of IPL types.
01 _ _ V = F _	Use Enter again to toggle to Selected IPL Speed display. Valid speed displays are F, S, V=F or V=S. <ul style="list-style-type: none"> • F: Fast override selected. • S: Slow override selected. • V = (F or S): Use system selected speed.
01 _ _ _ A _ _	Use Enter to toggle to Selected IPL Type display.

Function 02 - Select IPL Type, Mode and Speed

This function allows you to select the IPL type and IPL speed. System power must be off to change IPL speed.

1. Pressing Enter once puts you into the change IPL type (A or B) operation.

Attention: IPL types C and D are not supported and may cause data loss if used.
2. Pressing the Enter button twice puts you into the operation for overriding the system IPL speed (F, S, V) for the next IPL. Subsequent IPLs are performed at the system selected speed.

For example, if you want to select IPL Type, select Function 02. Press Enter once, and then use the scroll up or scroll down button to select an IPL type. Pressing Enter again saves that value and exits the Select IPL Type display.

If you want to change the IPL speed, you must have system power off. Select Function 02, press Enter twice, use the scroll up or scroll down button to select F, S, or V and then press Enter to activate the override (F or S) or cancel it (V) and exit the Select IPL Speed display. See Table 11 on page 598 for recommended speed settings.

Table 13. Function 02 Select IPL Type

Function/Data	Description
02 _ _ _ _ _	Use the scroll up or scroll down button and scroll to Function 02.
02 _ _ _ A _ _	Press Enter once to enter Function 02. Select IPL Type display. Use the scroll up or scroll down buttons to scroll through the IPL types A and B. See Table 10 on page 598 for descriptions of IPL types. Pressing Enter saves the selected IPL type and exits Function 02.

Function 03 - Start IPL

Function 03 is enabled only when the system is powered on.

This function starts an IPL using the selected IPL mode when the Enter button is pressed.

Note: The system may power off and then back on as part of the IPL.

Function 04 - Lamp Test

This function ensures that no indicators are burned out and that characters displayed at the operator panel are valid. When this test is activated, the following lights on the operator panel go on:

- The System Attention light
- The Power On light
- A 5 x 7 dot pattern for each character in the Function/Data display.

The lamp test continues on the system operator panel until you perform another operator panel function or a power procedure.

Use this procedure to verify that the lights on the system operator panel are working correctly. If you cannot complete these steps, go to the "Starting Point for All Problems" in the Problem Analysis information for your system to start problem analysis.

1. Power on the system.
2. Press the scroll up or scroll down button on the operator panel to display Function 04.

Press Enter on the operator panel.

3. Do all of the following lights on the operator panel go on?
 - System Attention light
 - Power On light
 - A 5 x 7 dot pattern for each character in the Function/Data display.

Yes The lights on the system operator panel are working correctly.

No Exchange the operator panel or the ac module.

This ends this procedure.

Function 05 - SPCN (System Power Control Network) Informational SRC

Function 05 displays information about power faults and provides informational reference codes during concurrent maintenance procedures. The format for this function is as follows:

05

1RRU rrrr

RR = Frame number refers to the particular I/O Drawer or System Rack
 U = Always 1 for information pertaining to the System Rack or I/O Drawers other than the primary.
 Always C for the primary I/O Drawer.
 rrrr = Service reference code (SRC)

Note: Function 5 reference codes are only displayed if the operator panel selection is moved from the default function 11 position.

Function 07 - Restore System Power and Perform Concurrent Maintenance Repair

Attention: This function allows concurrent maintenance to be performed by trained service personnel. Inadvertent use may cause system failures.

Function 07 is available only when the system is powered on. It is used for concurrent maintenance repair on bulk power supplies and blowers.

When Function 07 is first entered, the operator panel enters subfunction mode by displaying **. Increment and decrement functions scroll to selectable values. If an SPCN communications error is present when a subfunction is selected, the subfunction is not executed and FF (execution failed) displays in the rightmost display positions. Entry of a valid subfunction when no SPCN communications errors are present results in a 00 (execution successful) displays in the rightmost display positions. Pressing Enter when ** is displayed results in exiting subfunction mode.

Table 14. Function 07 Restore System Power and Perform Concurrent Maintenance Repair

Function/Data	Description
07 _ _ _ _ _	Use increment or decrement functions and scroll to Function 07.
07 ** _ _ _ _	Press Enter once to enter Function 07 subfunction mode.
07 0 4 _ _ _ _	Use the increment or decrement buttons to scroll desired subfunction (04 in this example). Valid subfunctions are 01, 02, 03, 04 and 05.
07 0 4 _ _ 0 0 briefly, then 07 ** _ _ _ _	Press Enter to execute subfunction 04. An SPCN communications error was not present, resulting in 00. If an error occurs, FF displays.
07 F 3 _ _ 0 0	Use the increment or decrement buttons to select a specific device (in this case F0 - F3).
07 0 4 _ _ 0 0 briefly, then 07 ** _ _ _ _	Press Enter to exit the subfunction for the specified device and exit the subfunction level.

** Cancel Request

This subfunction is returned when the user selects ** for subfunction and activates Enter. This is used to cancel a pending subfunction 2 - 5 concurrent maintenance operation. SPCN responds with an EPF 1 - 5 to clear any other subfunction range previously enabled.

01 System Power On

This command causes a Rack Power On command to be transmitted to the network, if the CEC is powered on. This function is used to restore power to racks turned off or faulted off after concurrent repairs have been completed.

02 Blower Power Off

This function is used to select a concurrent blower power off operation. SPCN responds by enabling subfunction range F0 - F3 to select the blower to be powered off.

03 Bulk Power Off

This function is used to select a concurrent bulk power off operation. SPCN responds by enabling subfunction range B0 - B5 to select the bulk to be powered off.

04 Blower Power On

This function is used to select a concurrent blower power on operation. SPCN responds by enabling subfunction range F0 - F3 to select the blower to be powered on.

This function is only needed if the wrong blower is powered off. A concurrently repaired blower is automatically started after the blower is inserted.

05 Bulk Power On

This function is used to select a concurrent bulk power on operation. SPCN responds by enabling subfunction range B0 - B5 to select the bulk to be powered off.

This function is only needed if the wrong bulk is powered off. A concurrently repaired bulk is automatically started after the bulk is installed.

F0 - F3 Select Blower

This subfunction is used to select the blower for the previously selected concurrent repair operation. If accepted, SPCN performs the operation and disables this subfunction range. A function 5 SRC is displayed when the blower is turned off and removed when the blower is installed.

B0 - B5

Select Bulk

This subfunction is used to select the bulk for the previously selected concurrent repair operation. If accepted, SPCN performs the operation and disables this subfunction range. A function 5 SRC is displayed when the bulk is turned off and removed when the bulk is installed.

Function 08 - Fast Power Off

Use this function when the system is suspended and a power down cannot be performed.

Initially, an attention SRC (11-x A1xx 8008) displays indicating that Function 08 has been selected.

Note: If the server has Unattended Start Mode (USM) enabled, selecting this function causes the server to power off and then power on again.

Functions 09 to 10 - Reserved

These functions are reserved for future operator panel operations.

Functions 11 to 19 - System Reference Code

Functions 11 through 19, if enabled, represent the words of the SRC.

Note: Function 11 provides the primary SRC. Function 12 is an informational status message only and not used. Function 13 provides status information for service support use. Functions 14 and 15 provide secondary reference codes in addition to the primary SRC. Function 19 provides CCIN information for FRU replacement.

Press Enter to view the SRC. If no SRC is present, press Enter to continue to the next function.

Record the SRC information for error reporting. For example, the system processor detected a failure.

1. Look at the four rightmost characters of the operator panel display for function 11. These four characters are the unit reference code.
2. Look at functions 14 and 15 for more reference codes. Each is four characters in length. There may be from zero to four unit reference codes contained in these words. For example:

```
Word 11 - B455 rrrr  
Word 14 - rrrr rrrr  
Word 15 - rrrr 0000  
Word 19 - CCIN CCIN
```

This example shows a total of four reference codes for this failure. The rrrr signifies the reference codes. Each reference code has only one FRU associated with it. The CCIN code is used to determine a failing FRU in some cases.

3. Find the unit reference code in the SRC tables.

Note: Depending on the source of the SRC, some functions do not report any SRC status. All SRCs start with information in Function 11.

For more information on interpreting SRCs, refer to “Chapter 2. Introduction to Diagnostics” on page 73 and “Unit Reference Codes” on page 185.

Extended Operator Panel Functions

The extended operator panel functions provide greater debug capability for the models S80 and S85. Function 22 is used by trained service personnel to provide an AIX dump to media. These are referred to as restricted panel functions. Functions 50 through 70 are available only by using functions 25 and 26 which act as switches to allow access to functions 50 through 70.

Note: When a function is not available, either FF is displayed, or the function may not be selectable.

Function 22 - AIX Storage Dump

This function is supported only during AIX run time, and it must have been previously setup and enabled from AIX. Refer to your operating system documentation for more information about dumps.

Note: If dump capability has not been enabled from AIX, attempting to initiate a dump results in the response D1068000 and the system powers off and reboots.

To initiate a dump, do the following:

1. Select Function 22 on the operator panel and press Enter. The response A1003022 displays on the operator panel.
2. Select Function 22 again and press Enter. The response D1823080 displays on the operator panel. This indicates the dump request has been accepted by AIX, and the process continues, displaying 4-character progress messages.
3. When the dump is complete, the system automatically powers off and reboots according to the power-on timer setting.

Attention: Functions 25 and higher are primarily enabled for product engineering test and evaluation only.

Functions 25 and 26 - Switches 1 and 2

Switches 1 and 2 can be used to enable or disable the Functions 50 through 70. If Functions 50 through 70 are enabled, entry of either switch disables them. If the Functions 50 through 70 are disabled, entry of service switch 1 followed by service switch 2 enables them.

A data response of 25 _ _ _ _00 or 26 _ _ _ _00 is always returned. It is followed by the display of the present IPL mode (Function 01) if the extended function range has been changed.

Restricted Panel Functions

These functions are enabled when Functions 25 and 26 are entered. The following list describes all of the panel functions.

Service Functions 50 through 70 are available when switch 1 (Function 25) has been entered, followed by the entry of switch 2 (Function 26). The restricted panel functions may be disabled again by selecting and entering either switch 1 (Function 25) or switch 2 (Function 26).

Note: Low-level debug functions are available only after a terminating error.

Using Subfunctions

Subfunctions are used with Functions 51 and 55 through 64. After selecting and entering the function, the subfunction field appears with two asterisks. You may now select and enter a subfunction value. When selected and entered, actual data YY FF (where YY is the function number) is displayed. The YY FF response indicates that no data is present for this subfunction value. The data is displayed as eight hexadecimal digits, which is 4 bytes of data.

These steps may be repeated for different subfunction values. To exit subfunctions, select and enter the two asterisks for the subfunction value. The following table shows an example of a subfunction data display.

Function	Subfunction	Data Display
51	**	Subfunction mode entered
51	00, 01	NIA (8 bytes)
51	02, 03	Current TDE (8 bytes)

Function 50 - System Processor Stop

This function stops the system processor.

Attention: This function may cause the system to end abnormally. Do not use unless you are directed by your support personnel.

Function 51 - System Processor Status

This function displays the following values:

- NIA (next instruction address)
- Current TDE address

The data may be displayed 8 digits at a time. Select and enter a subfunction number to display each word of data from 00 to FF.

Function 52 - System Processor Start

This function starts the system processor (after it has stopped).

Function 53 - Path Switch

This function resets communications between the service processor and the operator panel.

Low-Level Debug (LLD) Panel Functions

These functions are enabled when the system is stopped and Functions 25 and 26 are selected. These functions are used for analyzing IPL errors. The following list describes all of the low-level debug (LLD) panel functions.

Function 55 - Display Service Processor Log Buffer Type B

The display service processor log buffer type B contains data related to the system terminating. The data may be displayed 8 digits at a time. Select and enter a subfunction number to display each word of data from 00 to FF.

Function 56 - Display Service Processor Code Area Type B

The service processor code area type B contains the state of the system processor and service processor at the time of failure. This area contains data such as the failing LID (Load ID) which indicates what LID the service processor wanted from the load-source IOP. The data may be displayed 8 digits at a time. Select and enter a subfunction number to display each word of data from 00 to FF.

Function 58 - Display IPL Parameter Area

The IPL parameters area contains the status of the type of IPL being performed. The data may be displayed 8 digits at a time. Select and enter a subfunction number to display each word of data from 00 to FF.

Function 59

Sets the first character of the base address for function 62 display.

Function 60

Sets the second character of the base address for function 62 display.

Function 61

Sets the last character of the base address for function 62 display.

Note: The address in function 62 consists of four bytes. The address is of the following form:

ADDRESS 00 XX YY ZZ

The address in function 59, 60, or 61 is changed by the following procedure.

1. Press increment or decrement until the function number (59, 60, 61) is displayed
2. Press Enter on the control panel; ** appears next to the function number.
3. Press increment or decrement until the correct value appears.
4. Press Enter.
5. Press increment or decrement until ** appears next to the function number.
6. Press Enter.

Function 62 - Display Service Processor Control Storage

This displays the service processor control storage area data defined by addresses set by functions 59 thru 60.

Function 63 - System Status SRC Trace

The system status SRC trace is a copy of the last 25 status SRCs (usually associated with the IPL sequence or the power-off sequence).

Enter a subfunction between hexadecimal 00 and 18 to look at the status SRCs in sequential order. The most recent SRC (the last status SRC) is viewed at subfunction hexadecimal 18.

Function 64 - Diagnostic Status SRC Trace

The diagnostic status SRC trace is a copy of the last 25 status SRCs (usually associated with the service processor function of problem determination and main storage dump).

Enter a subfunction between hexadecimal 00 and 18 to look at the status SRCs in sequence. The most recent SRC (the last status SRC) is seen at subfunction hexadecimal 18, and the extended SRC words for this SRC are seen at subfunction 19 through 20.

Appendix D. Service Processor Setup and Test

For your convenience, a sample Service Processor setup procedure is provided below. Your setup may include more or less of the available features, so you may wish to adjust this checklist for your own application.

Service Processor Setup Checklist

1. Ensure the server is powered off.
2. Attach a local ASCII terminal for this setup procedure.
3. Attach a modem (if needed). See “Accessing Service Processor Menus Locally” on page 448, and see “Modem Configuration Menu” on page 461 for the menus needed to configure your modem.
4. Power on the server, the local terminal, and the modem.
5. Open the Service Processor Menus. See Chapter 7. Service Processor Menus.
Attention: To start the Service Processor Menus while the server is booting up, watch the operator panel display for checkpoint E04F. At this checkpoint, a ten-second window of time begins with three beeps. Checkpoint E07A displays and is visible during the ten-second window. During this window, press any key on the local terminal, and the Service Processor menus display on the local terminal.
6. Set the System Name. See “Privileged User Menus” on page 451.
7. Configure Call-In/Call-Out. See “Call-In/Call-Out Setup Menu” on page 460.
8. Exit the Service Processor menus.
9. Wait until the system offers a login prompt. Log in and perform an orderly system shutdown, using the AIX shutdown -F command.
10. Power off the server.
11. Test Call-In, page “Call-In” on page 610
12. Test Call-Out, page “Call-Out” on page 610
13. Use the “Save or Restore Hardware Management Policies,” in the “Introduction to Tasks and Service Aids” section of the *Diagnostic Information for Multiple Bus Systems* to back up the service processor settings.

Note: This backup step is strongly recommended to protect the usefulness of the service processor and the availability of your server.

Testing the Service Processor Setup

These tests include communicating with the server's operating system. Be sure the necessary serial port(s) is configured. If you need assistance, refer to "Serial Port Configuration" on page 611.

Use the following procedure to verify that your service processor setup is working.

The server should still be powered off as a result of the "Service Processor Setup Checklist" on page 609.

Call-In

1. From any telephone, call the server's telephone number. After you hear three rings, hang up. The server powers on.

Note: Although the server powers on during the three rings, you do not receive an indication over the telephone that the server is powering on.

2. Give the server five minutes to boot up and prepare to receive another call.
 3. From an ASCII terminal or terminal emulator, call the server again. The server answers and presents the Service Processor Menus on your terminal.
 4. If required, enter your privileged access password. If no password is required, the Main Menu displays.
 5. From the Main Menu, select *Continue System Boot* to view the IPL progress messages. Depending on your server's configuration, the boot-up sequence may take several minutes. After the boot-up completes, the login prompt displays. You have successfully called into the service processor and brought up the server.
 6. Log in and then log out to disconnect from the operating system.
 7. Call your server again. The operating system answers and offers the login prompt.
- If these tests are successful, call-in is working correctly. You must now shut down and power off the server. To do this, log in and shut down your server to shutdown and power off. In AIX, use the shutdown `-F` command.

Call-Out

During the Service Processor setup, you entered *your* phone number for the Pager (on page 463) and Customer Voice (on page 463) phone numbers. These entries are used for this test.

1. Power on the server.
2. Bring up the Service Processor Menus, see Chapter 7. Service Processor Menus.

Attention: To bring up the Service Processor Menus while the server is booting up, watch the operator panel display for checkpoint E04F. At this checkpoint, a ten-second window of time begins with three beeps. Checkpoint E07A displays and is visible during the ten-second window. During this window, press any key on the local terminal and the Service Processor menus display on the local terminal.
3. At the Service Processor Main Menu, select *Call-In/Call-Out Setup* menu, then select *Call-Out* test. This causes a simulated error condition for the purposes of this test.

4. When your telephone rings, answer the call. You should hear the sound of a telephone being dialed. This is your system unit trying to page you.

If this test is successful, call-out is working.

You should now select “Telephone Number Setup Menu” on page 463 to enter the *actual* telephone numbers that your server uses to report problems.

Serial Port Configuration

To configure the serial port on an AIX system, do the following at 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 wish to configure serial ports that are not listed, continue with the remaining steps.

3. Identify the serial port(s) with the modem(s).
4. Enter:

```
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 E. System Vital Product Data

Some software uses the System Vital Product Data (VPD) when operating to identify the type and model of system it is operating on. The following procedure provides a method of programming the VPD on the model S80 and S85.

Attention: The Service Processor (SP) allows programming of the System VPD only once. Take care to enter the fields correctly. The following procedure programs the system VPD:

1. To access the service processor, connect a local ASCII terminal to either serial port 1 or serial port 2 of the host server.
2. Power-on the system. When the operator panel "beeps" and displays E07A, press the Enter key on the local terminal.
3. Type 37222 to access the hidden menu function for programming System VPD. If VPD is already programmed, the service processor prints illegal value entered on the terminal.
4. Type A, the service processor prompts you to enter 7 ASCII characters for the VPD Serial Number [SE]. Enter the system serial number (example: 0YE6129). the service processor confirms that the serial number has been successfully programmed.
5. The service processor prompts you to enter 8 ASCII characters for the Type and Model [TM] data field (example: 7017-S70).
6. The service processor confirms that the TM field has been successfully programmed.
7. The service processor prompts you to press Return (Enter) to continue, to return you to the SP Main Menu.
8. Select System Power Control Menu.
9. Select Power-Off System.
10. When the system has been off for about one minute, power on the system by pressing the power pushbutton on the operator panel.

Appendix F. Firmware Update Procedures

This section applies to all models S80 and S85s. Specific system firmware and service processor firmware supports specific machine types and models.

Determining the Firmware Levels

If the server is in operation, the installed firmware versions can be determined using AIX. If the server is about to be initialized, the installed firmware versions can be determined by using the System Management Services utilities for System Firmware levels and Service Processor menus for Service Processor firmware levels.

Use the following procedure to determine your firmware level:

1. At an AIX command prompt on your system, type the following command:

```
lscfg -vp | grep -p alterable
```

This command produces a system configuration report similar to one of the following:

System Firmware:

```
ROM Level.(alterable).....19990629 (B) 19990621 (A) <= System FW Levels
Version.....RS6K
System Info Specific.(YL)...P2
```

SP_CARD_:

```
Part Number.....PART_NUM
EC Level.....EC_LEVEL
FRU Number.....FRU_NUM_
Manufacture ID.....IBM
Serial Number.....SERIAL_#
Version.....0000RS6K
ROM Level (alterable).....19990630 (B) 19990620 (A) <= SvP FW levels
System Info Specific.(YL)...P2
```

OR

System Firmware VPD:

```
ROM Level.(alterable).....20000815 (B) 20000720 (A) <= System FW Levels
Version.....RS6K
System Info Specific.(YL)...U0.1-P1-X1/Y
Physical Location:...U0.1-P1-X1/Y
```

Service Processor Firmware VPD:

```
ROM Level (alterable).....20000814 (B) 20000720 (A) <= SvP FW levels
Version.....0000RS6K
System Info Specific.(YL)...U0.1-P1-X1/Y
Physical Location:...U0.1-P1-X1/Y
```

The ROM level lines list the level numbers of the system and service processor (SvP) firmware installed. In these examples, the system was booted from type B,

because it is listed first. If the most recent level number (A or B) is less than the update levels for your server, consider installing the updates.

When an update is performed, the firmware is written to type B only, and “promoted” to type A.

During system initial program load (IPL), an ASCII terminal on serial port 1 or 2 can be used to access the Service Processor menus. The Service Processor level is contained in the heading of the first menu. The following is an example of the menu heading:

```
Service Processor Firmware
Version: 19990630
Copyright 1998, IBM Corporation
```

The numbers in the second line show the booted firmware level. If this level is less than the update level available for your server, you should consider installing the update. Similarly, the system firmware level can be accessed from the System Management Services menus.

2.

To determine the level of your system firmware, do the following:

- a. Turn on your system power.
- b. Watch for the logo screen and the POST indicators to appear on your display.
- c. When the word Keyboard appears, quickly press the number 1 key. The number 1 key must be pressed before the word Speaker appears.

When the tests have completed, and any required passwords have been entered, the System Management Services Utilities menu appears. The System Firmware level is displayed in the top left-hand corner of the display.

When you have read the current firmware level, exit the System Management Services menu as directed on the screen.

If you find the firmware level is less than the update level available for your server, consider installing the update.

Obtaining the Firmware Update Package

Firmware update packages are available from the RS/6000 Support page under RS/6000 Microcode Updates. The web address is as follows:

<http://www.rs6000.ibm.com/support/>

The System Firmware and Service Processor firmware are combined into a single download package listed under models S80 and S85.

Downloading Firmware Updates

Prior to downloading the firmware, you are asked to read and accept the terms of the Machine Code License Agreement. After you accept the terms, you are assigned a password. Write down this password because it is required later to unpack the files you download.

Find the most recent update package for your server. Print the description file and download *one* of the format choices, depending on the workstation being used for downloading. The description file provides detailed instruction on downloading, and then updating the firmware.

Appendix G. Modem Configurations

With hundreds of modems to choose from, and various modem programming standards, configuring a modem for use with the Service Processor can be challenging. The Service Processor is designed to place little demand on an attached modem, thereby increasing the setup and connection success rates. Several sample modem configuration files are supplied that work directly with your modem, or provide a good starting point for a custom setup, if required.

Sample Modem Configuration Files

The sample modem configuration files are located in your service processor firmware and in the `/usr/share/modems` subdirectory (if your server is using AIX) with the following names. A listing of each file is included at the end of this appendix.

Generic Modem Configuration Files

AIX File Name	SP Firmware File Name
modem_z_cfg	modem_z_sp
modem_z0_cfg	modem_z0_sp
modem_f_cfg	modem_f_sp
modem_f0_cfg	modem_f0_sp
modem_f1_cfg	modem_f1_sp

Specific Modem Configuration Files

AIX File Name	SP Firmware File Name
modem_m0.cfg	modem_m0_sp
modem_m1.cfg	modem_m1_sp

Use the following selection procedures and your modem manual to select a configuration file that issuitable for your use.

Configuration File Selection

To select a modem configuration file, do the following:

1. Is your modem an IBM 7852-400?

If yes, use modem configuration file `modem_m0_sp`, and go to step 7 on page 620 below.

Note: The IBM 7852-400 modem has dip switches on the right side of the unit. See “IBM 7852-400 DIP Switch Settings” on page 621 for the correct switch settings.

If no, continue with step 2 below.

2. Is your modem an IBM 7857-017?

If yes, use modem configuration file `modem_m1_sp` and go to step 7.

Note: The IBM 7857-017 modem has two telephone line connections on the back of the unit. One is marked LL (for Leased Line), and the other is marked PTSN (for Public Telephone Switched Network). The service processor expects to use the modem on the public network, so the telephone line should attach to the PTSN connector. Also, see the note on page 476.

If no, continue with step 3 below.

3. Does your modem respond to the extended command set (prefixed with `&`)?

If yes, go to step 5. If no, continue with step 4.

4. Does your modem respond to either of the following:

- ATZ reset command
- or
- ATZn reset commands, where n can be a numeral

If ATZ, configuration file **`modem_z.cfg`** is recommended. If ATZn, configuration file **`modem_z0.cfg`** is recommended.

Go to step 7.

5. Does your modem command set include a test for V.42 error correction at the remote modem (often called “Auto-Reliable Mode”)?

If yes, this test must be disabled. Sample configuration files `/usr/share/modem_m0.cfg` or `/usr/share/modem_m1.cfg` can be used as models to help you create a file for your particular modem. See “Customizing the Modem Configuration Files” on page 621 for more information. Go to step 7.

If no, go to step 6.

6. Does your modem respond to either of the following:

- AT&F reset command,
- or
- AT&Fn reset commands, where n can be a numeral

If AT&F, configuration file **`modem_f.cfg`** is recommended. If AT&Fn, configuration file **`modem_f0.cfg`** or **`modem_f1.cfg`** is recommended, depending on which provides the hardware flow control profile.

7. Selection of the configuration file is complete. If you find it necessary to adjust any of these configuration files, do so with reference to the documentation that came with your modem. It is recommended you select settings that enable hardware flow control and respond to DTR.

Note: Some older modems do not respond to the commands `X0` or `&R1`. Edit these commands out of the modem configuration file if yours is such a modem. See your modem documentation for more information.

Examples For Using the Generic Sample Modem Configuration Files

Modem	Setup Z	Setup Z0 (Rare)	Setup F	Setup F0	Setup F1
AT&T DataPort 2001 **				X	
Bocamodem 1440E			X		
Hayes Smart Modem 300	X				
IBM 5841	X				
IBM 5843	X				
IBM 7851				X	
IBM 7852-10				X	
IBM 7855					X
USRobotics 36.6K Sportster					X
Zoom V.32			X		

Note: ** Ring interrupt only on first ring.

Customizing the Modem Configuration Files

You can create your own modem configuration file(s) or modify the samples provided. After you customize your modem configuration files, you *must* access them through the Configure Remote Maintenance Policy Service Aid rather than from the SP menus.

Note: If you have already set up your serial ports, line speeds, authorizations, and telephone numbers from the SP menus, specify your customized modem configuration files from the service aid.

If you have not already set up your serial ports, line speeds, authorizations, and telephone numbers from the SP menus, you can set them up with the service aids while you specify your customized modem configuration files.

IBM 7852-400 DIP Switch Settings

If you are using a 7852-400 modem to enable service processor communications, for proper operation, the DIP switches must be set according to the following table.

Switch	Position	Function
1	Up	Force DTR
2	Up	Flow Control &E4
3	Down	Result Codes Enabled
4	Down	Modem Emulation Disabled
5	Up	Auto Answer Enabled
6	Up	Maximum Throughput Enabled
7	Up	RTS Normal Functions
8	Down	Enable Command Mode

Switch	Position	Function
9	Down	Remote Digital Loopback Test Enabled
10	Up	Dial-Up Line Enabled
11	*Up	AT Responses Enabled (Extended Responses Disabled)
12	*Down	Asynchronous Operation
13	UP	28.8KB Line Speed
14	Up	
15	Up	CD and DSR Normal Functions
16	Up	2-Wire Leased Line Enabled

* Only switches 11 and 12 are changed from the factory default settings.

Terminal Emulators

The service processor is compatible with simple ASCII terminals, and therefore compatible with most emulators. It is for the cases when a remote session is handed off from Service Processor to the operating system that agreeing terminal emulators becomes important.

The server's operating system has some built-in terminal emulators. Your server may also have a commercially available terminal emulation. It is important that the local and host computers select the same or compatible terminal emulators so that the key assignments and responses match. This ensures successful communications and control.

For optimum formatting, choose line wrap in your terminal emulator setup.

Recovery Procedures

Line noises, power surges, and so on, can sometimes cause your modem to enter an undefined state. When it is being used for dial in, dial out or Ring Indicate Power-On, your modem is initialized each time one of these actions is expected. If one of these environmental conditions occur after your modem has been initialized, it may be necessary to recover your modem to a known state.

If your modem communicates properly with remote users, it is probably in control. It is recommended that you occasionally change some of the functional settings and then change them back, just for the to ensure that the modem is communicating, and to ensure it has been initialized recently.

Another strategy, particularly if your system is difficult to access physically, is to protect it with an Uninterruptible Power Source (UPS) and a phone-line surge protector.

In case recovery becomes necessary, your system should be shut down as using appropriate shutdown procedures. Disconnect and reconnect modem power, and power on the system to allow complete reinitialization of your system.

Seamless Transfer of a Modem Session

There are about as many modem command variations as there are modems. The sample modem configuration files have been written to capture the largest number of workable modem settings.

The modem command `&Dn` (where `n` is a number) generally sets the modem response to the Data Terminal Ready (DTR) signal from the server's serial port. The desired response is that the modem will hold a connection while DTR is enabled, and drop the connection when DTR is released. This is the mechanism by which the server "hangs up" on a connection under normal conditions.

The command `&D2` is usually successful, but not always. The sample modem configuration files take this high percentage position, (see the note on page 623). Consult your modem's manual for its specific response scheme for the `&Dn` command.

Two strategies are available for dealing with the modem's response to DTR:

- Recovery
- Prevention

Before proceeding with one of these strategies, determine if your server's modem is set up properly to respond to DTR.

With the remote terminal connected to serial port 1 and defined as the *primary* console device, there are two tests you can perform:

1. Will the modem drop the connection after the System initialization complete message appears at the remote terminal?
If yes, the modem is set up correctly.
If no, try another `&Dn` setting for your server's modem. See your modem manual for this information. The `&Dn` command appears in three places each in the following sample modem configuration files.
 - **modem_f.cfg**
 - **modem_f0.cfg**
 - **modem_f1.cfg**
2. Will the server's modem **disconnect** when the power drops? You can make this observation at the remote terminal by commanding your server to shutdown and power off. (The AIX command `shutdown -F` will do this.) Watch for the message `NO CARRIER` on your remote terminal.
If yes, the modem is set up correctly.
If no, try another `&Dn` setting for your server's modem. See your modem documentation for this information. The `&Dn` command appears in three places each in the following sample modem configuration files.
 - **modem_f.cfg**
 - **modem_f0.cfg**
 - **modem_f1.cfg**

Note: Only the following sample modem configuration files contain the `&Dn` command (in three places each):

If you are using **modem_z.cfg** or **modem_z0.cfg**, you cannot control DTR response. If your remote terminal does not disconnect after logging off, you must command the remote terminal emulator to hang up. This then breaks the connection.

Recovery Strategy

The recovery strategy consists of making three calls to establish a remote session. This is the easiest solution to implement, and allows more freedom for configuring your server's serial ports.

To set up a remote terminal session, dial in to the server and start the system. Wait 5 minutes for the initialization period and call again to gain control through the Service Processor menus. Continue booting the system from the System Power Control menu. After the operating system is loaded and initialized, the connection is dropped. At this point, when you call the server back, the operating system answers and offers you the login prompt.

Prevention Strategy

The disconnect is caused by the operating system when it initializes the **primary** console. The tests listed above are conducted with the remote terminal selected as the primary console to manifest the modem's response to DTR transitions.

If a local ASCII terminal or a graphics console is to be a permanent part of your server, make one of them the primary console. Your remote terminal will no longer experience the connection loss.

If a local console is not a permanent part of your server, you can still assign either the unused graphics console or the unused serial port as the primary console. This gives you the desired seamless connection at your remote terminal.

If you choose to use the unused serial port as the primary console, some initialization traffic will be sent to any serial device attached to that port. As a result, that serial device's connection and function could be affected. These impacts may make that port unattractive for devices other than a temporary local ASCII terminal.

Modem Configuration Samples

This section contains sample modem configuration files.

Sample File **modem_z.cfg**

```
#  
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP Z  
#  
# FUNCTIONS: Modem configuration file for many early Hayes* compatible modems.  
# This example uses the ATZ reset command to choose the factory defaults.  
# This setup will work for many modems, but it is required for early vintage  
# modems which respond to neither the ATZ0 reset command nor the extended (&  
# commands. Refer to your modem manual.  
#
```

```

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#
#
# If the modem has configuration switches, they should be set to the
# factory default settings.

ICDelay 1
DefaultTO 10
CallDelay 120
# AT Attention Code , Inserts delay in dialing commands
# Z Reset to factory defaults Q0 Turn on responses
# E0 Turn echo off Q1 Turn off responses
# V0 Use numeric responses S0=0 Automatic answer inhibit
# +++ Escape to command mode S0=2 Answer on second ring
# H0 Hang-up T = Tone mode. When used as T\r, it is a
# no op to maintain program synchronization
# when modem may/will echo the commands.
#
#
# %N Call-Out phone number %P Paging phone number
# %S Modem speed (available to users)
#
# Following are common responses from a wide range of modems:
# 16, 15, 12, 10, 5 and 1 are connection responses. Add others as required.
# 7=busy; 6=no dial tone; 4=error; 3=no carrier; 2=ring; 0=OK
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout: send "ATZQ0T\r" # Reset to factory defaults.
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0T\r" # Limit response codes.
expect "0\r" timeout 2 # Confirm commands successful.
send "ATS0=0\r" # Set AutoAnswer OFF
expect "0\r" timeout 2 # Confirm command successful.
done

connect: send "ATDT%N\r" # Tone dialing command.
# %N from Call Home setup.
# Expect a connection response.
expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
timeout 60
done

retry: send "A/" # Repeat the previous command.
# Expect a connection response.

```

```

expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
timeout 60
done

disconnect:
delay 2 # Separate from previous data.
send "+++" # Assure command mode.
delay 2 # Allow mode switching delay.
send "ATH0T\r" # Set modem switch-hook down
# (i.e., hang up).

ignore "0\r" or "OK\r" timeout 2 # Ignore modem response.
send "ATE0Q1\r" # Initialize modem: Echo OFF,
# Disable responses.

ignore "0\r" timeout 1
done

condin: send "ATZQ0T\r" # Reset to factory defaults.
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0T\r" # Limit response codes.
expect "0\r" timeout 2 # Confirm commands successful.
send "ATS0=2\r" # Set AutoAnswer ON
expect "0\r" timeout 2 # Confirm command successful.
done

waitcall: ignore "2\r" timeout 1 # Ignore first ring.
expect "2\r" timeout 10 # Pick up second ring
# or timeout.
# Expect a connection response.

expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r"
timeout 60
done

page: send "ATDT%N,,,%R;\r" # %N = pager call center number
# Add enough commas to wait for
# time to enter paging number.
# %R = paging number

# Confirm successful command.

expect "0\r" timeout 60
delay 2 # Wait before hanging up.
send "ATH0T\r" # Hang up.
expect "0\r" timeout 2 # Confirm successful command.
done

ripo: send "ATZQ0T\r" # Reset to factory defaults.
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0T\r" # Limit response codes.
expect "0\r" timeout 2 # Confirm commands successful.
send "ATS0=0\r" # Set AutoAnswer OFF
expect "0\r" timeout 2 # Confirm command successful.
done # RI Power On enabled.

```

```

error:                                     # Handle unexpected modem
                                           # responses.
expect "8\r" or "7\r" or "6\r" or "4\r" or "3\r"
delay 2
done

```

Sample File modem_z0.cfg

```

#
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP Z0
#
# FUNCTIONS: Modem configuration file for some early Hayes* compatible modems.
# This example uses the ATZ0 reset command to choose the factory defaults.
# This setup is recommended for modems that will respond to the ATZ0 command
# and which do not respond to the extended (&) commands. Refer to your modem
# manual.
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#
#
# If the modem has configuration switches, they should be set to the
# factory default settings.

ICDelay 1
DefaultT0 10
CallDelay 120
# AT Attention Code           , Inserts delay in dialing commands
# Z0 Reset. Restore Profile 0 Q0 Turn on responses
# E0 Turn echo off           Q1 Turn off responses
# V0 Use numeric responses    S0=0 Automatic answer inhibit
# +++ Escape to command mode S0=2 Answer on second ring
# H0 Hang-up                 X0=0 Limit modem response codes
#                             T = Tone mode. When used as T\r, it is a
#                             no op to maintain program synchronization
#                             when modem may/will echo the commands.
#
# %N Call-Out phone number   %P Paging phone number
# %S Modem speed (available to users)
#
# Following are common responses from a wide range of modems:
# 16, 15, 12, 10, 5 and 1 are connection responses. Add others as required.
# 7=busy; 6=no dial tone; 4=error; 3=no carrier; 2=ring; 0=OK
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout:  send "ATZ0Q0T\r"           # Reset modem. Select profile 0
          ignore "0\r" or "OK\r\n"  # Ignore modem response.
          timeout 2

```

```

        send "ATE0T\r"                # Initialize modem: Echo OFF,
        expect "\0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
        send "ATQ0V0X0T\r"            # Limit response codes.
        expect "\0\r" timeout 2        # Confirm commands successful.
        send "ATS0=0\r"                # Set AutoAnswer OFF
        expect "\0\r" timeout 2        # Confirm command successful.
        done

connect:  send "ATDT%N\r"              # Tone dialing command.
                                                # %N from Call Home setup.

                                                # Expect a connection response.
        expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
        timeout 60
        done

retry:    send "A/"                    # Repeat the previous command.

                                                # Expect a connection response.
        expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
        timeout 60
        done

disconnect:
        delay 2                          # Separate from previous data.
        send "+++"                        # Assure command mode.
        delay 2                          # Allow mode switching delay.
        send "ATH0T\r"                    # Set modem switch-hook down
                                                # (i.e., hang up).
        ignore "\0\r" or "OK\r" timeout 2 # Ignore modem response.
        send "ATE0Q1\r"                  # Initialize modem: Echo OFF,
                                                # Disable responses.

        ignore "\0\r" timeout 1
        done

condin:  send "ATZ0Q0T\r"                # Reset modem. Select profile 0
        ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
        send "ATE0T\r"                    # Initialize modem: Echo OFF,
        expect "\0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
        send "ATQ0V0X0T\r"                # Limit response codes.
        expect "\0\r" timeout 2            # Confirm commands successful.
        send "ATS0=2\r"                    # Set AutoAnswer ON
        expect "\0\r" timeout 2            # Confirm command successful.
        done

waitcall: ignore "2\r" timeout 1           # Ignore first ring.
        expect "2\r" timeout 10           # Pick up second ring
                                                # or timeout.
                                                # Expect a connection response.
        expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r"
        timeout 60
        done

page:    send "ATDT%N,,,%R;\r"           # %N = pager call center number
                                                # Add enough commas to wait for

```

```

# time to enter paging number.
# %R = paging number

# Confirm successful command.

expect "\r" timeout 60
delay 2
send "ATH\r"
expect "\r" timeout 2
done

# Wait before hanging up.
# Hang up.
# Confirm successful command.

ripo: send "ATZQQT\r" # Reset modem. Select profile 0
ignore "\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE\r" # Initialize modem: Echo OFF,
expect "\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0X0\r" # Limit response codes.
expect "\r" timeout 2 # Confirm commands successful.
send "ATS0=0\r" # Set AutoAnswer OFF
expect "\r" timeout 2 # Confirm command successful.
done # RI Power On enabled.

error: # Handle unexpected modem
# responses.
expect "8\r" or "7\r" or "6\r" or "4\r" or "3\r"
delay 2
done

```

Sample File modem_f.cfg

```

#
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP F
#
# FUNCTIONS: Modem configuration file for many recent Hayes* compatible modems.
# This example uses the AT&F reset command to choose the factory defaults.
# This set up is preferred for modems with extended (&) commands. For early
# vintage modems, setup Z or Z0 is recommended. If your modem responds to
# the extended (&) commands and to factory default choices (&Fn), setup file
# F0 or F1 is recommended.
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#
#
# If the modem has configuration switches, they should be set to the
# factory default settings.

ICDelay 1
DefaultT0 10
CallDelay 120
# AT Attention Code , Inserts delay in dialing commands

```

```

# &F Reset to default profile Q0 Turn on responses
# E0 Turn echo off Q1 Turn off responses
# V0 Use numeric responses S0=0 Automatic answer inhibit
# +++ Escape to command mode S0=2 Answer on second ring
# H0 Hang-up X0=0 Limit modem response codes
#
# T = Tone mode. When used as T\r, it is a
# no op to maintain program synchronization
# when modem may/will echo the commands.
#
# &C1 Detect CD &D2 Respond to DTR (often the default)
#
# %N Call-Out phone number %P Paging phone number
# %S Modem speed (available to users)
#
# Following are common responses from a wide range of modems:
# 16, 15, 12, 10, 5 and 1 are connection responses. Add others as required.
# 7=busy; 6=no dial tone; 4=error; 3=no carrier; 2=ring; 0=OK
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout: send "AT&FQ0T\r" # Reset to factory defaults.
         ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
         send "ATE0T\r" # Initialize modem: Echo OFF,
         expect "\0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
         send "ATQ0V0X0T\r" # Limit response codes.
         expect "\0\r" timeout 2 # Confirm commands successful.
         send "ATS0=0\r" # Set AutoAnswer OFF
         expect "\0\r" timeout 2 # Confirm command successful.
         send "AT&C1&D2\r" # Detect carrier and DTR.
         expect "\0\r" timeout 2 # Confirm command successful.
         done

connect: send "ATDT%N\r" # Tone dialing command.
         # %N from Call Home setup.

         # Expect a connection response.
         expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
         timeout 60
         done

retry: send "A/" # Repeat the previous command.

         # Expect a connection response.
         expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
         timeout 60
         done

disconnect:
         delay 2 # Separate from previous data.
         send "+++" # Assure command mode.
         delay 2 # Allow mode switching delay.
         send "ATH0T\r" # Set modem switch-hook down
         # (i.e., hang up).
         ignore "\0\r" or "OK\r" timeout 2 # Ignore modem response.
         send "ATE0Q1\r" # Initialize modem: Echo OFF,

```

```

                                # Disable responses.
                                ignore "\0\r" timeout 1
                                done

condin:  send "AT&FQ0T\r"          # Reset to factory defaults.
                                ignore "\0\r" or "\0K\r\n" timeout 2 # Ignore modem response.
                                send "ATE0T\r"                        # Initialize modem: Echo OFF,
                                expect "\0\r" or "\0K\r\n" timeout 2 # Enable responses (Numeric),
                                send "ATQ0V0X0T\r"                    # Limit response codes.
                                expect "\0\r" timeout 2                # Confirm commands successful.
                                send "ATS0=2\r"                        # Set AutoAnswer ON
                                expect "\0\r" timeout 2                # Confirm command successful.
                                send "AT&C1&D2\r"                      # Detect carrier and DTR.
                                expect "\0\r" timeout 2                # Confirm command successful.
                                done

waitcall: ignore "2\r" timeout 1   # Ignore first ring.
          expect "2\r" timeout 10  # Pick up second ring
                                # or timeout.
                                # Expect a connection response.
          expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r"
          timeout 60
          done

page:    send "ATDT%N,,,,%R;\r"   # %N = pager call center number
                                # Add enough commas to wait for
                                # time to enter paging number.
                                # %R = paging number

                                # Confirm successful command.
          expect "\0\r" timeout 60
          delay 2                  # Wait before hanging up.
          send "ATH0T\r"          # Hang up.
          expect "\0\r" timeout 2 # Confirm successful command.
          done

ripo:   send "AT&FQ0T\r"          # Reset to factory defaults.
          ignore "\0\r" or "\0K\r\n" timeout 2 # Ignore modem response.
          send "ATE0T\r"          # Initialize modem: Echo OFF,
          expect "\0\r" or "\0K\r\n" timeout 2 # Enable responses (Numeric),
          send "ATQ0V0X0T\r"      # Limit response codes.
          expect "\0\r" timeout 2 # Confirm commands successful.
          send "ATS0=0\r"         # Set AutoAnswer OFF
          expect "\0\r" timeout 2 # Confirm command successful.
          send "AT&C1&D2\r"      # Detect carrier and DTR.
          expect "\0\r" timeout 2 # Confirm command successful.
          done                    # RI Power On enabled.

error:                                     # Handle unexpected modem
                                           # responses.
          expect "8\r" or "7\r" or "6\r" or "4\r" or "3\r"
          delay 2
          done

```

Sample File modem_f0.cfg

```
#
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP F0
#
# FUNCTIONS: Modem configuration file for many recent Hayes* compatible modems.
# This example uses the AT&F0 reset command to choose the factory defaults.
# This set up is preferred for modems with extended (&) commands. For early
# vintage modems, setup Z or Z0 is recommended. If your modem responds to
# the extended (&) commands and to factory default choices (&Fn), but doesn't
# work properly with this setup file, setup F1 is recommended.
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#
#
# If the modem has configuration switches, they should be set to the
# factory default settings.

ICDelay 1
DefaultT0 10
CallDelay 120
# AT Attention Code , Inserts delay in dialing commands
# &F0 Reset. Restore profile 0 Q0 Turn on responses
# E0 Turn echo off Q1 Turn off responses
# V0 Use numeric responses S0=0 Automatic answer inhibit
# +++ Escape to command mode S0=2 Answer on second ring
# H0 Hang-up X0=0 Limit modem response codes
#
# T = Tone mode. When used as T\r, it is a
# no op to maintain program synchronization
# when modem may/will echo the commands.
#
# &C1 Detect CD &D2 Respond to DTR (often the default)
# &R1 Ignore RTS (CTS)
#
# %N Call-Out phone number %P Paging phone number
# %S Modem speed (available to users)
#
# Following are common responses from a wide range of modems:
# 16, 15, 12, 10, 5 and 1 are connection responses. Add others as required.
# 7=busy; 6=no dial tone; 4=error; 3=no carrier; 2=ring; 0=OK
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout: send "AT&F0Q0T\r" # Reset modem. Select profile 0
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0X0T\r" # Limit response codes.
expect "0\r" timeout 2 # Confirm commands successful.
```

```

        send "ATS0=0\r"                # Set AutoAnswer OFF
        expect "\r" timeout 2          # Confirm command successful.
        send "AT&C1&D2&R1\r"         # Detect carrier and DTR,
                                        # Ignore RTS.
        expect "\r" timeout 2          # Confirm command successful.
        done

connect:  send "ATDT%N\r"              # Tone dialing command.
                                                # %N from Call Home setup.

                                                # Expect a connection response.
        expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
        timeout 60
        done

retry:    send "A/"                    # Repeat the previous command.

                                                # Expect a connection response.
        expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
        timeout 60
        done

disconnect:
        delay 2                          # Separate from previous data.
        send "+++"                       # Assure command mode.
        delay 2                          # Allow mode switching delay.
        send "ATH0T\r"                   # Set modem switch-hook down
                                                # (i.e., hang up).
        ignore "\r" or "OK\r" timeout 2  # Ignore modem response.
        send "ATE0Q1\r"                  # Initialize modem: Echo OFF,
                                                # Disable responses.

        ignore "\r" timeout 1
        done

condin:  send "AT&F0Q0T\r"              # Reset modem. Select profile 0
        ignore "\r" or "OK\r\n" timeout 2 # Ignore modem response.
        send "ATE0T\r"                   # Initialize modem: Echo OFF,
        expect "\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
        send "ATQ0V0X0T\r"               # Limit response codes.
        expect "\r" timeout 2            # Confirm commands successful.
        send "ATS0=2\r"                   # Set AutoAnswer ON
        expect "\r" timeout 2            # Confirm command successful.
        send "AT&C1&D2&R1\r"         # Detect carrier and DTR,
                                        # Ignore RTS.
        expect "\r" timeout 2            # Confirm command successful.
        done

waitcall: ignore "2\r" timeout 1          # Ignore first ring.
        expect "2\r" timeout 10         # Pick up second ring
                                                # or timeout.
                                                # Expect a connection response.
        expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r"
        timeout 60
        done

```

```

page:      send "ATDT%N,,,%R;\r"          # %N = pager call center number
                                                # Add enough commas to wait for
                                                # time to enter paging number.
                                                # %R = paging number

                                                # Confirm successful command.

        expect "\0\r" timeout 60
        delay 2                               # Wait before hanging up.
        send "ATH0T\r"                       # Hang up.
        expect "\0\r" timeout 2             # Confirm successful command.
        done

ripo:      send "AT&F0Q0T\r"                # Reset modem. Select profile 0
        ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
        send "ATE0T\r"                      # Initialize modem: Echo OFF,
        expect "\0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
        send "ATQ0V0X0T\r"                 # Limit response codes.
        expect "\0\r" timeout 2            # Confirm commands successful.
        send "ATS0=0\r"                    # Set AutoAnswer OFF
        expect "\0\r" timeout 2            # Confirm command successful.
        send "AT&C1&D2&R1\r"               # Detect carrier and DTR,
                                                # Ignore RTS.
        expect "\0\r" timeout 2            # Confirm command successful.
        done                                  # RI Power On enabled.

error:                                          # Handle unexpected modem
                                                # responses.
        expect "8\r" or "7\r" or "6\r" or "4\r" or "3\r"
        delay 2
        done

```

Sample File modem_f1.cfg

```

#
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP F1
#
# FUNCTIONS: Modem configuration file for many recent Hayes* compatible modems.
# This example uses the AT&F1 reset command to choose the factory defaults.
# This set up is for modems with extended (&) commands and which do not work
# properly with setup F0. For early vintage modems, setup Z or Z0 is
# recommended.
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#
#
# If the modem has configuration switches, they should be set to the
# factory default settings.

```

```

ICDelay 1
DefaultT0 10
CallDelay 120
# AT Attention Code , Inserts delay in dialing commands
# &F1 Reset. Restore profile 1 Q0 Turn on responses
# E0 Turn echo off Q1 Turn off responses
# V0 Use numeric responses S0=0 Automatic answer inhibit
# +++ Escape to command mode S0=2 Answer on second ring
# H0 Hang-up X0=0 Limit modem response codes
# T = Tone mode. When used as T\r, it is a
# no op to maintain program synchronization
# when modem may/will echo the commands.
#
# &C1 Detect CD &D2 Respond to DTR (often the default)
# &R1 Ignore RTS (CTS)
#
# %N Call-Out phone number %P Paging phone number
# %S Modem speed (available to users)
#
# Following are common responses from a wide range of modems:
# 16, 15, 12, 10, 5 and 1 are connection responses. Add others as required.
# 7=busy; 6=no dial tone; 4=error; 3=no carrier; 2=ring; 0=OK
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout: send "AT&F1Q0T\r" # Reset modem. Select profile 1
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0X0T\r" # Limit response codes.
expect "0\r" timeout 2 # Confirm commands successful.
send "ATS0=0\r" # Set AutoAnswer OFF
expect "0\r" timeout 2 # Confirm command successful.
send "AT&C1&D2&R1\r" # Detect carrier and DTR,
# Ignore RTS.
expect "0\r" timeout 2 # Confirm command successful.
done

connect: send "ATDT%N\r" # Tone dialing command.
# %N from Call Home setup.
# Expect a connection response.
expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
timeout 60
done

retry: send "A/" # Repeat the previous command.
# Expect a connection response.
expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r" busy "7\r"
timeout 60
done

disconnect:
delay 2 # Separate from previous data.

```

```

send "+++" # Assure command mode.
delay 2 # Allow mode switching delay.
send "ATH0T\r" # Set modem switch-hook down
# (i.e., hang up).

ignore "\0\r" or "OK\r" timeout 2 # Ignore modem response.
send "ATE0Q1\r" # Initialize modem: Echo OFF,
# Disable responses.

ignore "\0\r" timeout 1
done

condin: send "AT&F1Q0T\r" # Reset modem. Select profile 1
ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "\0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0X0T\r" # Limit response codes.
expect "\0\r" timeout 2 # Confirm commands successful.
send "ATS0=2\r" # Set AutoAnswer ON
expect "\0\r" timeout 2 # Confirm command successful.
send "AT&C1&D2&R1\r" # Detect carrier and DTR,
# Ignore RTS.
# Confirm command successful.

expect "\0\r" timeout 2
done

waitcall: ignore "2\r" timeout 1 # Ignore first ring.
expect "2\r" timeout 10 # Pick up second ring
# or timeout.
# Expect a connection response.

expect "16\r" or "15\r" or "14\r" or "12\r" or "10\r" or "5\r" or "1\r"
timeout 60
done

page: send "ATDT%N,,,%R;\r" # %N = pager call center number
# Add enough commas to wait for
# time to enter paging number.
# %R = paging number

# Confirm successful command.

expect "\0\r" timeout 60
delay 2 # Wait before hanging up.
send "ATH0T\r" # Hang up.
expect "\0\r" timeout 2 # Confirm successful command.
done

ripo: send "AT&F1Q0T\r" # Reset modem. Select profile 1
ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "ATE0T\r" # Initialize modem: Echo OFF,
expect "\0\r" or "OK\r\n" timeout 2 # Enable responses (Numeric),
send "ATQ0V0X0T\r" # Limit response codes.
expect "\0\r" timeout 2 # Confirm commands successful.
send "ATS0=0\r" # Set AutoAnswer OFF
expect "\0\r" timeout 2 # Confirm command successful.
send "AT&C1&D2&R1\r" # Detect carrier and DTR,
# Ignore RTS.
# Confirm command successful.

expect "\0\r" timeout 2 # RI Power On enabled.
done

```

```

error:                                     # Handle unexpected modem
                                             # responses.
expect "8\r" or "7\r" or "6\r" or "4\r" or "3\r"
delay 2
done

```

Sample File modem_m0.cfg

```

#
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP: modem_m0
#
# FUNCTIONS: Modem configuration file specifically for IBM 7852-400
# modem with Auto-Reliable feature. This feature must be turned off
# for Catcher calls. This example uses the AT&F reset command to
# choose the factory defaults.
#
# (C) COPYRIGHT International Business Machines Corp. 1996
# All Rights Reserved
# Licensed Materials - Property of IBM
#
# US Government Users Restricted Rights - Use, duplication or
# disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
#
#
# The modem has configuration switches. They should be set to the
# factory default settings, except switches 11 and 12. These must be
# to UP ("AT" responses) and DOWN (Asynchronous operation), respectively.

ICDelay 1
DefaultTO 10
CallDelay 120
#
# %N Call-Out phone number %R Return phone number
#
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout:  send "AT&F&E2E0T\r"                # Reset to factory defaults
                                             # Reliable mode
                                             # Echo off
          ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
          send "AT&E12&E14\r"                # Disable pacing
                                             # Disable data compression
          expect "0\r" or "OK\r\n" timeout 2 # Confirm commands successful.
          send "AT&SF1&S0S9=1\r"            # DSR independent of CD
                                             # Force DSR on.
                                             # CD respond time=100ms
          expect "0\r" or "OK\r\n" timeout 2 # Confirm commands successful.
          send "ATV0S0=0\r"                 # Numeric response code
                                             # Auto-Answer off
          expect "0\r" or "OK\r\n" timeout 2 # Confirm commands successful.
done

connect:  send "ATDT%N\r"                    # Tone dialing command.

```

```

# %N from Call Home setup.
# Expect a connection response.
expect "33\r" or "31\r" or "28\r" or "26\r" or "24\r" or "21\r" or
"19\r" or "13\r" or "12\r" or "1\r" busy "7\r"
timeout 60
done

retry:    send "A/" # Repeat the previous command.
# Expect a connection response.
expect "33\r" or "31\r" or "28\r" or "26\r" or "24\r" or "21\r" or
"19\r" or "13\r" or "12\r" or "1\r" busy "7\r"
timeout 60
done

disconnect:
delay 2 # Separate from previous data.
send "+++" # Assure command mode.
delay 2 # Allow mode switching delay.
send "ATH0T\r" # Set modem switch-hook down
# (i.e., hang up).
ignore "0\r" or "OK\r" timeout 2 # Ignore modem response.
send "ATE0Q1\r" # Initialize modem: Echo OFF,
# Disable responses.

ignore "0\r" timeout 1
done

condin:  send "AT&F&E2E0T\r" # Reset to factory defaults.
# Reliable mode
# Echo off
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "AT&E12&E14\r" # Disable pacing
# Disable data compression
expect "0\r" or "OK\r\n" timeout 2 # Confirm commands successful
send "AT&SF1&S0S9=1\r" # DSR independent of CD.
# Force DSR on.
# CD respond time=100ms
expect "0\r" or "OK\r\n" timeout 2 # Confirm commands successful.
send "ATV0S0=2\r" # Numeric response code
# Answer on 2nd ring
expect "0\r" timeout 2 # Confirm commands successful.
done

waitcall: ignore "2\r" timeout 1 # Ignore first ring.
expect "2\r" timeout 10 # Pickup 2nd ring or timeout
# Expect a connection response.
expect "33\r" or "31\r" or "28\r" or "26\r" or "24\r" or "21\r" or
"19\r" or "13\r" or "12\r" or "1\r" busy "7\r"
timeout 60
done

page:    send "ATDT%N,,,%R;\r" # %N = pager call center number
# Add enough commas to wait for
# time to enter paging number.
# %R = paging number
expect "0\r" timeout 60 # Confirm successful command.

```

```

delay 2 # Wait before hanging up.
send "ATH0\r" # Hang up.
expect "0\r" timeout 2 # Confirm successful command.
done

ripo: send "AT&F&E2E0T\r" # Reset to factory defaults.
# Reliable mode
# Echo off
ignore "0\r" or "OK\r\n" timeout 2 # Ignore modem response.
send "AT&E12&E14\r" # Disable pacing
# Disable data compression
expect "0\r" or "OK\r\n" timeout 2 # Confirm successful command.
send "AT&SF1&S0S9=1\r" # DSR independent of CD.
# Force DSR on.
# CD respond time=100ms
expect "0\r" or "OK\r\n" timeout 2 # Confirm commands successful.
send "ATV0S0=0\r" # Numeric response code
# Auto Answer OFF
expect "0\r" timeout 2 # Confirm commands successful.
done #

error: # Handle unexpected modem
# responses.
expect "8\r" or "7\r" or "6\r" or "4\r" or "3\r"
delay 2
done

```

Sample File modem_m1.cfg

```

#
# COMPONENT_NAME: (ESPSETUP) ENTRY SERVICE PROCESSOR SETUP modem_m1
#
# FUNCTIONS: Modem configuration file specifically for IBM 7857-017 modem with
# Auto-Reliable feature. This feature must be turned off for Catcher calls.
# This example uses the AT&F reset command to choose the factory defaults.
#
# To allow dial commands for digital pagers, it is necessary to reduce
# the number of characters in the dial command. Each comma (delay) has
# been set to 6 seconds (S8=6) for that reason.
#
#
# (C) COPYRIGHT International Business Machines Corp. 1996
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#
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# disclosure restricted by GSA ADP Schedule Contract with IBM Corp.
#

ICDelay 1
DefaultTO 10
CallDelay 120
#
# %N Call-Out phone number %R Return phone number
#

```

```

#
# PROGRAMMING NOTE: No blanks between double quote marks (").

condout:  send "AT&F*E0E0\r"          # Reset to factory defaults.
                                                # *E0=data compression disabled
                                                # E0=echo disabled
        ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
        send "AT#F0*Q2S8=6\r"        # Trellis modulation disabled
                                                # Retrain with adaptive rate
                                                # Set ,=6second
        expect "\0\r" or "OK\r\n" timeout 2 # Confirm commands successful
        send "ATV0X0S0=0\r"         # Numeric response code
                                                # AT compatible messages
                                                # Auto-Answer disabled
        expect "\0\r" or "OK\r\n" timeout 2 # Confirm commands successful.
        done

connect:  send "ATDT%N\r"            # Tone dialing command.
                                                # %N from Call Home setup.
        expect "1\r" busy "7\r" timeout 60 # Expect a connection response.
        done

retry:    send "A/"                  # Repeat the previous command.
        expect "1\r" busy "7\r" timeout 60 # Expect a connection response.
        done

disconnect:
        delay 2                        # Separate from previous data.
        send "+++"                    # Assure command mode.
        delay 2                        # Allow mode switching delay.
        send "ATH0\r"                 # Set modem switch-hook down
                                                # (i.e., hang up).
        ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
        send "ATE0Q1\r"               # Initialize modem: Echo OFF,
                                                # Disable responses.

        ignore "\0\r" timeout 1
        done

condin:   send "AT&F*E0E0\r"          # Reset to factory defaults.
                                                # *E0=data compression disabled
                                                # E0=echo disabled
        ignore "\0\r" or "OK\r\n" timeout 2 # Ignore modem response.
        send "AT#F0*Q2\r"            # Trellis modulation disabled
                                                # Retrain with adaptive rate
        expect "\0\r" or "OK\r\n" timeout 2 # Confirm commands successful
        send "ATV0X0S0=2\r"         # Numeric response code
                                                # AT compatible messages
                                                # Answer on 2nd ring
        expect "\0\r" timeout 2      # Confirm commands successful.
        done

waitcall: ignore "2\r" timeout 1      # Ignore first ring.
        expect "2\r" timeout 10     # Pick up second ring
                                                # or timeout.
                                                # Expect a connection response.

```

```

expect "1\r" timeout 60
done

page:    send "ATD%N,%R\r"                # %N = pager call center number
                                                # commas=6sec wait time to
                                                #   enter paging number.
                                                # %R = return number
expect "0\r" or "3\r" timeout 30          # Confirm successful command.
delay 2                                     # Wait before hanging up.
send "+++"                                 # Assure command mode.
delay 2                                     # Allow mode switching delay.
send "ATH0\r"                              # Hang up.
expect "0\r" timeout 2                    # Confirm successful command.
done

ripo:    send "AT&F*E0E0\r"                # Reset to factory defaults.
                                                # *E0=data compression disabled
                                                # E0=echo disabled
ignore "0\r" or "OK\r\n" timeout 2        # Ignore modem response.
send "AT#F0*Q2\r"                          # Trellis modulation disabled
                                                # Retrain with adaptive rate
expect "0\r" or "OK\r\n" timeout 2        # Confirm successful command.
send "ATV0X0S0=0\r"                        # Numeric response code
                                                # AT compatible messages
                                                # Auto-Answer disabled
expect "0\r" timeout 2                    # Confirm commands successful.
done

error:                                       # Handle unexpected modem
                                                # responses.
expect "8\r" or "7\r" or "4\r" or "3\r"
delay 2
done

```


Appendix H. Interpreting Firmware Error Codes

The error code is an 8-character (4-byte) hexadecimal code produced by firmware to identify the potential failing function or FRU in a system. It consists of 5 source code characters and 3 reason code characters. Individual characters within the error code have specific field definitions, as defined in the following tables. Table 15 and Table 16.

Table 15. Service Reference Code Field Layout

Source Code				Reason Code			
Byte 0		Byte 1		Byte 2		Byte 3	
S1	S2	S3	S4	S5	R1	R2	R3

Table 16. Service Reference Code Field Descriptions

Field	Description
S1	Maintenance Package Source that produced the error code. 0 Reserved 1 Reserved 2 POST, Firmware 3 BIST 4 Service Processor, base system controller, etc. 5 Reserved 8 Product specific service guide, MAPs 9 Reserved A-F Reserved
S2	Base class
S3-S4	Sub-class
S5	Unique version of the device/FRU type for a particular product.
R1	Device/FRU unique failure reason codes. 1-7 Use in combination with R2, R3 for diagnostic test failure when maximum isolation was obtained. 8-9 Use in combination with R2, R3 for diagnostic test failure when maximum isolation was NOT obtained. A Log analysis of POST error log B Log analysis of machine check or checkstop error log C Reserved D Diagnostic detected missing resource E-F Reserved

Table 16. Service Reference Code Field Descriptions (continued)

Field	Description
R2 - R3	Device/FRU unique failure reason codes.

Table 17. Current PCI 2.1 Class Code Definition

PCI Base Class (lower nibble) S2	PCI Sub-Class S3 -S4	Description
0		Devices that were built before the class code field was defined.
	00	All currently implemented devices except VGA-compatible devices.
	01	VA-compatible devices
1		Mass storage controller
	00	SCSI bus controller
	01	IDE controller
	02	Floppy disk controller
	03	Intelligent Peripheral Interface (IPI) bus controller
	04	Redundant Array of Independent Disk (RAID) controller
	80	Other mass storage controller
2		Network controller
	00	Ethernet controller
	01	Token Ring controller
	02	FDDI controller
	03	ATM controller
	80	Other network controller
3		Display controller
	00	VGA-Compatible controller
	01	Extended Graphics Array (XGA) controller
	80	Other display controller
4		Multimedia device
	00	Video device
	01	Audio device
	80	Other multimedia device
5		Memory controller
	00	RAM
	01	Flash
	80	Other memory controller

Table 17. Current PCI 2.1 Class Code Definition (continued)

6	Bridge devices	
	00	Host bridge
	01	ISA bridge
	02	EISA bridge
	03	MCA bridge
	04	PCI-to-PCI bridge
	05	PCMCIA bridge
	06	NuBus bridge
	07	Cardbus bridge
80	Other bridge device	
7	Simple communication controllers	
	00	Serial controllers
	01	Parallel port
	80	Other communication controllers
8	Generic system peripherals	
	00	PIC
	01	DMA controller
	02	System timer
	03	Real-Time Clock (RTC) controller
	80	Other system peripherals
9	Input devices	
	00	Keyboard controller
	01	Digitizer (pen)
	02	Mouse controller
	80	Other input controllers
A	Docking stations	
	00	Generic docking station
	80	Other type of docking station
B	Processors	
	00	Reserved
	01	Reserved
	02	Reserved
	10	Reserved
	20	PowerPC
	40	Co-processor

Table 17. Current PCI 2.1 Class Code Definition (continued)

C	Serial bus controllers	
	00	FireWire (IEEE 1394)
	01	ACCESS.bus
	02	Serial Storage Architecture (SSA)
	03	Universal Serial Bus (USB)
	04	Fibre channel

Table 18. S2-S3-S4 Definition for devices/FRUs not defined in the PCI specification

Base Class S2	Sub-Class S3 - S4	Description
0	10	AC Power
	11	DC Power
	20	Temperature Related Problem
	21	Fans
	30-3x	Cables
	40-4x	Terminators
	50	Operator panels
	60-6x	Reserved
	70-7x	Reserved
	90-9x	Reserved
	A0	ROS Heartbeat
	B0	O/S Heartbeat
	D0	Unknown device
	E0	Security
1	A0	SCSI Drivers (generic)
	B0	IDE Drives
	C0	RAID Drives
	D0	SSA Drives
	E0	Tapes SCSI
	E1	Tapes IDE
	ED	SCSI changer
	EE	Other SCSI device
	EF	Diskette drive
	F0	CDROM SCSI
	F1	CDROM IDE
	F2	Read/Write optical SCSI
	F3	Read/Write optical IDE
	F4 - FF	TBD media devices

Table 18. S2-S3-S4 Definition for devices/FRUs not defined in the PCI specification (continued)

Base Class S2	Sub-Class S3 - S4	Description
5	A0	L2 Cache Controller including integrated SRAM
	A1	L2 Cache SRAM
	A8	NVRAM
	A9	CMOS
	AA	Quartz/EEPROM
	B0 - Bx	Memory cards
	Cyy	Memory Dimms (Where C is S2, S3, or S4 and yy identifies the memory size and type).
7	A0	I ² C bus
8	A0	Power Management Functions
9	A0 - Ax	Keyboards
	B0 - Bx	Mouse(s)
	C0 - Cx	Dials
	D0	Tablet
	D1 - Dx	TBD input devices
B	A0	Service processor

Appendix I. High-Availability Cabling

HA - S80 or S85 Advanced Cluster Servers consist of a minimum of two systems in a cluster with two 7133 SSA Disk Storage Systems. Each system in the cluster requires the AIX operating system software and HACMP high-availability cluster software. The base systems use and share the external SSA disks in the 7133 SSA Disk Storage Systems.

Each system in a cluster has a minimum of two SSA PCI adapters to allow redundant connection to the 7133 SSA Disk Storage Systems.

It is highly recommended that a 3153 ASCII terminal (or equivalent) be purchased even if graphics adapters or remote workstations are used as the control console. This allows a service representative to work on one of the cluster servers through the serial port without affecting the other server. If a graphical display is preferred to the 3153 display, a low-cost workstation can be connected through an Ethernet connection or a local network.

The 7133 Serial Disk Storage System is shipped with eight 9.1 GB SSA disk drives on two loops and a redundant AC power supply

Up to four SSA adapters can be put in each cluster server. The base cluster server systems offer configuration flexibility. Because cluster servers are comprised of systems that can operate independently, all normally available features are supported.

Configuring the HA - S80 or S85 Advanced Cluster Server System With No Single Points of Failure

Redundant adapters and mirrored disks are the only way to guarantee redundancy in the 7133 serial disk system. In this configuration, no single hardware component failure can cause the serial disk system to be unavailable.

Refer to the *High Availability Cluster Multi-Processing for AIX, Version 4.3: Enhanced Scalability Installation and Administration Guide*, SC23-4284, and the *High Availability Cluster Multi-Processing for AIX, Version 4.3: Planning Guide*, SC23-4277, for HACMP/ES planning information.

The following table describes outages and their impacts for the minimum cluster server configuration with mirrored SSA adapters (2 Ethernets, 2 SSA adapters, mirrored disk, HACMP, external SSA and two power distribution units (PDUs) per I/O rack).

Hardware Failure Description	Failure Behavior If HACMP Is Not Configured	Extra Work Required To Provide Recovery Action (in addition to normal HACMP configuration)	Recovery Action and Behavior If HACMP Is Configured
Node Outage or AIX crash	Node unavailable	None	HACMP failover. Application(s) unavailable for brief time during failover.
Ethernet adapter failure	Access to node through Ethernet lost, error log entry.	None	HACMP swap adapter event moves IP address to spare adapter. Node Ethernet IP address unavailable for an extremely brief period as address is swapped.
SSA Drawer Power Supply Failure	None seen, error log entry	None	N/A (no failover)
SSA adapter failure ¹	None seen, error log entry	None	N/A (no failover)
CPU power supply or cooling subsystem failure.	Node available, N+1 redundancy	None	N/A (no failover)
CPU power cord or power supply circuit failure	Node unavailable	None	HACMP failover, application(s) unavailable for a brief time during failover.
I/O drawer power supply or cooling subsystem failure.	Node available, N+1 redundancy	None	N/A (no failover)
I/O drawer power cord failure	Fallover does not happen if the redundant power supplies are cabled to separate I/O rack power distribution units which are powered by different supply circuits.	None	N/A (no failover)
I/O power distribution unit power cord failure.	None	None	N/A (no failover)

¹ Assumes "Quorum off" for volume group.

Base HA - S80 or S85 Advanced Cluster Server System Cabling

This section provides cabling information for the base HA - S80 or S85 Advanced Cluster Server. The two model S80 or S85s should be installed and operational before cabling the HA - S80 or S85 Advanced Cluster Server. Four areas of cabling must be considered to ensure the redundancy required for no single points of failure:

- Cabling for server system consoles and cluster administration workstations
- Heartbeat connections between HA - S80 or S85 Advanced Cluster Servers
- SSA cable connections between HA - S80 or S85 Advanced Cluster Servers and 7133 Serial Disk Subsystems
- Power cable connections

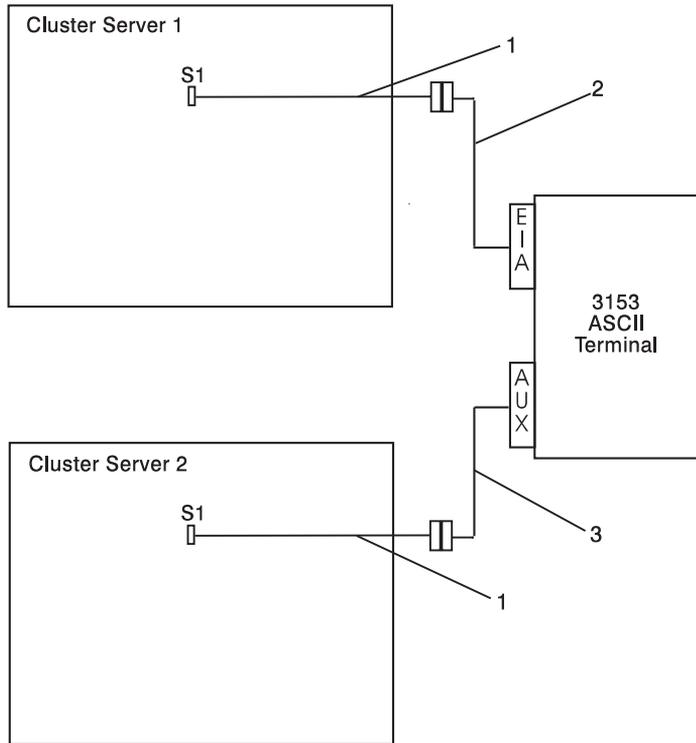
Cabling for System Consoles and Cluster Administration Workstations

The system console for an HA - S80 or S85 Advanced Cluster Server can be either an ASCII terminal connection to the S1 serial port or a graphics terminal connected to a graphics display adapter with keyboard and mouse connections directly to the keyboard and mouse ports on the server.

A cluster administration workstation is connected through a LAN connection. This section shows the cabling requirements for these connections.

HA Cluster Server with ASCII System Console

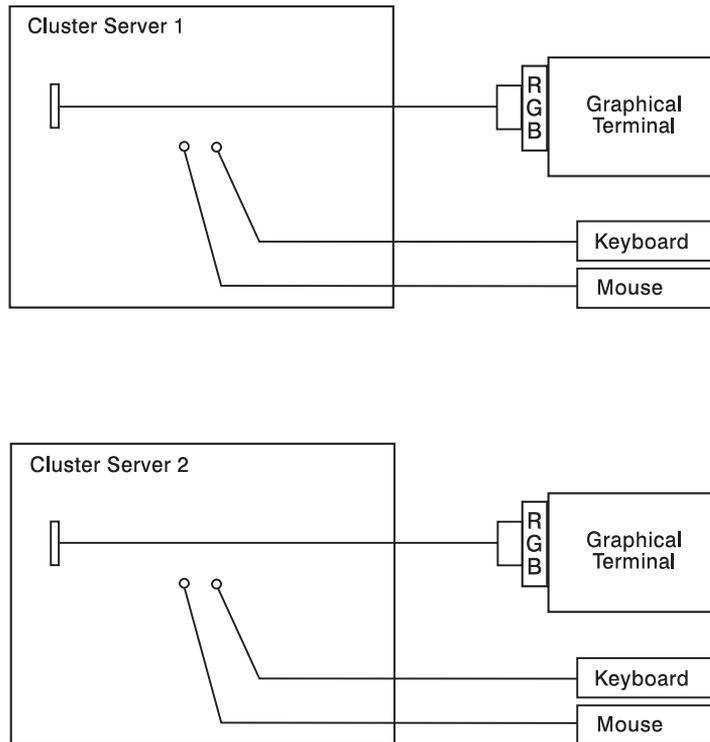
A single ASCII terminal connected to both servers in the cluster, as shown in the following illustration, allows a system administrator or the service representative to work on one server or the other without disrupting the operation of the cluster.



Index	Description
1	Cable adapter DB9f--DB25M (9 pin to 25 pin) (PN 40H6328)
2	Serial cable with internal null modem (PN 12H1204)
3	Serial cable without internal null modem (PN 88G0093)

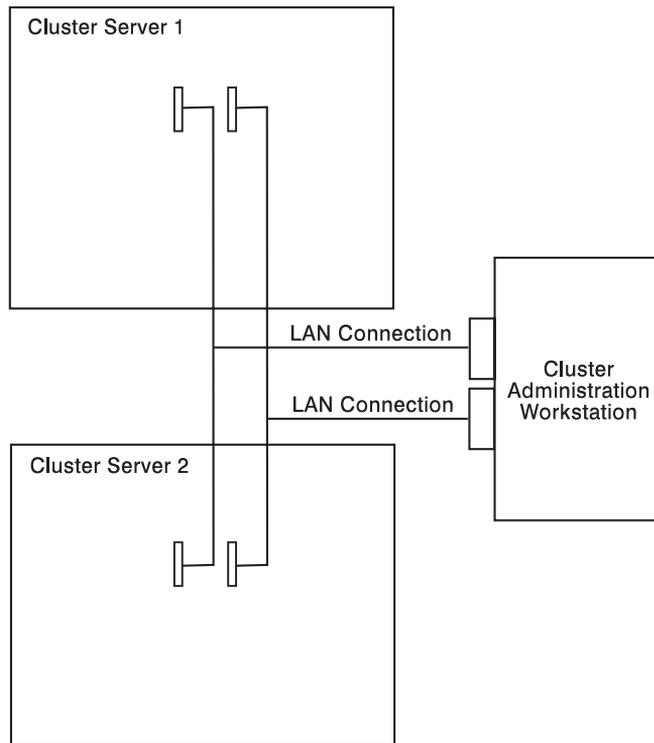
HA Cluster Server With Graphical System Console

If graphical system console is used for system administration or service representative tasks, each cluster server must have its own console, as shown in the following illustration:



HA Cluster Server Graphical Cluster Administration Workstation

In addition to the system consoles described in the previous sections, a LAN-attached cluster administration workstation is required. Two local area networks are required to eliminate a single point of failure.

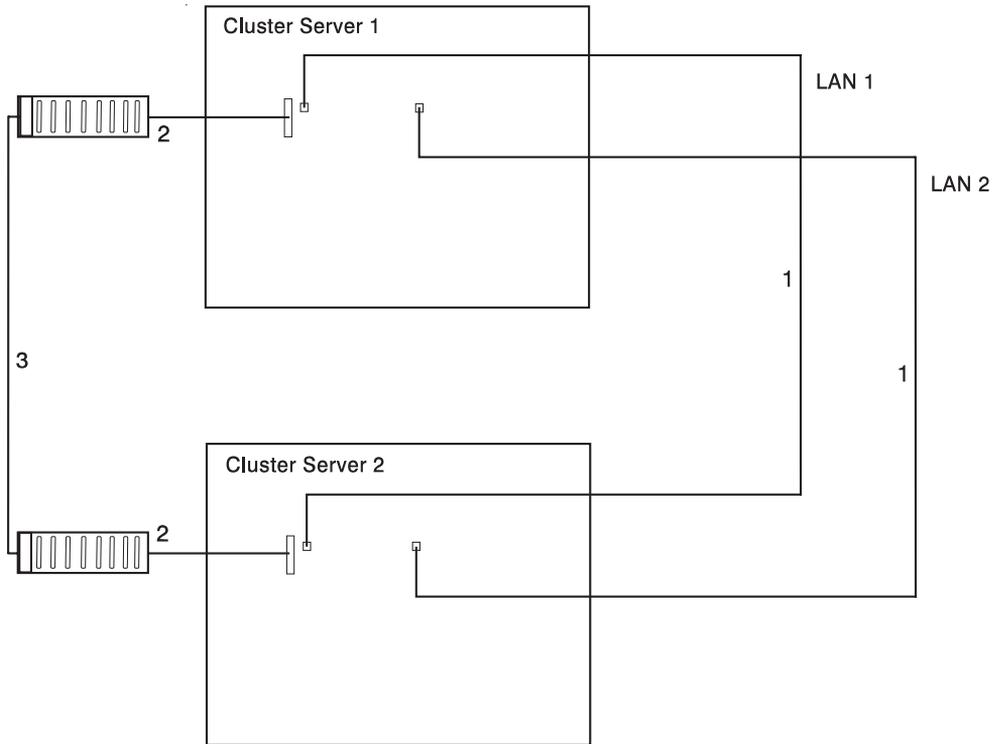


Base HA Heartbeat Connections

The primary heartbeat connections between two HA cluster servers are made through a serial connection and the LAN connections. These connections are shown in the following illustration.

The serial connection is made using an 8-Port Asynchronous PCI Adapter or an optional 128-Port Asynchronous PCI Adapter. The LAN connections are made using a pair of Ethernet, FDDI, Token Ring, or ATM connections.

The following illustration shows an HA cluster server using the 8-Port Asynchronous PCI Adapter and Ethernet connections.

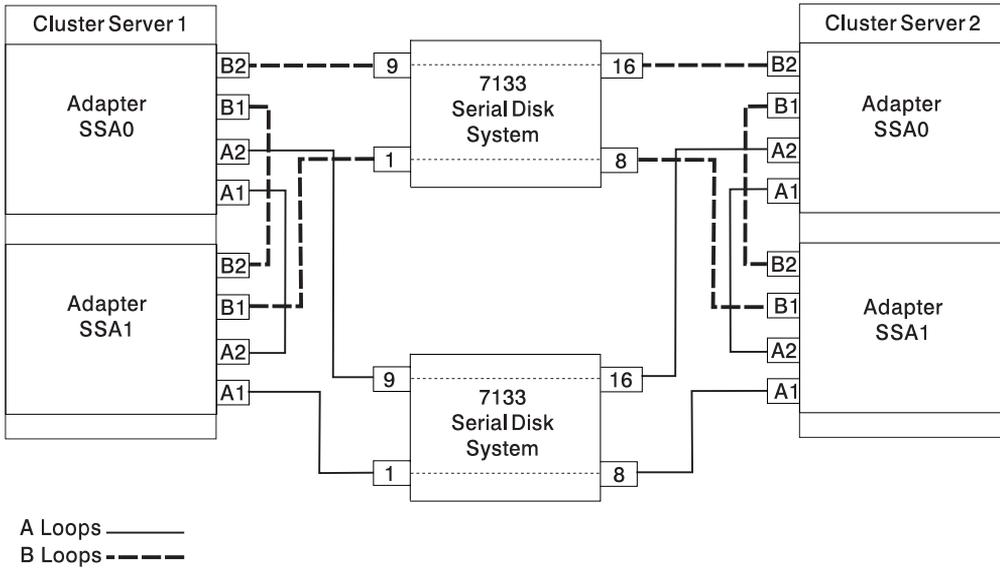


Index	Description
1	Ethernet Connections, the customer is responsible for furnishing the cabling to the Ethernet. (T2, T5 and 10baseT are all available).
2	8-Port DB-25 connector box (PN 11H5967) supplied with 8-Port Asynchronous EIA-232E/RS-422A PCI Adapter
3	Serial Port to Serial Port Cable (Rack to Rack, FC 3125)

SSA Cabling Connections

This section shows how to connect the cables from the HA - S80 or S85 Advanced Cluster Server and the 7133 Serial Disk Systems.

SSA From Cluster Servers to Double Looped 7133

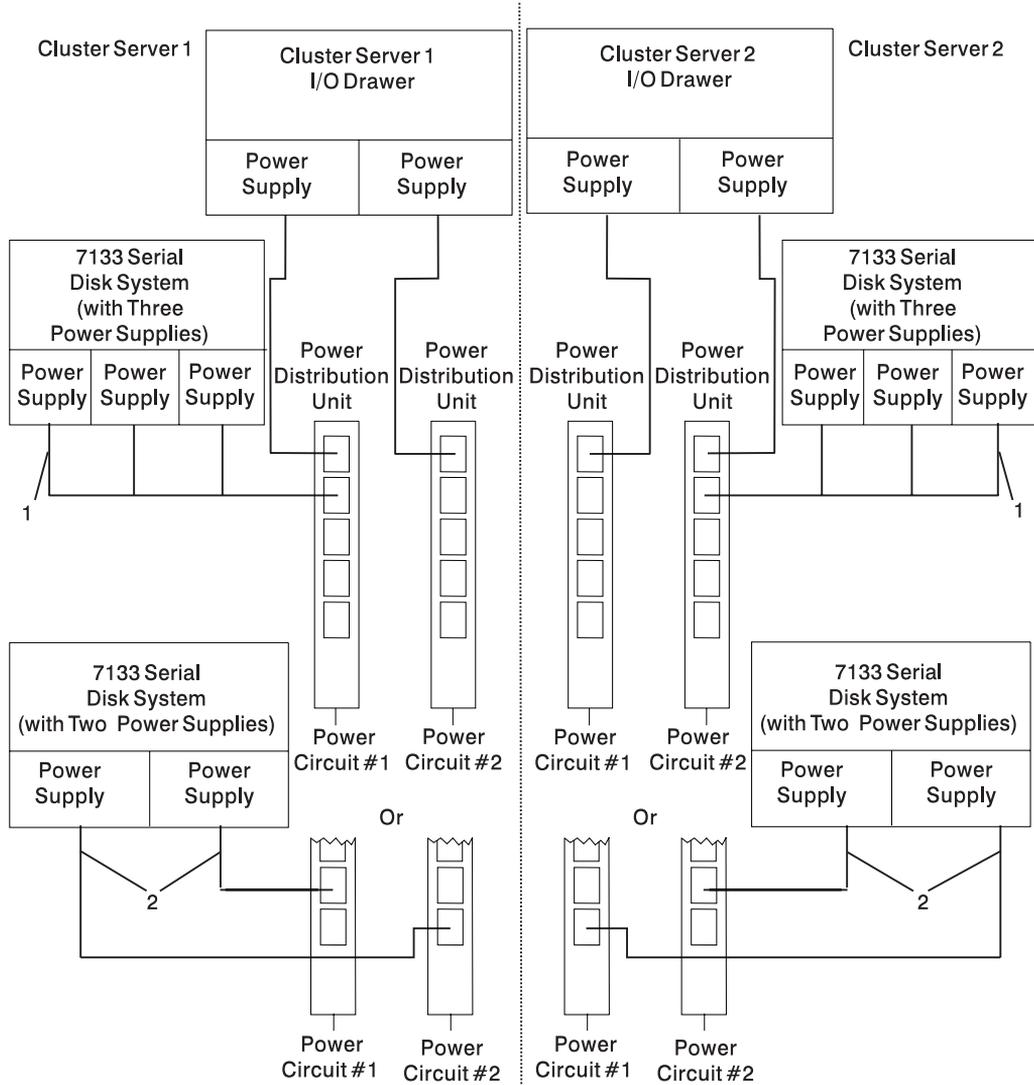


Note: The preceding illustration shows cabling for a fully populated 7133 (16 disk drives installed). Configuration with fewer disk drives, may use different port numbers.

Index	Description
All cables	7133 SSA Cable (FC 5050, PN 88G6404)

Base HA Cluster Server AC Power Connections

When installing an HA cluster server, care must be taken to ensure that power is also connected in a redundant manner. The figure below shows how power can be connected to ensure that your cluster has separate power connections.



Index	Description
1	Power Cable, PDU to 7133 with three power supplies
2	Power Cable, PDU to 7133 with two power supplies

Index

Numerics

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- 01 B 80
- 1xxx120y 105
- 1xxx140y 105
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- 8mm tape drive. 520

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 - operator panel 32
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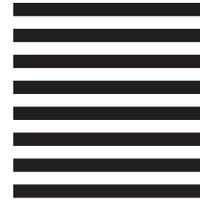
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