

RS/6000 Enterprise Server Model H80
@server pSeries 660 Models 6H0 and 6H1



Service Guide

Fourth Edition (April 2002)

Before using this information and the product it supports, read the information in "Safety Notices" on page xi, Appendix A, "Environmental Notices" on page 485, and Appendix B, "Notices" on page 487.

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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:

- xii
- 85
- 419
- 447

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:

- xii
- xiii
- 85
- 419
- 454
- 461

For a translation of the safety notices contained in this book, see the *System Unit Safety Information*, 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 direct 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 removing this unit.
- 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. To provide the correct power connection to the rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement for the supply circuit.
- 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 workstation.

DANGER

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

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

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

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

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

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.

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.

CAUTION:

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

Laser Safety Information

CAUTION:

This product may contain a CD-ROM which is a class 1 laser product.

Laser Compliance

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

CAUTION:

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

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 RS/6000 Enterprise Server Model H80, @server pSeries 660 Models 6H0 and 6H1, as well as adapters and attached devices that do not have their own service information. It also contains maintenance analysis procedures (MAPs) that are not common to other systems. In this book, the RS/6000 Enterprise Server Model H80, @server pSeries 660 Models 6H0 and 6H1 is hereafter referred to as the "system."

This book also contains Maintenance Analysis Procedures (MAPs) that are not common to other systems. MAPs that are common to all systems are contained in the *RS/6000 and @server pSeries Diagnostics 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 pSeries 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 are available:

- The *System Unit Safety Information*, order number SA23-2652, contains translations of safety information used throughout this book.
- The *RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 Installation Guide*, order number SA38-0575, contains information on how to set up and cable the system, install and remove options, and verify system operation.
- The *RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide*, order number SA38-0565, contains information on how to use the system, use diagnostics, use service aids, and verify system operations.
- The *7014 Model T00 and T42 Rack Installation and Service Guide*, order number SA38-0577, contains information regarding the 7014 Model T00 and T42 Rack, in which the RS/6000 Enterprise Server Model H80, @server pSeries 660 Models 6H0 and 6H1 may be installed.
- The *RS/6000 and @server pSeries Diagnostics 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 *RS/6000 and @server pSeries 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 *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.
- The *PCI Adapter Placement Reference*, order number SA38-0538, contains information regarding slot restrictions for adapters that can be used in this system.
- The *Site and Hardware Planning Information*, order number SA38-0508, contains information to help you plan your installation.
- The *SP Systems Service Guide*, order number GA22-7442, which contains servicing information for SP systems.
- The *Clustered @server Installation and Service Guide.*, order number GA22-7863, which contains service and installation information for clustered @serversystems.

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- RS/6000
- pSeries
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Chapter 1. Reference Information

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

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

Overview

The RS/6000 Enterprise Server Model H80, @server pSeries 660 Models 6H0 and 6H1 are multiprocessor, multibus systems packaged in drawers. The processors and memory are packaged in a 5 EIA-unit central electronics complex (CEC drawer), and the I/O devices are in a 5 EIA-unit I/O drawer. The basic system consists of one CEC drawer and one I/O drawer in the same rack. Connections between the CEC drawer and I/O drawers are made through a number of cables, which include the V/S COMM cable, RIO (remote input/output) cables, and JTAG cable.

Processors

The Model H80 and Model 6H1 can have one to six processors, of either of two processor types, in various configurations:

- Minimum configuration is one 450 MHz processor, which has 2 MB of L2 cache.
- Two or four 450 MHz processors, each with 4 MB of L2 cache.
- Six 500 MHz processors, each with 4 MB of L2 cache.

OR

- Minimum configuration is either one 600 MHz processor, which has 2 MB of L2 cache, or one 750 MHz processor, which has 8 MB of L2 cache.
- Two or four 600 MHz processors, each with 4 MB of L2 cache.
- Two or four 750 MHz processors, each with 8 MB of L2 cache.
- Six 668 MHz processors, each with 8 MB of L2 cache.
- Six 750 MHz processors, each with 8 MB of L2 cache.

The Model 6H0 can have one to four processors, of either of two processor types, in various configurations:

- Minimum configuration is one 450 MHz processor, which has 2 MB of L2 cache.
- Two or four 450 MHz processors, each with 4 MB of L2 cache.

OR

- Minimum configuration is either one 600 MHz processor, which has 2 MB of L2 cache, or one 750 MHz processor, which has 8 MB of L2 cache.
- Two or four 600 MHz processors, each with 4 MB of L2 cache.
- Two or four 750 MHz processors, each with 8 MB of L2 cache.

Memory

- 256 MB (minimum) to 32 GB (maximum)
- One or two memory riser cards; each riser card has sixteen sockets. 128 MB, 256 MB, 512 MB, and 1 GB dual inline memory modules (DIMMs) are available.
- Certain 32 MB DIMMs from older RS/6000 systems can also be used when upgrading the system memory.

Power is provided to the system rack through an ac power cord that is connected to a distribution bus. Power is connected from the distribution bus to each drawer independently. All drawers use 200 - 240 V ac power or -48 V dc power.

The primary I/O drawer has the following:

- 14 PCI slots
- System operator panel
- SPCN controller
- Interrupt and system bus control logic
- Service processor
- Optional boot DASDs
- Various connectors, including four serial port connectors, on the back of the drawer for the attachment of external devices.

Note: Serial ports 1 and 2 can only be used to access the service processor menus. No "heartbeat"-type devices or cables can be used on these ports. "Heartbeat"-type devices or cables must be installed on serial port 3 or serial port 4.

The PCI bus speeds are as follows:

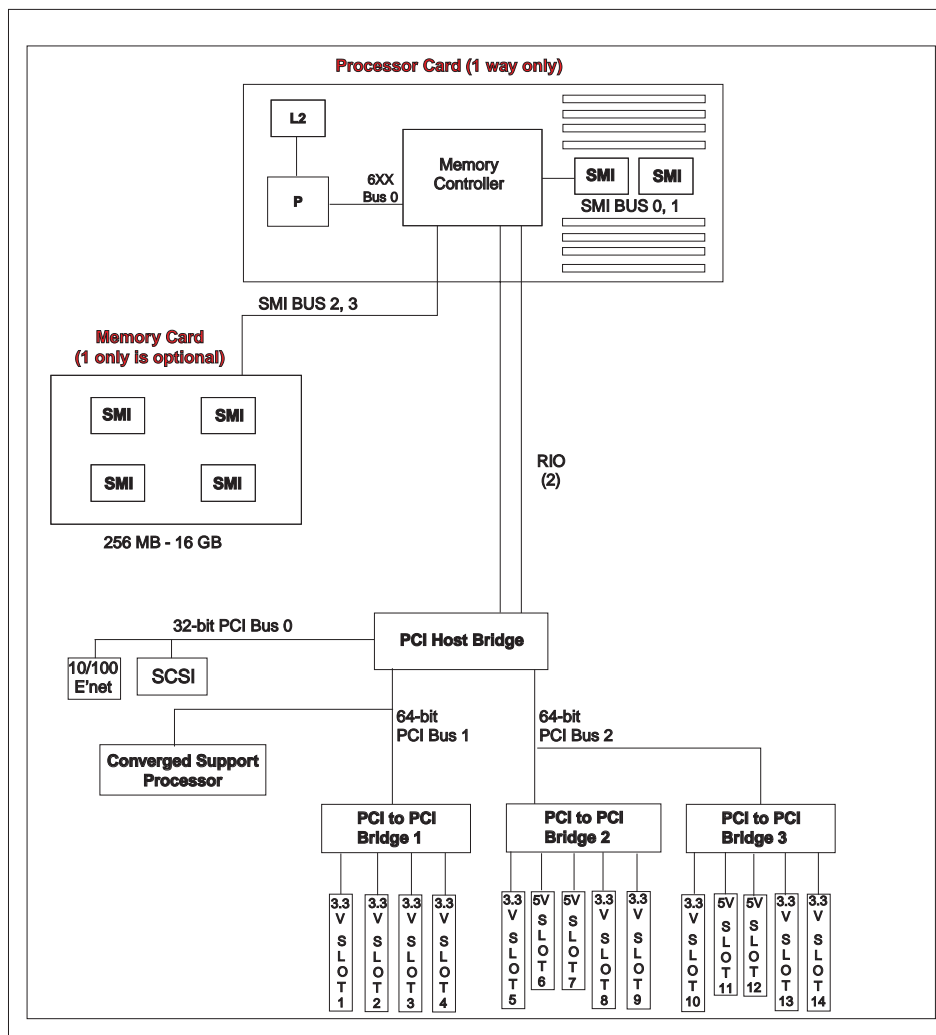
- Up to 33 Mhz for the four 32-bit slots at 5 V
- Up to 66 Mhz for the ten 64-bit slots at 3.3 V

Slots 1-5, 8-10, 13 and 14 support either 32- or 64-bit PCI adapters. The remaining slots are 32-bit only.

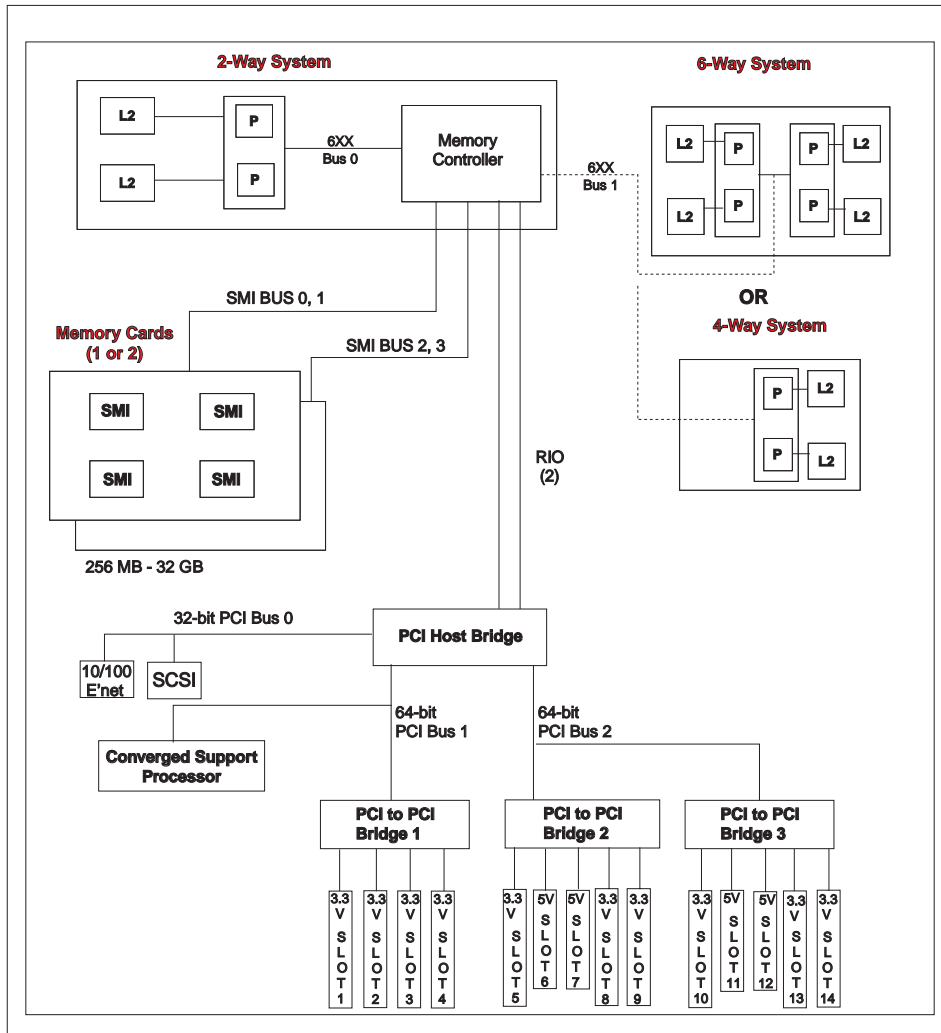
The primary I/O drawer has space for up to three media devices (tape, CD-ROM, and diskette drive). Two optional disk drives can occupy PCI slots 13 and 14.

The system data flow diagrams are shown in "Data Flow with One-Way Processor" on page 3 and "Data Flow with Two- to Six-Way Processor" on page 4.

Data Flow with One-Way Processor



Data Flow with Two- to Six-Way Processor



Powering the System On and Off

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

- V/S COMM Cable
- All RIO cables
- All SPCN cables
- JTAG Cable
- All PCI cables to supported drawers

After the required cables are installed, and the power cables are connected, the power button on the primary I/O drawer operator panel can be pushed to initialize the system. Progress indicators, also referred to as *checkpoints*, are visible on the primary I/O drawer operator panel display and the power LED on the primary I/O drawer stops blinking and stays on, indicating the system power is on.

The CEC drawer and secondary I/O drawers are powered on through the primary I/O drawer system power control network (SPCN). When power is applied, the power LEDs on the CEC drawer and primary I/O drawer go from blinking to on continuously, and the power LED on the secondary I/O drawer comes on and stays on. This indicates that power levels are satisfactory in the drawers.

If the system is operating under AIX, type the shutdown command to power off the system. If you cannot use this method, you can power off the system by pressing the primary I/O drawer operator-panel power button.

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

For complete details on how to power on and off the system, go to “Powering Off and Powering On the System” on page 421 and “System Power-On Methods” on page 390.

Console Strategy

The firmware starts 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 in the system configuration affects the console (keyboard installed/removed, mouse installed/removed, graphics adapter installed/removed or moved to another PCI slot).

The console-selection sequence allows you to select (from the appropriate input device) any one of the available console devices. If no console is selected within approximately 60 seconds, serial port 1 (S1) is selected as the console and the selection sequence times-out.

Attention: If an ASCII terminal is attached to serial port 1 (S1), and there is any interaction with this terminal, then:

- After OK displays in the operator panel
AND
- Before the power-on sequence is initiated

the firmware will use this terminal as the console, regardless of the previous console selection.

After a console has been selected, the console-selection sequence is only started 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) are lost.

Note: Moving an ASCII terminal from one serial port to another (from S1 to S2) cannot be detected by the firmware, so it does not constitute a configuration change.

You can also initiate a system console-selection sequence from the 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 displays, and POST indicators appear on the firmware 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 are words that display on the system console. Each time that the system starts a different step in the POST, a POST indicator word appears on the console. Each word is an indicator of the tests that are being performed.

The POST screen displays the following words:

| | |
|-----------------|---|
| Memory | Memory test |
| Keyboard | Initialize the keyboard and mouse. The time period for pressing a key to access the System Management Services, or to initiate a service mode boot is now open. See "POST Keys" for more information. |
| Network | Self-test on network adapters |
| SCSI | Adapters are being initialized |
| Speaker | 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 speaker displays, cause the system to start services or to initiate service mode boots used for configuring the system and diagnosing problems. The keys are described below:

Note: The program function keys (F1-F12) on a keyboard attached to the I/O drawer are not used and will be ignored. After the keyboard POST indicator displays, you must use the numeric number keys to enter input.

1 Key

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

5 Key

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

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

The default boot sequence is:

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

6 Key

The numeric 6 key works like the numeric 5 key, except that firmware uses the customized service mode bootlist that was set up using the AIX service aids.

8 Key

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

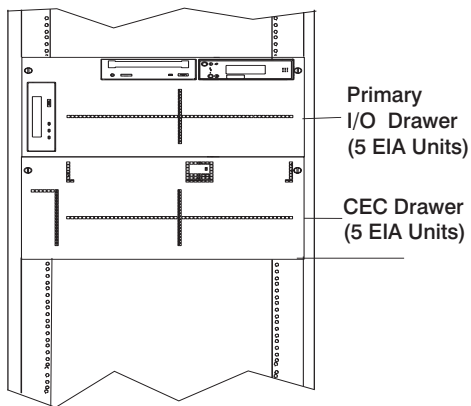
When initialization and POST are complete, the open firmware command line (an OK prompt) displays.

The open firmware command line should only be used by service personnel to obtain additional debug information.

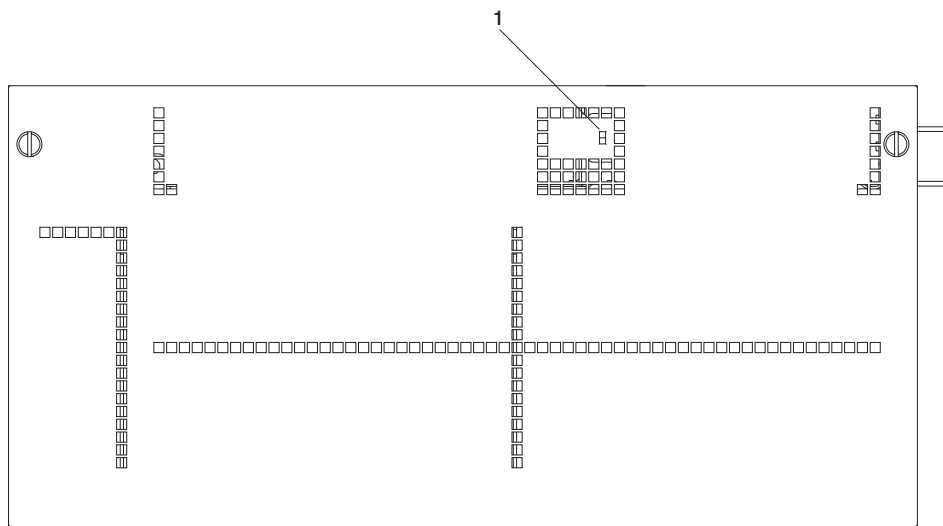
To exit from the open firmware command prompt, type `reset-all` or power off the system and reboot.

System Unit Locations

The system consists of a minimum of two drawers in one rack: the CEC drawer and the primary I/O drawer. These two components are connected by cables that transmit data and control signals. An additional I/O drawer can be added if further expansion of the system is required. The following figure shows the units.

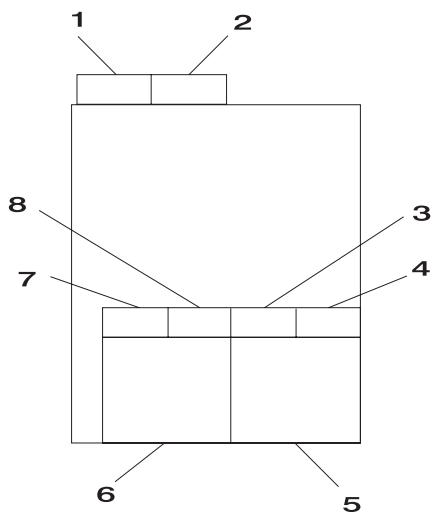


CEC Drawer Front View



1 Power-On LED

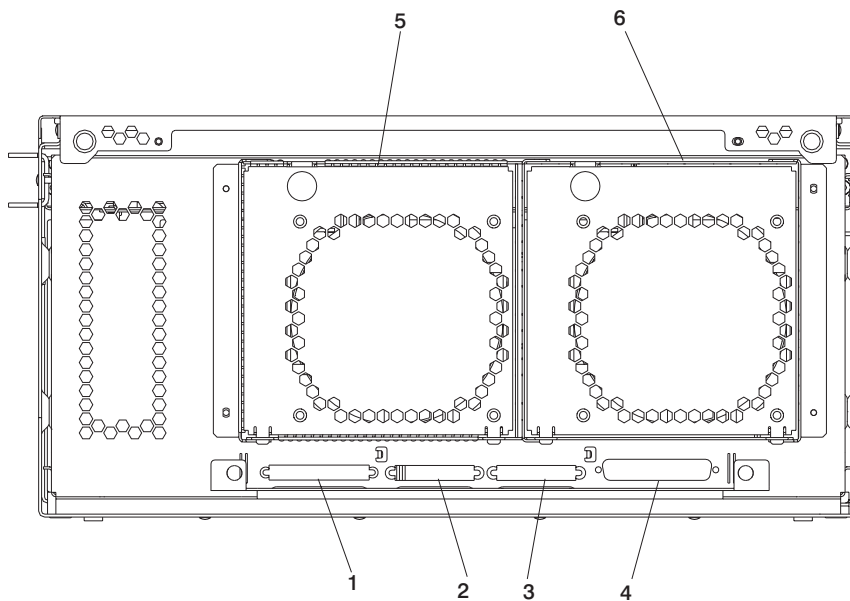
CEC Drawer Top View



1 Fan 8 U1.1-F8
 3 Fan 2 U1.1-F2
 5 Power Supply 1 with Fan 5 U1.1-V1
 7 Fan 4 U1.1-F4

2 Fan 7 U1.1-F7
 4 Fan 1 U1.1-F1
 6 Power Supply 2 with Fan 6 U1.1-V2
 or Cooling Unit Fan 9 U1.1-F9
 8 Fan 3 U1.1-F3

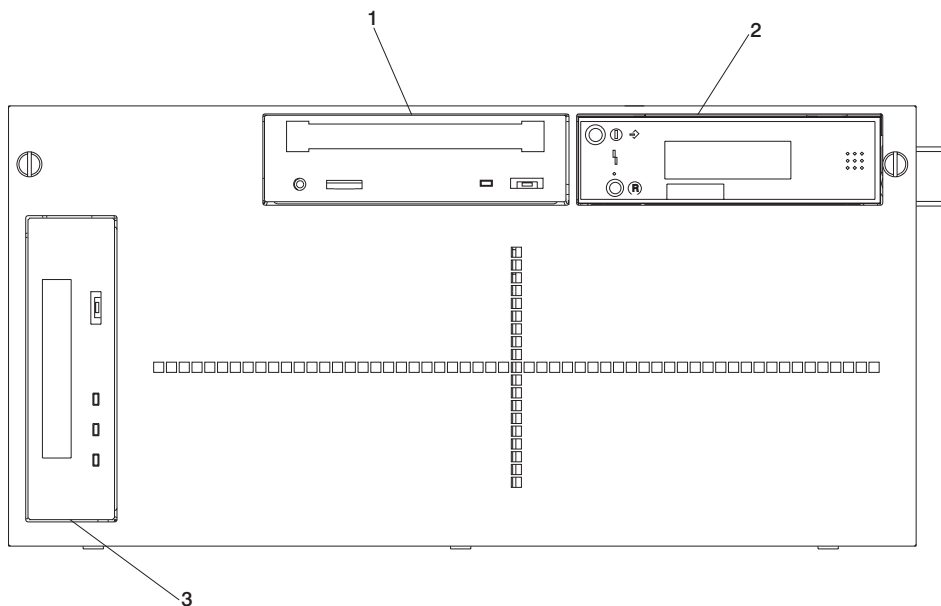
CEC Drawer Rear View



1 V/S COMM
3 RIO 1
5 Fan 7

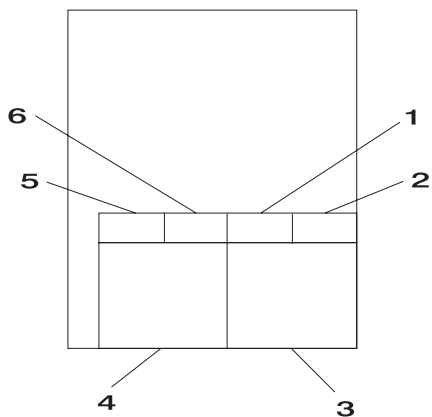
2 RIO 0
4 JTAG
6 Fan 8

Primary I/O Drawer Front View



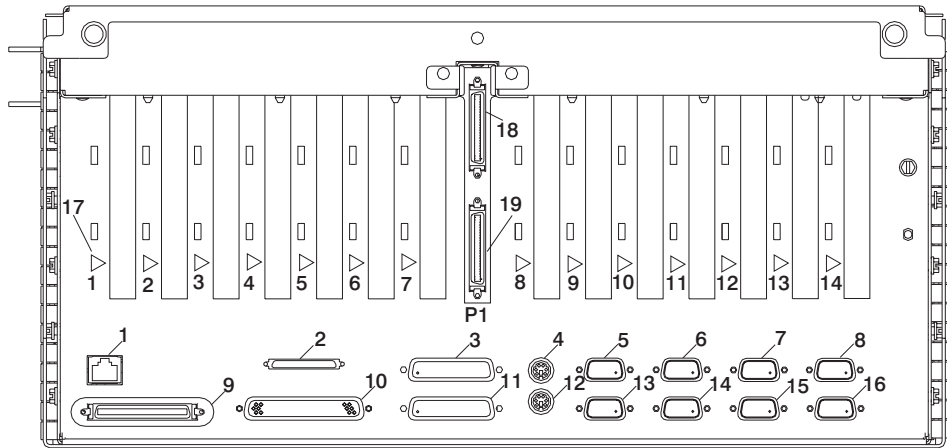
- | | |
|--|-------------------------|
| <p>1 CD-ROM drive</p> <p>3 Tape drive (optional)</p> | <p>2 Operator panel</p> |
|--|-------------------------|

Primary I/O Drawer Top View



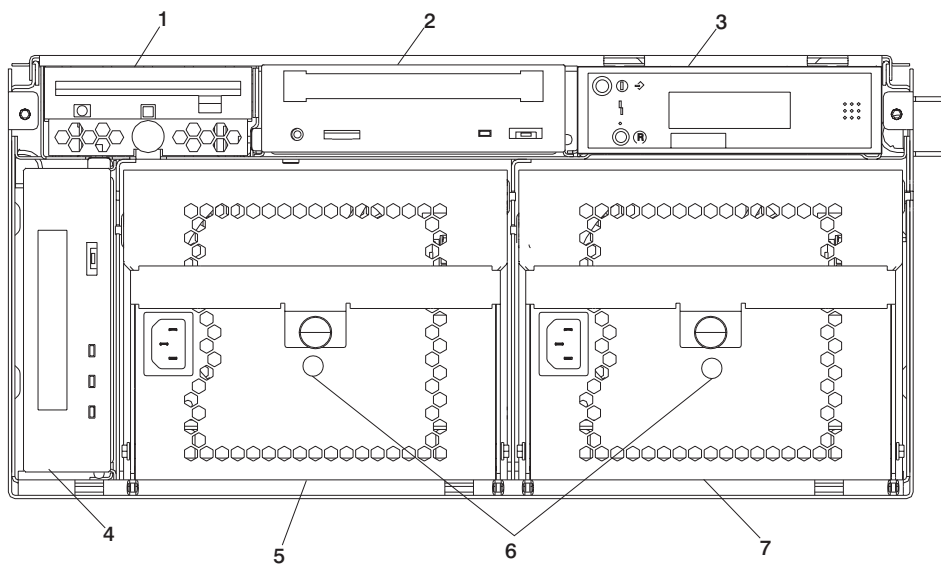
- | | |
|--|--|
| <p>1 Fan 2 U0.1-F2</p> <p>3 Power Supply 1 with Fan 5 U0.1-V1</p> <p>5 Fan 4 U0.1-F4</p> | <p>2 Fan 1 U0.1-F1</p> <p>4 Power Supply 2 with Fan 6 U0.1-V2 or Cooling Unit Fan 9 U0.1-F9</p> <p>6 Fan 3 U0.1-F3</p> |
|--|--|

Primary I/O Drawer Rear View



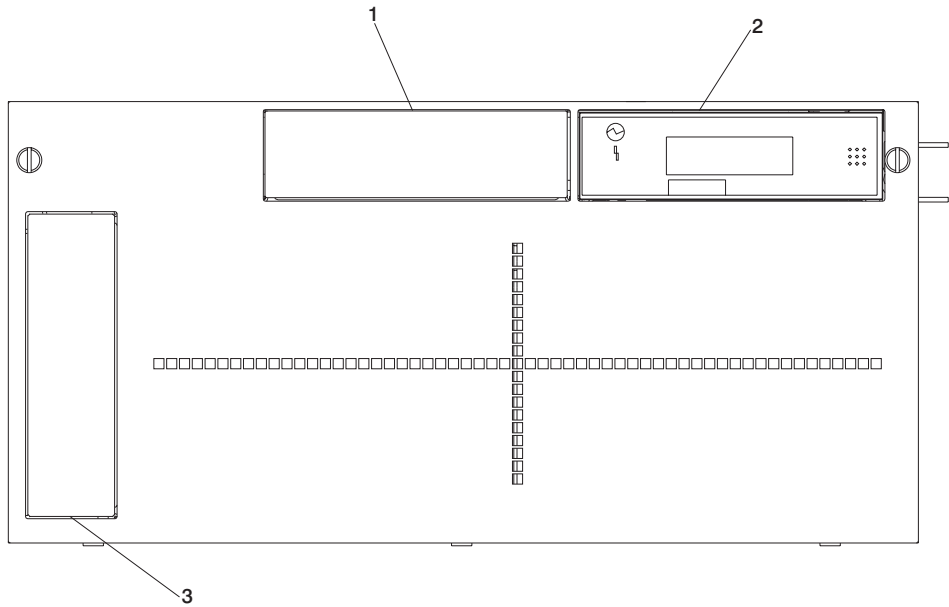
- | | | | |
|----|-------------------------------------|----|----------------------------------|
| 1 | Ethernet connector | 2 | SCSI connector |
| 3 | Debug | 4 | Mouse connector |
| 5 | Serial port 1 | 6 | Serial port 2 |
| 7 | J11 (SPCN 1 connector) | 8 | J14 (SPCN 3 connector, reserved) |
| 9 | V/S COMM | 10 | JTAG connector |
| 11 | Parallel port | 12 | Keyboard connector |
| 13 | Serial port 3 | 14 | Serial port 4 |
| 15 | J15 (SPCN 2 connector) | 16 | J16 (SPCN 4 connector) |
| 17 | Hot-Plug LED (one for each adapter) | 18 | RIO 1 connector |
| 19 | RIO 0 connector | | |

Primary I/O Drawer Front View with Covers Removed



- | | | | |
|---|------------------------|---|-------------------------------|
| 1 | Bay A - Diskette drive | 2 | Bay B - CD-ROM drive |
| 3 | Bay C - Operator panel | 4 | Bay D - Tape drive (optional) |
| 5 | Power supply 2 | 6 | Power supply LEDs |
| 7 | Power supply 1 | | |

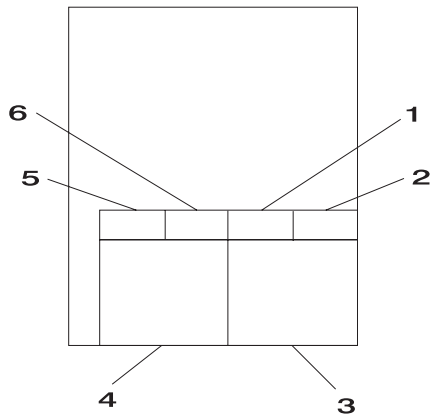
Secondary I/O Drawer Front View



- 1 Optional media bay
- 3 Optional media bay

- 2 Operator panel

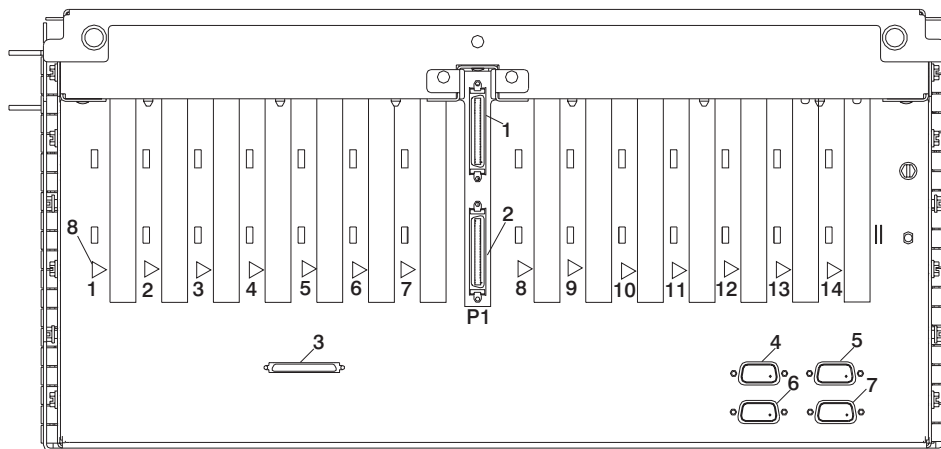
Secondary I/O Drawer Top View



- 1 Fan 2 U0.2-F2
- 3 Power Supply 1 with Fan 5 U0.2-V1
- 5 Fan 4 U0.2-F4

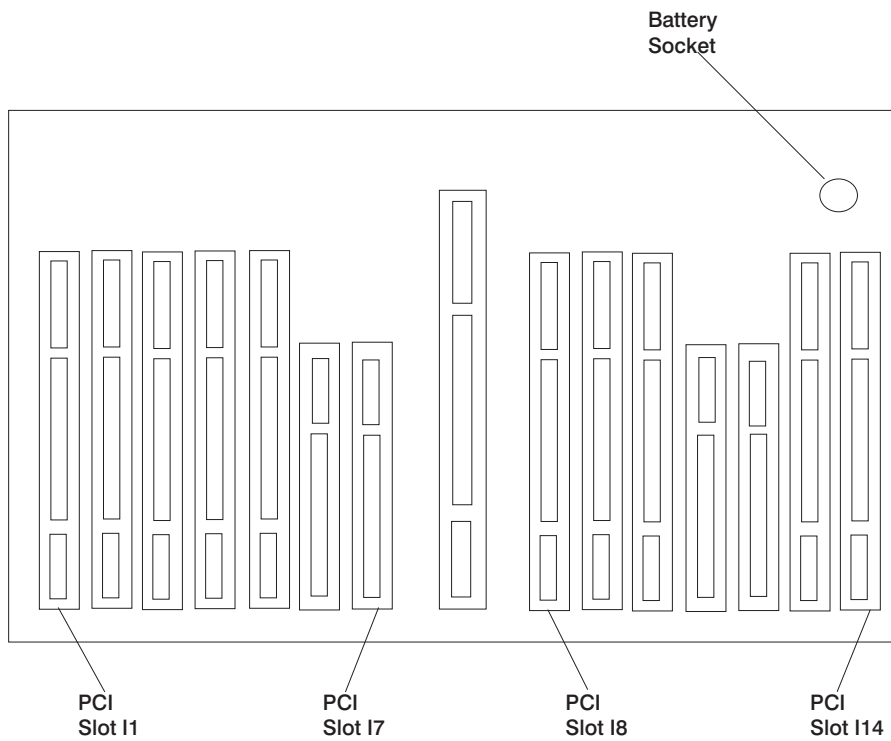
- 2 Fan 1 U0.2-F1
- 4 Power Supply 2 with Fan 6 U0.2-V2
or Cooling Unit Fan 9 U0.2-F9
- 6 Fan 3 U0.2-F3

Secondary I/O Drawer Rear View

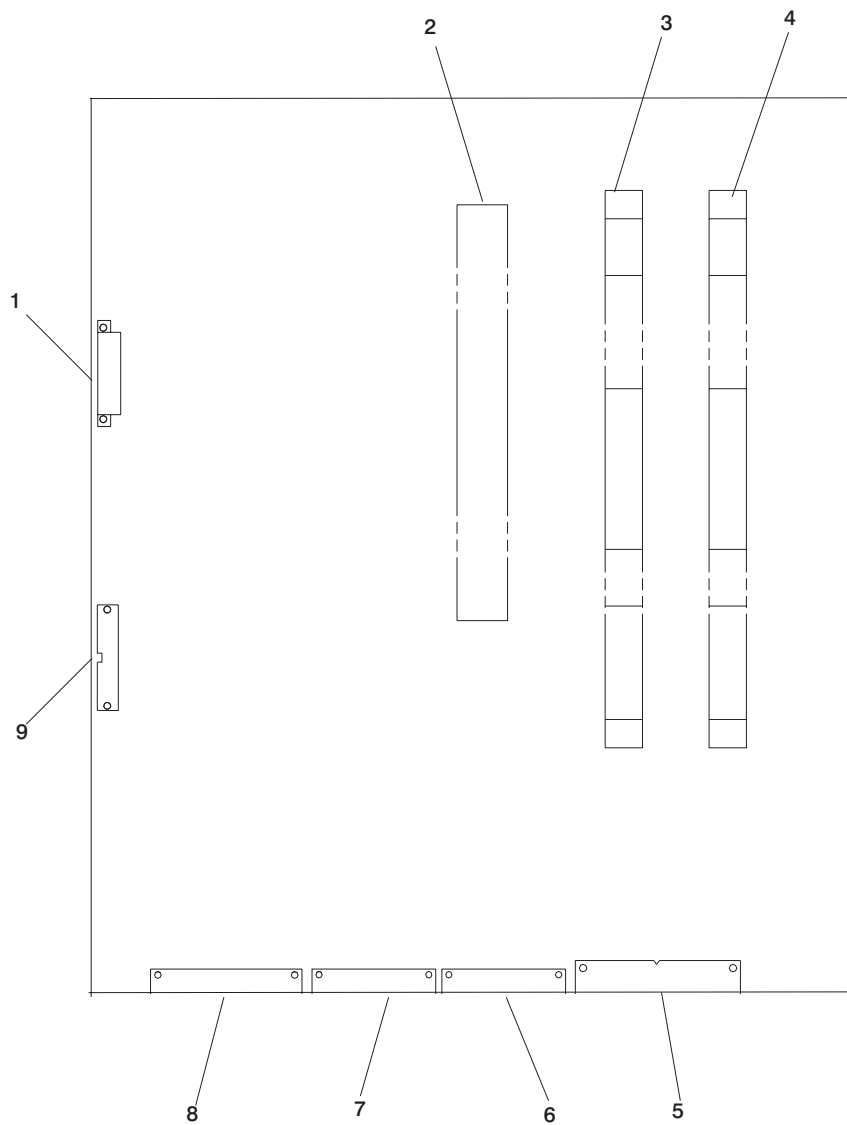


- | | | | |
|---|------------------------|---|-------------------------------------|
| 1 | RIO 1 connector | 2 | RIO 0 connector |
| 3 | SCSI connector | 4 | J11 (SPCN 1 connector) |
| 5 | J14 (SPCN 3 connector) | 6 | J16 (SPCN 2 connector) |
| 7 | J15 (SPCN 4 connector) | 8 | Hot-plug LED (one for each adapter) |

PCI Board Locations

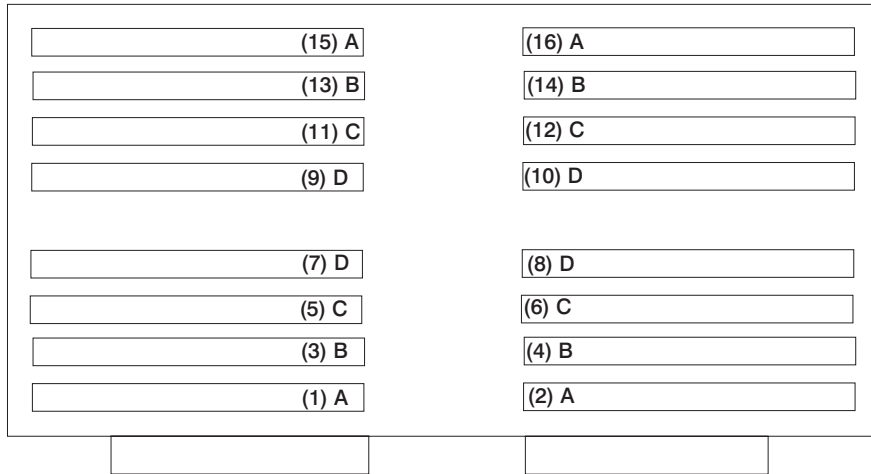


System Board Locations



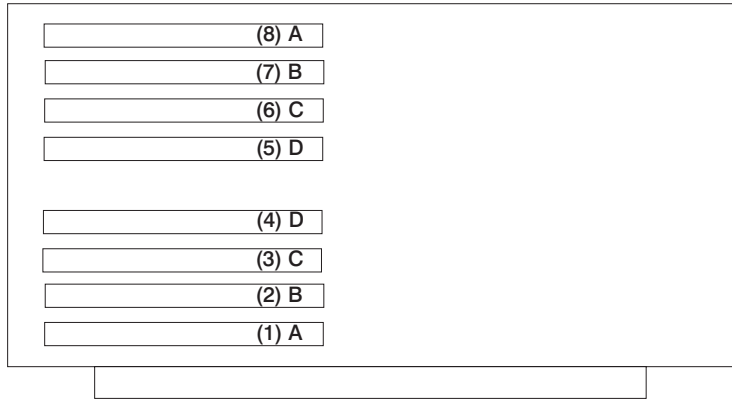
- | | | | |
|---|------------------------------------|---|-------------------------------|
| 1 | Power distribution board connector | 2 | Processor card connector |
| 3 | Memory riser card 1 connector | 4 | Memory riser card 2 connector |
| 5 | JTAG connector | 6 | RIO 1 connector |
| 7 | RIO 0 connector | 8 | V/S COMM connector |
| 9 | SPCN connector | | |

Memory Riser Card and Memory DIMM Locations



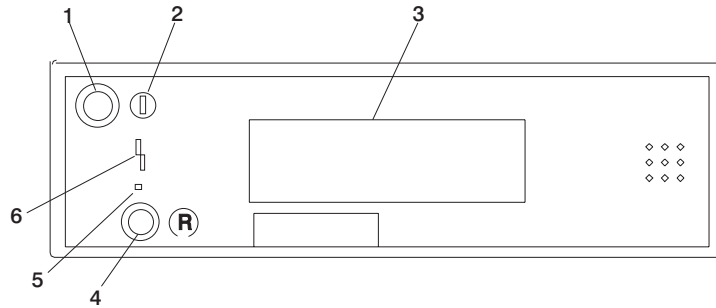
| Location Code | Memory DIMMs |
|------------------|--|
| U1.1-P1-M1.n | Memory DIMMs on riser card 1 (n denotes DIMM number) |
| U1.1-P1-M2.n | Memory DIMMs on riser card 2 (n denotes DIMM number) |
| U1.1-P1-M1.1 x2 | Memory pair A (DIMMs 1 and 15) |
| U1.1-P1-M1.1 x4 | Memory quad A (DIMMs 1, 2, 15, 16) |
| U1.1-P1-M1.3 x4 | Memory quad B (DIMMs 3, 4, 13, 14) |
| U1.1-P1-M1.5 x4 | Memory quad C (DIMMs 5, 6, 11, 12) |
| U1.1-P1-M1.7 x4 | Memory quad D (DIMMs 7, 8, 9, 10) |
| U1.1-P1-M2.1 x2 | Memory pair A (DIMMs 1 and 15) |
| U1.1-P1-M2.1 x4 | Memory quad A (DIMMs 1, 2, 15, 16) |
| U1.1-P1-M2.3 x4 | Memory quad B (DIMMs 3, 4, 13, 14) |
| U1.1-P1-M2.5 x4 | Memory quad C (DIMMs 5, 6, 11, 12) |
| U1.1-P1-M2.7 x4 | Memory quad D (DIMMs 7, 8, 9, 10) |
| U1.1-P1-M1.1 x16 | All memory DIMMs on riser card 1 |
| U1.1-P1-M2.1 x16 | All memory DIMMs on riser card 2 |
| U1.1-P1-M1 x2 | All memory DIMMs on riser cards 1 and 2 |

One-Way Processor Card Memory DIMM Locations



| Location Code | Memory DIMMs |
|------------------|--|
| U1.1-P1-C1-Mn | Memory DIMMs on processor card (n denotes DIMM number) |
| U1.1-P1-C1-M1 x2 | Memory pair A (DIMMs 1 and 8) |
| U1.1-P1-C1-M2 x2 | Memory pair B (DIMMs 2 and 7) |
| U1.1-P1-C1-M3 x2 | Memory pair C (DIMMs 3 and 6) |
| U1.1-P1-C1-M4 x2 | Memory pair D (DIMMs 4 and 5) |
| U1.1-P1-C1-M1 x8 | All memory DIMMs on processor card |

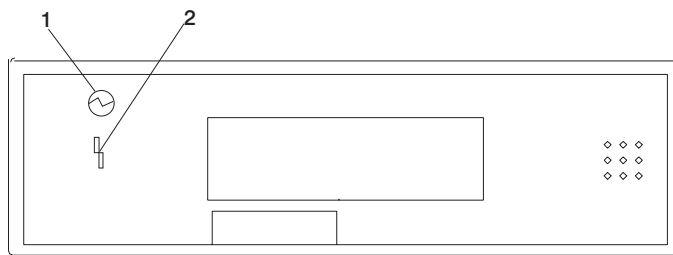
Primary I/O Drawer Operator Panel



- | | | | |
|---|--|---|-------------------------------------|
| 1 | Power on/off button | 2 | Power on/off LED |
| 3 | Operator panel display | 4 | Reset button |
| 5 | Service processor reset button opening | 6 | Disturbance or system attention LED |

Note: The service processor reset button should only be activated as part of a service action and must therefore be activated very carefully. An insulated paper clip is recommended. Unbend the clip so that it has a straight section about two inches long. Insert the clip straight into the hole, keeping the clip perpendicular to the plastic bezel. When you engage the reset switch, you should feel the detent of the switch. After you press the switch, the service processor resets and then shuts down the system.

Secondary I/O Drawer Operator Panel

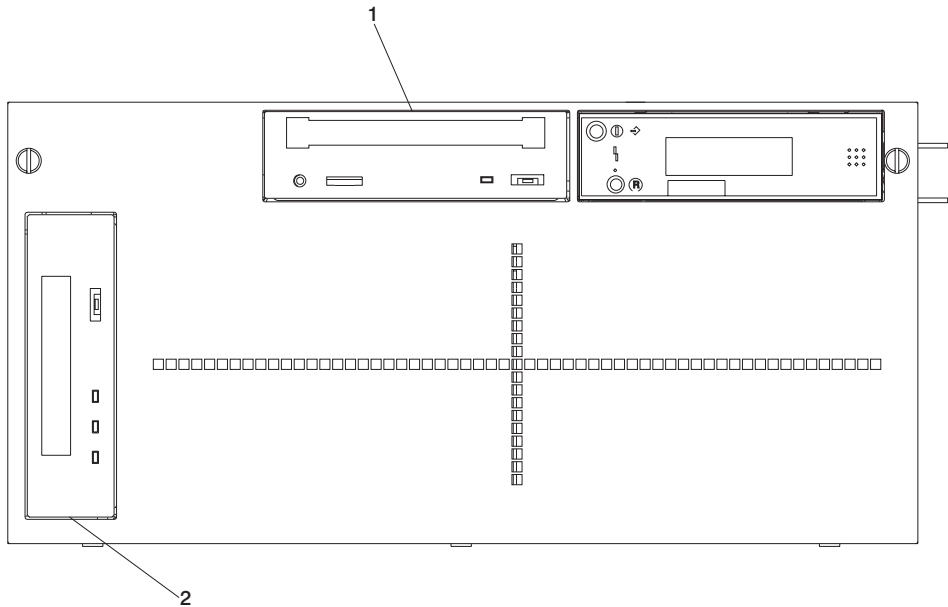


1 Power present LED

2 Disturbance or system attention LED

SCSI IDs and Bay Locations

The following figure shows the SCSI IDs for media devices. The SCSI IDs for media devices installed at the factory are set using jumpers on the drives when they are installed. The SCSI IDs are set as shown in the following figure.



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

1 CD-ROM drive (SCSI ID= 1)

2 Tape drive (SCSI ID= 0)

System Memory

Two slots are available for system memory riser cards. The system memory riser cards are located for easy access in the CEC drawer. (These slots are shown in “System Board Locations” on page 17.) Each memory riser card has 16 DIMM slots.

Four sizes of DIMMs are available: 128 MB, 256 MB, 512 MB and 1 GB. In addition, certain 32 MB DIMMS from earlier RS/6000 systems can also be used.

One-Way Processor Memory Placement Rules

The rules for one-way processor memory are as follows:

- Minimum memory is 1 pair of DIMMs in slots 1 and 8 (see “One-Way Processor Card Memory DIMM Locations” on page 19).
- Maximum memory is 4 DIMM pairs in slots 1 through 8 (see “One-Way Processor Card Memory DIMM Locations” on page 19).
- Each memory riser slot must have a memory filler card installed.
- When you are installing a memory riser card:
 - Memory DIMMs must be moved from the one-way processor card to the memory riser card.
 - The memory riser card must then have a minimum of four DIMMS (1 quad).

Riser Card Memory Placement Rules

The rules for riser card memory are as follows:

- Memory quads must contain DIMMs of equal memory size.
- Quad memory size may be mixed on a riser card.
- The minimum memory is four DIMMs. This memory must occupy quad A, which is slots 1, 2, 15, and 16 (see “Memory Riser Card and Memory DIMM Locations” on page 18).
- Populate the riser card starting with quad A and continuing with quads B, C, and D (see “Memory Riser Card and Memory DIMM Locations” on page 18).

I/O Drawer Features

I/O drawers may 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 and monitored by the power distribution board contained in the 5 EIA-unit I/O drawer. 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 board to protect against shorts in one output, thus causing the +12 V dc to fail completely.

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 power.

The 5 V dc standby power is provided by both power supplies; this can be done because the power supplies contain overload protection against one supply shorting the other. Standby power (5 V dc) is provided to the part of the primary I/O drawer planar on which the SPCN and service processor logic reside.

I/O Drawer Addressing

I/O drawer addressing refers to the drawer number that is displayed in the operator panel on secondary I/O drawers. This address is the drawer's location in the RIO (remote I/O) loop. The drawer number is displayed in the form U0.n, where n is the drawer number. The primary I/O drawer number is 1 by default, but it is not displayed on the operator panel. The first time that the system is booted after a service action or configuration change that involves an I/O drawer or its backplane, the system may detect a duplicate or incorrect I/O drawer number. This situation can result in duplicate or incorrect drawer numbers being displayed when the system is booting up. The final drawer number will be assigned and displayed, when the bootup is complete. The drawer numbers are not reassigned unless a service action or configuration change occurs.

When ac power has been disconnected from the system or from a drawer, then reconnected, the I/O drawer address temporarily displays in the format *0n, where n is the drawer number. After the system is powered on, and the boot sequence has been initiated, the drawer numbers are restored to the U0.n format.

I/O Drawer and Power Supply LED Status

The following table summarizes the possible conditions of I/O drawer and power supply LEDs:

| Status of LED | Operator Panel LED | Right Power Supply LED | Left Power Supply LED |
|--------------------|---------------------------------------|---|---|
| Off | No power connected | No power connected or system power connected, not turned on, power supply detects NO faults | No power connected or system power connected, not turned on, power supply detects NO faults |
| On, blinking green | System power connected, not turned on | System power connected, not turned on, power supply detected fault | System power connected, not turned on, power supply detected fault |
| On, steady green | System power connected and turned on | System power connected and turned on | System power connected and turned on |

Message Hierarchy for Secondary I/O Drawer Operator Panel

The messages that are displayed in the operator panel on secondary I/O drawers are arranged hierarchically, from highest priority to lowest priority. The message hierarchy is as follows:

1. 8-character error code

This indicates a critical error; the drawer power will be shut down. Standby power is still on, so the error message is still displayed in the operator panel. The I/O drawer Attention LED will be on. The error code displays on the top line of the display panel, left-justified. A FRU part number may also be displayed, right-justified, in the second line of the display.

2. 8-character informational message

This is a noncritical message, so the drawer power will not be shut down. The message should be investigated to see if service actions are indicated. A FRU part number may also be displayed, right-justified, in the second line of the display.

When 8-character codes are displayed, they are in the form 10n1xxxx, where n is the drawer number.

3. 8-character checkpoint

There is one 8-character checkpoint that will be displayed, 10n100AA, where n is the drawer number. This checkpoint indicates that the system power control network firmware is being updated, and the checkpoint will be displayed for approximately 15 seconds. This is the only checkpoint that displays on a secondary I/O drawer operator panel.

4. Drawer number

This will be in the form U0.n, where n is the drawer number. This message will normally be displayed unless a higher-level message is required.

When ac power has been disconnected from the system, then reconnected, the I/O drawer addresses on the secondary drawers will temporarily display in the format *0n, where n is the drawer number. After the system is powered on, and the boot sequence has been initiated, the drawer numbers are restored to the U0.n format.

Primary I/O Drawer Operator Panel Behavior During Power-On

After Connecting AC Power

| Drawer State | Power LED | Drawer Operator Panel Display |
|--------------------------|-----------------|--|
| Standby | Blinking slowly | 8xxx checkpoints followed by OK |
| System power On | Blinking fast | 9xxx checkpoints ending with E1FF |
| Receive firmware command | On solid | Exxx checkpoints ending with E105 |
| Thereafter | On solid | 0xxx checkpoints ending with a blank display |

After Power is Removed Because of a Breakdown

| Drawer State | Power LED | Drawer Operator Panel Display |
|--------------------------|-----------------|--|
| Standby | Blinking slowly | OK is displayed |
| System power On | Blinking fast | 9xxx checkpoints ending with E1FF |
| Receive firmware command | On solid | Exxx checkpoints ending with E105 |
| Thereafter | On solid | 0xxx checkpoints ending with a blank display |

Critical error codes are posted on the top line (left-justified) of the drawer display with the attention light on solid. Any location codes are posted on the bottom line (left-justified).

Noncritical error codes are not posted. The drawer display remains blank with the attention light on solid.

Secondary I/O Drawer Operator Panel Behavior During Power-On

After Connecting AC Power

| Drawer State | Power LED | Drawer Operator Panel Display |
|--------------------------------------|-----------|--|
| Standby | Off | Display shows a temporary drawer ID |
| Receive firmware command to power on | On solid | Message based on “Message Hierarchy for Secondary I/O Drawer Operator Panel” on page 26. |

After Power is Removed Because of a Shutdown

| Drawer State | Power LED | Drawer Operator Panel Display |
|--------------------------------------|-----------|---|
| Standby | Off | Message based on “Message Hierarchy for Secondary I/O Drawer Operator Panel” on page 26 |
| Receive firmware command to power on | On solid | Message based on “Message Hierarchy for Secondary I/O Drawer Operator Panel” on page 26 |

Logical and Physical Locations

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

Physical Location Codes

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

Location Code Format

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

- P1-C1 identifies a processor card C1 plugged into planar P1.
- P1-M1 identifies a memory card M1 plugged into planar P1.
- P1-K1 identifies a keyboard attached to K1 on planar P1.
- P1/S1 identifies serial port 1 controller on planar P1, the connector for serial port 1, or the cable attached to serial port 1.
- P1-I2/E3 identifies an Ethernet controller 3 on the card in slot 2 (I2) on planar P1, the connector for Ethernet controller 3, or the cable attached to Ethernet controller 3.
- P1-I2#E3 identifies the cable attached to Ethernet controller 3 on the card in slot 2 (I2) on planar P1.

The period (.) identifies sublocations (DIMMs on a memory card, SCSI addresses, cables). The following are examples:

- P1-M1.4 identifies DIMM 4 on memory card 1 plugged into planar P1.
- P1-C1.1 identifies processor 1 plugged into processor card 1 which is plugged into planar P1.
- U0.1-P1/Z1-A3 identifies a SCSI device with SCSI ID 3 attached to SCSI bus 1 on planar 1 in the primary I/O drawer.
- P2-Z1-A3.1 identifies a SCSI device with SCSI address of LUN 1 at SCSI ID 3 attached to SCSI bus 1 from planar 2.
- P1-I2#E3.2 identifies the second in a series of cables attached to Ethernet controller 3 on the card in slot 2 (I2) on planar P1.

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

Multiple FRU Callout Instructions

If an eight-digit error code appears in the operator panel display or in Chapter 5, “Error Code to FRU Index” on page 157, a location code for a failing part may also be specified. If the location code includes a blank space followed by a lowercase x followed by a number, this is an error code with multiple FRU callouts. This error can typically happen with memory DIMMs, memory riser cards, or processors and may involve mixed types of parts. In this case, check the system’s configuration FRU part numbers to determine the appropriate set of FRUs.

For example, if the location code U1.1-P1-M1.1 x2 was displayed, this indicates memory pair A (two DIMMs) on the first memory riser card was suspected.

You can determine the FRU part numbers of the electronic assemblies in the system in two ways:

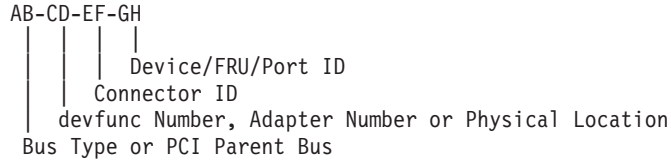
- Using the service processor menus
From the general user menu, select **Read VPD Image from Last System Boot**, then enter 90 to display detailed vital product data (VPD).
- Using the **lscfg -vp | pg** command on the AIX command line
Type the following command: `lscfg -vp | pg` to display the detailed VPD of all assemblies. Notice that the FRU part number information for processors and memory DIMMs may be at the bottom of the command output.

AIX Location Codes

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

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

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



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

Adapters and cards are identified only with AB-CD.

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

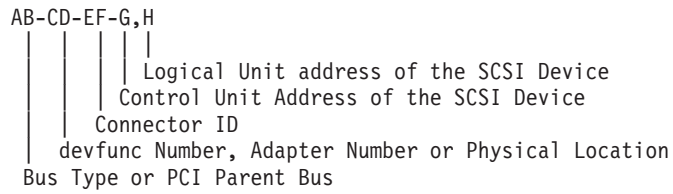
EF is the connector ID, used to identify the adapter's connector to which a resource is attached.

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

- For 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 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.

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 and AIX location codes are:

1. PCI adapter in primary I/O drawer, slot 1
 - Location Code U0.1-P1-I1
 - AIX Location Code 11-08
2. PCI adapter in secondary I/O drawer, slot 1
 - Location Code U0.2-P1-I1
 - AIX Location Code 51-08

AIX and Physical Location Code Reference Tables

The following tables contain location codes that are used to identify functional units in the system. Each of the following tables shows the locations for a physical part of the system.

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|----------------------------------|--------------------------------|-------------------|---|--------------------|
| CEC Drawer | | | | |
| CEC Drawer | U1.1 | 00-00 | | |
| CEC Backplane | U1.1-P1 | 00-00 | | |
| Processor Card | U1.1-P1-C1 | 00-00 to 00-0A | Connector M03 | |
| Processor Card Cache | U1.1-P1-C1 | 00-00 | | |
| I/O Hub and Interrupt Controller | U1.1-P1-C1 | 00-00 | | |
| Regulator | U1.1-P1-C1 | 00-00 | | |
| Memory Controller | U1.1-P1-C1 | 00-00 | | |
| Memory DIMMs on Processor Card | U1.1-P1-C1-M1 to U1.1-P1-C1-M8 | 00-00 | Refer to "One-Way Processor Card Memory DIMM Locations" on page 19. | |
| Memory Pair A on Processor Card | U1.1-P1-C1-M1 x2 | 00-00 | Refer to "One-Way Processor Card Memory DIMM Locations" on page 19. | |
| Memory Pair B on Processor Card | U1.1-P1-C1-M2 x2 | 00-00 | Refer to "One-Way Processor Card Memory DIMM Locations" on page 19. | |
| Memory Pair C on Processor Card | U1.1-P1-C1-M3 x2 | 00-00 | Refer to "One-Way Processor Card Memory DIMM Locations" on page 19. | |
| Memory Pair D on Processor Card | U1.1-P1-C1-M4 x2 | 00-00 | Refer to "One-Way Processor Card Memory DIMM Locations" on page 19. | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|------------------------------------|-------------------------------|-------------------|---|--------------------|
| All memory DIMMs on Processor Card | U1.1-P1-C1-M1 x8 | 00-00 | Refer to "One-Way Processor Card Memory DIMM Locations" on page 19. | |
| Riser Card 1 Memory DIMMs 1 - 16 | U1.1-P1-M1.1 to U1.1-P1-M1.16 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory pair A on riser card 1 | U1.1-P1-M1.1 x2 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad A on riser card 1 | U1.1-P1-M1.1 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad B on riser card 1 | U1.1-P1-M1.3 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad C on riser card 1 | U1.1-P1-M1.5 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad D on riser card 1 | U1.1-P1-M1.7 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| All memory on riser card 1 | U1.1-P1-M1.1 x16 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Riser Card 2 Memory DIMMs 1 - 16 | U1.1-P1-M2.1 to U1.1-P1-M2.16 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18.. | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|-------------------------------------|------------------|-------------------|--|--------------------|
| Memory quad A on riser card 2 | U1.1-P1-M2.1 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad B on riser card 2 | U1.1-P1-M2.3 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad C on riser card 2 | U1.1-P1-M2.5 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| Memory quad D on riser card 2 | U1.1-P1-M2.7 x4 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| All memory on riser card 2 | U1.1-P1-M2.1 x16 | 00-00 | Refer to "Memory Riser Card and Memory DIMM Locations" on page 18. | |
| All memory (both riser cards) | U1.1-P1-M1 x2 | 00-00 | Connectors M01 and M02 | |
| RIO Port 0 Connector | U1.1-P1-C1/Q3 | | | |
| RIO Port 1 Connector | U1.1-P1-C1/Q2 | | | |
| RIO Port 0 Cable/Connector | U1.1-P1/Q3 | | | |
| RIO Port 1 Cable/Connector | U1.1-P1/Q2 | | | |
| V/S COMM Connector | U1.1-P1/Q1 | | | |
| JTAG Connector | U1.1-P1/Q4 | | | |
| Thermal Sensor | U1.1-P1 | | | |
| Power Distribution Card | U1.1-X1 | | | |
| Power Distribution Card Connector 1 | U1.1-X1/V1 | | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|-------------------------------------|---------------|-------------------|------------------------------------|--------------------|
| Power Distribution Card Connector 2 | U1.1-X1/V2 | | | |
| Fan Controller Card | U1.1-X2 | | PDB connector J3 | |
| LED Card | U1.1-L1 | | PDB connector J6 | |
| Power Supply 1 (w/Fan 5) | U1.1-V1 | | PDB connector J2 | |
| Power Supply 2 (w/Fan 6) | U1.1-V2 | | PDB connector J1 | |
| Fan 1 | U1.1-F1 | | Fan connector P3 on power supply 1 | |
| Fan 2 | U1.1-F2 | | Fan connector P3 on power supply 1 | |
| Fan 3 | U1.1-F3 | | Fan connector P3 on power supply 2 | |
| Fan 4 | U1.1-F4 | | Fan connector P3 on power supply 2 | |
| Fan 7 | U1.1-F7 | | PDB connector J7 | |
| Fan 8 | U1.1-F8 | | PDB connector J7 | |
| Fan 9 | U1.1-F9 | | In cooling unit | |
| Primary I/O Drawer Locations | | | | |
| Primary I/O Drawer | U0.1 | | | |
| Primary I/O Backplane | U0.1-P1 | | | |
| Service Processor | U0.1-P1 | | | |
| NVRAM | U0.1-P1 | Not used by AIX | | |
| Service Processor ISA Bridge | U0.1-P1 | Not used by AIX | | |
| Real Time Clock (RTC) | U0.1-P1 | Not used by AIX | | |
| Timer | U0.1-P1 | Not used by AIX | | |
| Interrupt Controller | U0.1-P1 | Not used by AIX | | |
| DMA Controller | U0.1-P1 | Not used by AIX | | |
| SPCN Controller | U0.1-P1 | | I/O board connector J2 | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|--------------------------|---------------|---|-------------------------|--------------------|
| Battery | U0.1-P1-V3 | | | |
| Diskette Controller | U0.1-P1/D1 | 01-D1 | | |
| Diskette Drive Connector | U0.1-P1-D1 | 01-D1-00-00 | I/O board connector J28 | |
| Keyboard Controller | U0.1-P1/K1 | 01-K1-00 | | |
| Keyboard Connector | U0.1-P1-K1 | 01-K1-00-00 | | |
| Mouse Controller | U0.1-P1-K11 | 01-K1-01 | | |
| Mouse | U0.1-P1-O1 | 01-K1-01-00 | | |
| V/S COMM Connector | U0.1-P1/Q1 | | | |
| JTAG Connector | U0.1-P1/Q4 | Not used by AIX | I/O board connector J9 | |
| Parallel Port | U0.1-P1/R1 | 01-R1 | | |
| Serial Port 1 | U0.1-P1/S1 | 01-S1 | | |
| Serial Port 2 | U0.1-P1/S2 | 01-S2 | | |
| Serial Port 3 | U0.1-P1/S3 | 01-S3 | | |
| Serial Port 4 | U0.1-P1/S4 | 01-S4 | | |
| RIO Bus Adapter | U0.1-P1.1 | | | |
| RIO Port 0 Connector | U0.1-P1.1/Q1 | | | |
| RIO Port 1 Connector | U0.1-P1.1/Q2 | | | |
| PCI Bus Controller 1 | U0.1-P1 | 00-fff7f09000 | | |
| ISA Bus | U0.1-P1 | 10-80 | | |
| PCI to PCI Bridge 1 | U0.1-P1 | 10-58 10-5A 10-5C 10-5E | | |
| PCI Slot 1 | U0.1-P1/I1 | 10-58 | | |
| PCI Slot 1 Content | U0.1-P1-I1 | 11-08 thru 11-0F or 12-xx or 13-xx | | |
| PCI Slot 2 | U0.1-P1/I2 | 10-5A | | |
| PCI Slot 2 Content | U0.1-P1-I2 | 14-08 thru 14-0F or 15-xx or 16-xx | | |
| PCI Slot 3 | U0.1-P1/I3 | 10-5C | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|----------------------|---------------|---|---------------------|--------------------|
| PCI Slot 3 Content | U0.1-P1-I3 | 17-08 thru 17-0F or 18-xx or 19-xx | | |
| PCI Slot 4 | U0.1-P1/I4 | 10-5E | | |
| PCI Slot 4 Content | U0.1-P1-I4 | 1A-08 thru 1A-0F or 1B-xx or 1C-xx | | |
| PCI Bus Controller 2 | U0.1-P1 | 00-fff7f0a000 | | |
| PCI to PCI Bridge 2 | U0.1-P1 | 20-58 20-5A 20-5B 20-5C 20-5E | | |
| PCI Slot 5 | U0.1-P1/I5 | 20-58 | | |
| PCI Slot 5 Content | U0.1-P1-I5 | 21-08 thru 21-0F or 22-xx or 23-xx | | |
| PCI Slot 6 (5V) | U0.1-P1/I6 | 20-5A | | |
| PCI Slot 6 Content | U0.1-P1-I6 | 24-08 thru 24-0F or 25-xx or 26-xx | | |
| PCI Slot 7 (5V) | U0.1-P1/I7 | 20-5B | | |
| PCI Slot 7 Content | U0.1-P1-I7 | 27-08 thru 27-0F or 28-xx or 29-xx | | |
| PCI Slot 8 | U0.1-P1/I8 | 20-5C | | |
| PCI Slot 8 Content | U0.1-P1-I8 | 2A-08 thru 2A-0F or 2B-xx or 2C-xx | | |
| PCI Slot 9 | U0.1-P1/I9 | 20-5E | | |
| PCI Slot 9 Content | U0.1-P1-I9 | 2D-08 thru 2D-0F or 2E-xx or 2F-xx | | |
| PCI to PCI Bridge 3 | U0.1-P1 | 20-60 20-62 20-63 20-64 20-66 | | |
| PCI Slot 10 | U0.1-P1/I10 | 20-60 | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|-------------------------------------|---------------|---|---------------------|--------------------|
| PCI Slot 10 Content | U0.1-P1-I10 | 31-08 thru 31-0F or 32-xx or 33-xx | | |
| PCI Slot 11 (5V) | U0.1-P1/I11 | 20-62 | | |
| PCI Slot 11 Content | U0.1-P1-I11 | 34-08 thru 34-0F or 35-xx or 36-xx | | |
| PCI Slot 12 (5V) | U0.1-P1/I12 | 20-63 | | |
| PCI Slot 12 Content | U0.1-P1-I12 | 37-08 thru 37-0F or 38-xx or 39-xx | | |
| PCI Slot 13 | U0.1-P1/I13 | 20-64 | | |
| PCI Slot 13 Content | U0.1-P1-I13 | 3A-08 thru 3A-0F or 3B-xx or 3C-xx | | |
| PCI Slot 14 | U0.1-P1/I14 | 20-66 | | |
| PCI Slot 14 Content | U0.1-P1-I14 | 3D-08 thru 3D-0F or 3E-xx or 3F-xx | | |
| PCI Bus Controller 0 | U0.1-P1 | 00-fff7f08000 | | |
| Integrated Ethernet | U0.1-P1/E1 | 40-58 | | |
| Internal SCSI Controller | U0.1-P1/Z1 | 40-60 | | |
| CD-ROM drive | U0.1-P1/Z1-A1 | 40-60-00-1 | | |
| Tape drive | U0.1-P1/Z1-A0 | 40-60-00-0 | | |
| Internal DASD 1 | U0.1-P1/Z1-A4 | 40-60-00-4 | | |
| Internal DASD 2 | U0.1-P1/Z1-A8 | 40-60-00-8 | | |
| External SCSI Controller | U0.1-P1/Z2 | 40-61 | | |
| Thermal Sensor (Right) | U0.1-P1 | | | |
| Thermal Sensor (Left) | U0.1-P1 | | | |
| Power Distribution Card | U0.1-X1 | | | |
| Power Distribution Card Connector 1 | U0.1-X1/V1 | | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|---------------------------------------|---------------|-------------------|------------------------------------|--------------------|
| Power Distribution Card Connector 2 | U0.1-X1/V2 | | | |
| Fan Controller Card | U0.1-X2 | | PDB connector J3 | |
| Operator Panel | U0.1-L1 | N/A | I/O board connector J3 | |
| System VPD Module | U0.1-L1-N1 | | | |
| Thermal Sensor (Ambient) | U0.1-L1 | | | |
| Power Supply 1 (w/Fan 5) | U0.1-V1 | | PDB connector J2 | |
| Power Supply 2 (w/Fan 6) | U0.1-V2 | | PDB connector J1 | |
| Fan 1 | U0.1-F1 | | Fan connector P3 on power supply 1 | |
| Fan 2 | U0.1-F2 | | Fan connector P3 on power supply 1 | |
| Fan 3 | U0.1-F3 | | Fan connector P3 on power supply 2 | |
| Fan 4 | U0.1-F4 | | Fan connector P3 on power supply 2 | |
| Fan 9 | U0.1-F9 | | In cooling unit | |
| Service Processor Firmware | U0.1-P1/Y2 | | | |
| System Firmware | U0.1-P1/Y1 | | | |
| SPCN Firmware | U0.1-P1/Y3 | | | |
| SPCN VPD | U0.1-P1/Y4 | | | |
| Secondary I/O Drawer Locations | | | | |
| Secondary I/O Drawer | U0.2 | | | |
| Secondary I/O Backplane | U0.2-P1 | | | |
| SPCN Controller | U0.2-P1 | | I/O board connector J2 | |
| Ext. SCSI Connector | U0.2-P1/Z1 | | | |
| RIO Bus Adapter | U0.2-P1.1 | | | |
| RIO Port 0 Connector | U0.2-P1.1/Q1 | | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|----------------------|---------------|---|---------------------|--------------------|
| RIO Port 1 Connector | U0.2-P1.1/Q2 | | | |
| PCI Bus Controller 1 | U0.2-P1 | 00-fff7e09000 | | |
| PCI to PCI Bridge 1 | U0.2-P1 | 50-58 50-5A 50-5C 50-5E | | |
| PCI Slot 1 | U0.2-P1/I1 | 50-58 | | |
| PCI Slot 1 Content | U0.2-P1-I1 | 51-08 thru 51-0F or 52-xx or 53-xx | | |
| PCI Slot 2 | U0.2-P1/I2 | 50-5A | | |
| PCI Slot 2 Content | U0.2-P1-I2 | 54-08 thru 54-0F or 55-xx or 55-xx | | |
| PCI Slot 3 | U0.2-P1/I3 | 50-5C | | |
| PCI Slot 3 Content | U0.2-P1-I3 | 57-08 thru 57-0F or 58-xx or 59-xx | | |
| PCI Slot 4 | U0.2-P1/I4 | 50-5E | | |
| PCI Slot 4 Content | U0.2-P1-I4 | 5A-08 thru 5A-0F or 5B-xx or 5C-xx | | |
| PCI Bus Controller 2 | U0.2-P1 | 000fff7e0a000 | | |
| PCI to PCI Bridge 2 | U0.2-P1 | 60-58 60-5A 60-5B 60-5C 60-5E | | |
| PCI Slot 5 | U0.2-P1/I5 | 60-58 | | |
| PCI Slot 5 Content | U0.2-P1-I5 | 61-08 thru 61-0F or 62-xx or 63-xx | | |
| PCI Slot 6 (5V) | U0.2-P1/I6 | 60-5A | | |
| PCI Slot 6 Content | U0.2-P1-I6 | 64-08 thru 64-0F or 65-xx or 66-xx | | |
| PCI Slot 7 (5V) | U0.2-P1/I7 | 60-5B | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|---------------------------|---------------|---|---------------------|--------------------|
| PCI Slot 7 Content | U0.2-P1-I7 | 67-08 thru 67-0F or 68-xx or 69-xx | | |
| PCI Slot 8 | U0.2-P1/I8 | 60-5C | | |
| PCI Slot 8 Content | U0.2-P1-I8 | 6A-08 thru 6A-0F or 6B-xx or 6C-xx | | |
| PCI Slot 9 | U0.2-P1/I9 | 60-5E | | |
| PCI Slot 9 Content | U0.2-P1-I9 | 6D-08 thru 6D-0F or 6E-xx or 6F-xx | | |
| PCI to PCI Bridge 3 | U0.2-P1 | 60-60 60-62 60-63 60-64 60-66 | | |
| PCI Slot 10 | U0.2-P1/I10 | 60-60 | | |
| PCI Slot 10 Content | U0.2-P1-I10 | 71-08 thru 71-0F or 72-xx or 73-xx | | |
| PCI Slot 11 (5V) | U0.2-P1/I11 | 60-62 | | |
| PCI Slot 11 Content | U0.2-P1-I11 | 74-08 thru 74-0F or 75-xx or 76-xx | | |
| PCI Slot 12 (5V) | U0.2-P1-I12 | 60-63 | | |
| PCI Slot 12 Content | U0.2-P1-I12 | 77-08 thru 77-0F or 78-xx or 79-xx | | |
| PCI Slot 13 | U0.2-P1-/I13 | 60-64 | | |
| PCI Slot 13 Content | U0.2-P1-I13 | 7A-08 thru 7A-0F or 7B-xx or 7C-xx | | |
| PCI Slot 14 | U0.2-P1-/I14 | 60-66 | | |
| PCI Slot 14 Content | U0.2-P1-I14 | 7D-08 thru 7D-0F or 7E-xx or 7F-xx | | |
| Thermal Sensor (Right) | U0.2-P1 | | | |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|---|---------------|-------------------|---|--------------------|
| Thermal Sensor (Left) | U0.2-P1 | | | |
| Power Distribution Board | U0.2-X1 | | | |
| Power Distribution Board Connector 1 | U0.2-X1/V1 | | | |
| Power Distribution Board Connector 2 | U0.2-X1/V2 | | | |
| Fan Controller Card | U0.2-X2 | | PDB connector J3 | |
| Operator Panel | U0.2-L1 | | I/O board connector J3 | |
| I/O Drawer VPD Module | U0.2-L1-N1 | | | |
| Thermal Sensor (Ambient) | U0.2-L1 | | | |
| Power Supply 1 (w/Fan 5) | U0.2-V1 | | PDB connector J2 | |
| Power Supply 2 (w/Fan6) | U0.2-V2 | | PDB connector J1 | |
| Fan 1 | U0.2-F1 | | Fan connector P3 on power supply 1 | |
| Fan 2 | U0.2-F2 | | Fan connector P3 on power supply 1 | |
| Fan 3 | U0.2-F3 | | Fan connector P3 on power supply 2 | |
| Fan 4 | U0.2-F4 | | Fan connector P3 on power supply 2 | |
| Fan 9 | U0.2-F9 | | In cooling unit | |
| SPCN Firmware | U0.2-P1/Y3 | | | |
| SPCN VPD | U0.2-P1/Y4 | | | |
| SCSI Device Locations | | | | |
| 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 |

| FRU Name | Location Code | AIX Location Code | Physical Connection | Logical Connection |
|---|---------------|-------------------|--|--------------------|
| 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 |

Cabling the CEC Drawer, Primary I/O Drawer, and Secondary I/O Drawer

The minimum system consists of two drawers. The CEC drawer contains the system processors, memory and supporting hardware. The primary I/O drawer contains PCI adapters, operator panel, disk drives, and media drives. The Model H80 and Models 6H0 and 6H1 must have one primary I/O drawer, which contains the service processor for the system. The system supports up to two I/O drawers in various rack configurations.

There are two steps to connecting the CEC drawer to the I/O drawers.

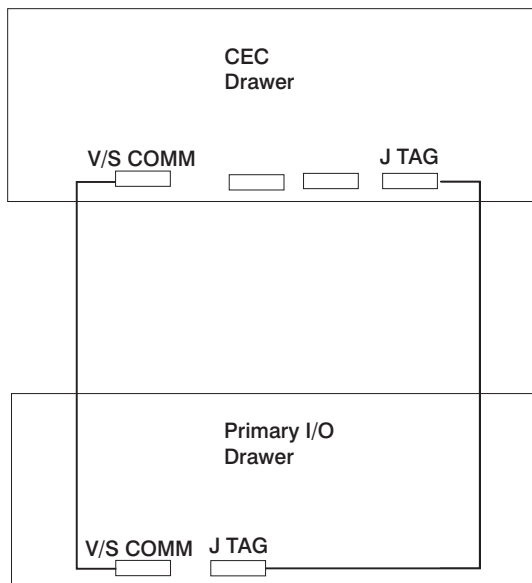
1. Connect the cables that only connect the CEC drawer and the primary I/O drawer, such as the JTAG and the V/S COMM cable.
2. Connecting the cables that connect the CEC drawer and all the I/O drawers in loops, such as the RIO cables and the SPCN cables.

All power cables connect to the PDU. If a second PDU is specified along with secondary drawer power supplies for all drawers, the secondary power supplies connect to the secondary PDU.

Connecting JTAG and VS COM Cables

Use the following figure to connect the JTAG and V/S COMM cables.

CEC Drawer Attached to I/O Drawer



Connecting RIO and SPCN Cables

The RIO and SPCN cables provide two functions in the system: remote data bus connection and power control. The following basic 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 is displayed 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 primary I/O drawer.
- 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 primary I/O drawer.

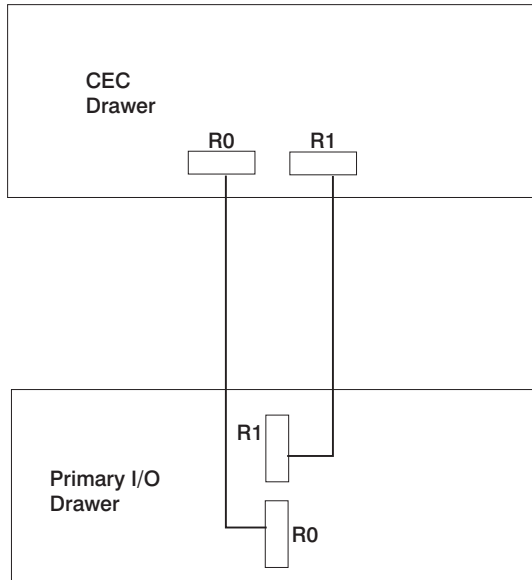
RIO Cabling

The following rules apply to RIO cable connections:

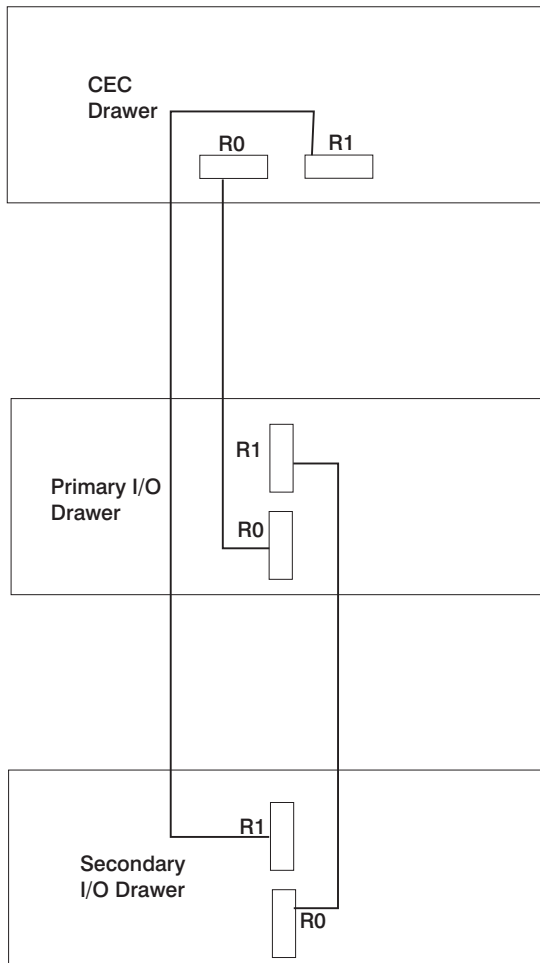
- I/O drawers 0 and 1 are connected using the first RIO loop, which uses RIO ports 0 and 1 on the CEC drawer.
- The primary I/O drawer must be installed and connected to RIO port 0 of the CEC drawer. The connection must be made from RIO port 0 of the CEC drawer to RIO port 0 of the primary I/O drawer. This connection is required to make the primary drawer the first drawer in the loop, which allows the firmware to initialize the system.

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

CEC Drawer Attached to One I/O Drawer



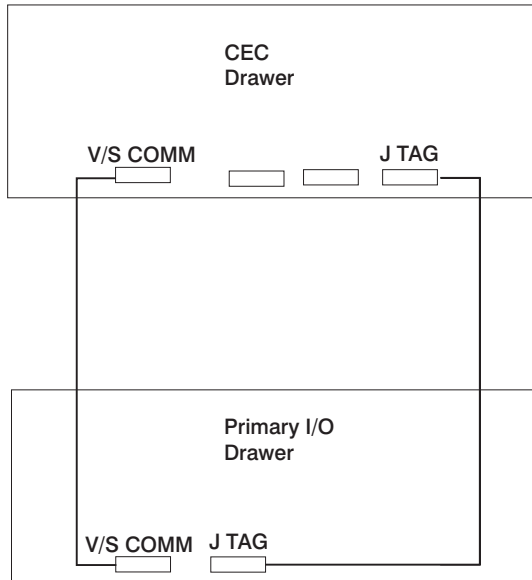
CEC Drawer Attached to Two I/O Drawers



SPCN Cabling

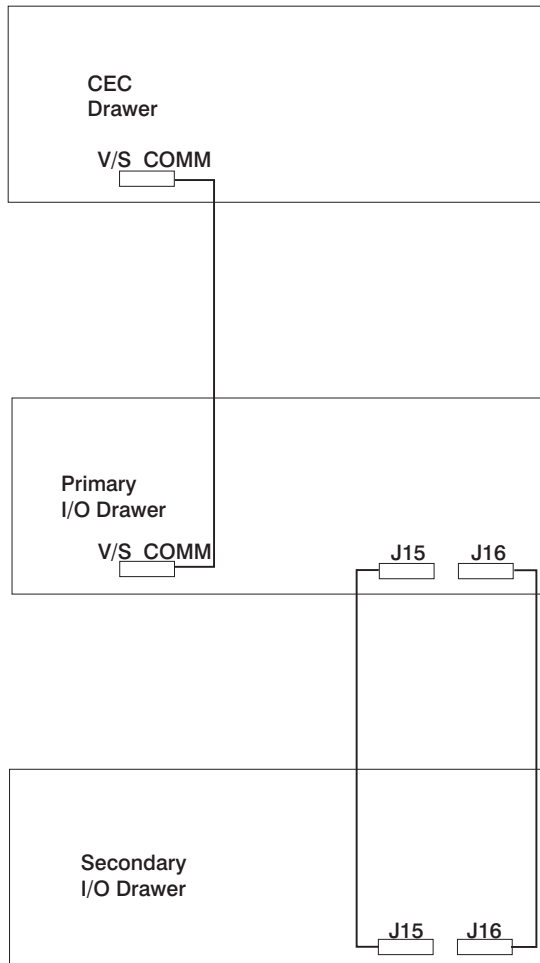
The following figures provide cabling examples for all valid cabling configurations. Match your configuration to the correct figure and connect your SPCN cables as shown.

CEC Drawer Attached to One I/O Drawer



Note: The V/S COMM cable includes SPCN signals in addition to other signals.

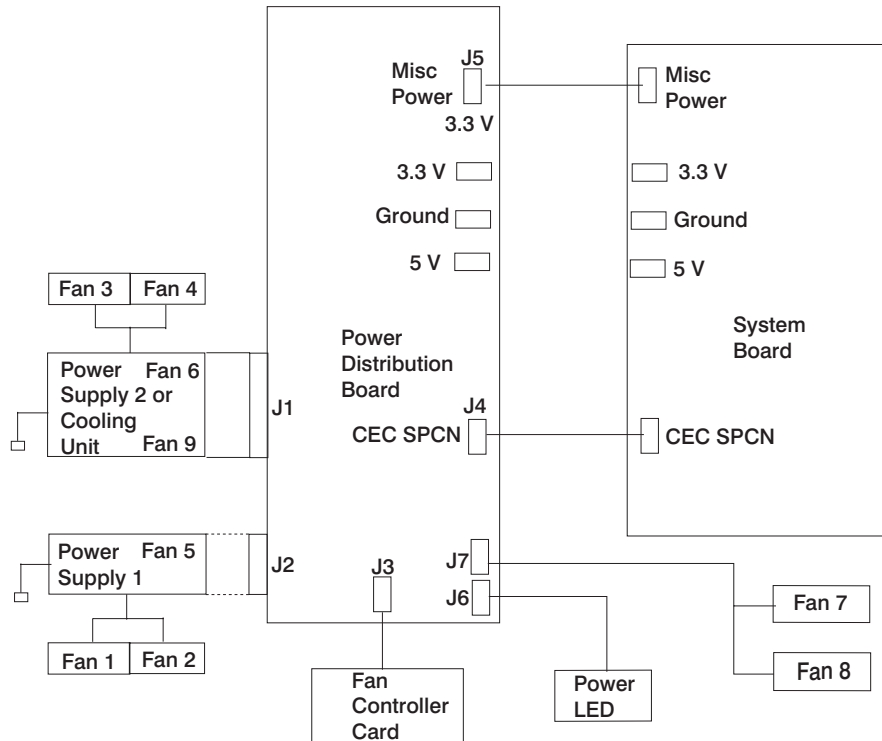
CEC Drawer Attached to Two I/O Drawers



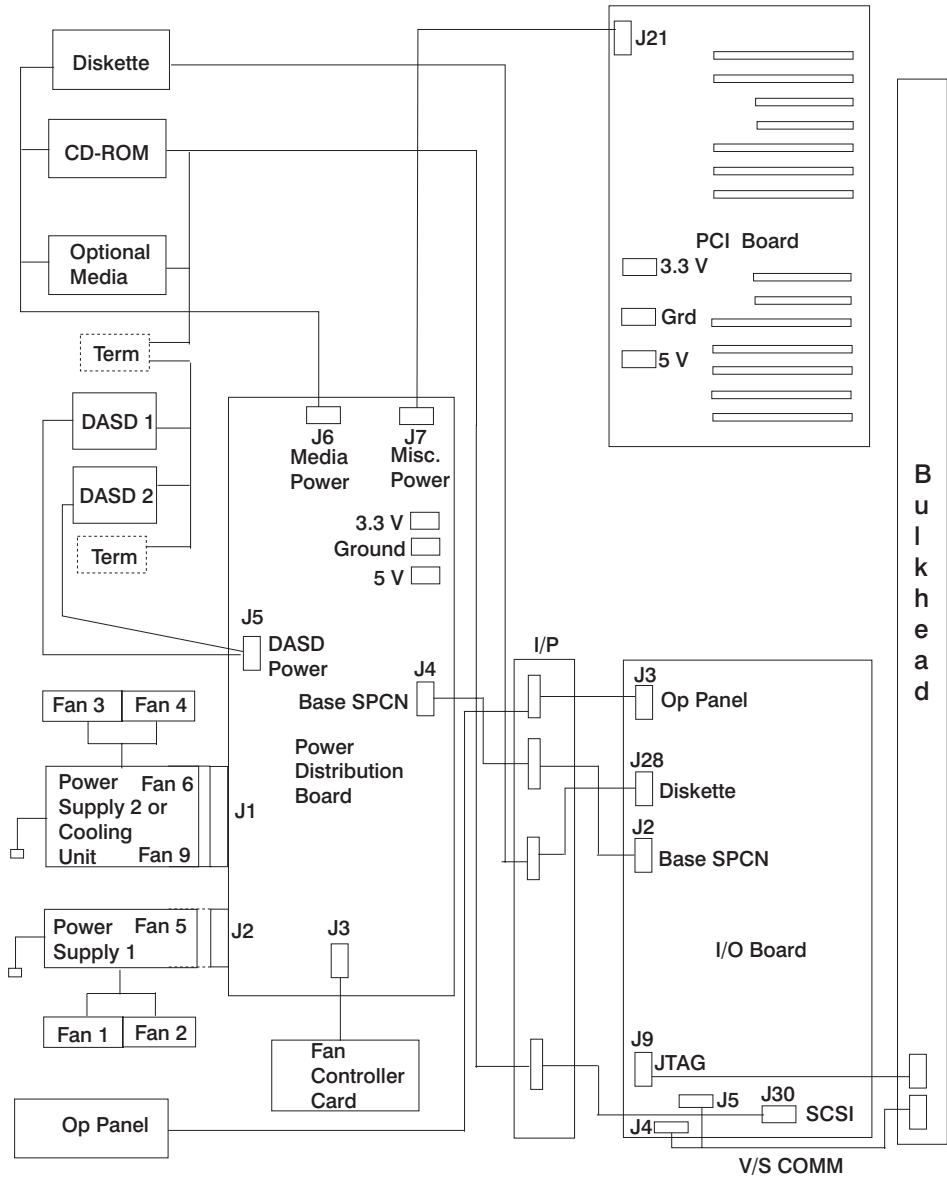
System Cable Diagrams

The following diagrams show the system cable connections.

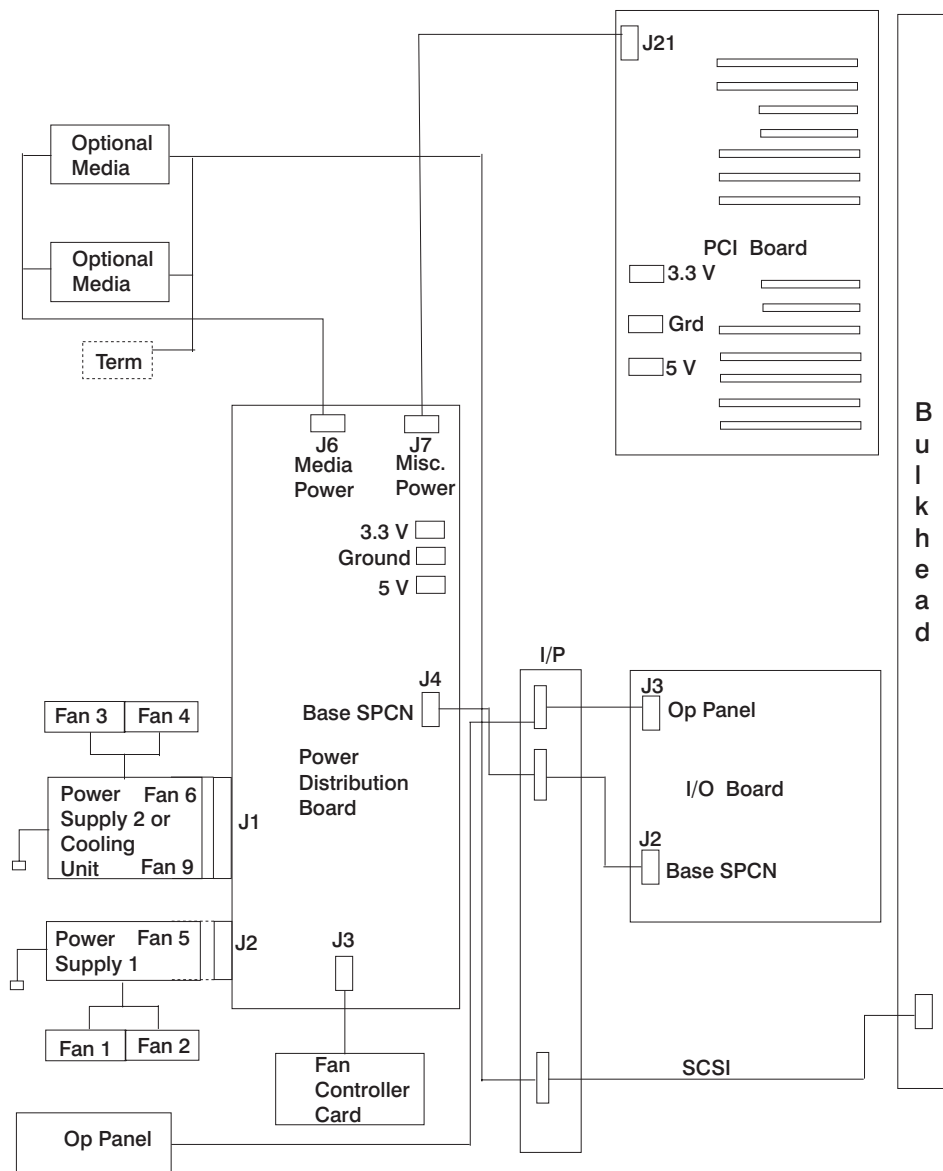
CEC Drawer Cable Diagram



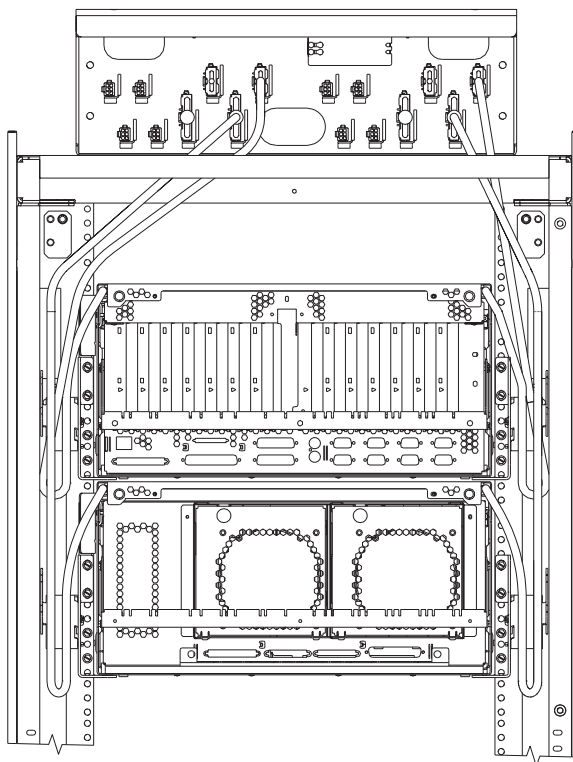
Primary I/O Drawer Cable Diagram



Secondary I/O Drawer Cable Diagram



DC Power Cable Routings



Specifications

This section contains specifications for the system. Individual sections are provided for CEC drawer, rack, and the I/O drawer specifications.

CEC Drawer

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

| | | |
|---|---|---|
| Dimensions | | |
| Height | 218 mm 8.58 in. (5 EIA Units) | |
| Width | 445 mm 17.5 in. | |
| Depth | 820 mm 32.3 in. | |
| Weight | | |
| Minimum configuration | 41 kg 90 lbs. | |
| Maximum configuration | 52 kg 115 lbs. | |
| Electrical | | |
| Power source loading typical in kVA | 0.32 | |
| Power source loading maximum in kVA | 0.48 | |
| Voltage range (V ac) | 200 to 240 | |
| Frequency (hertz) | 50 or 60 | |
| Thermal output (typical) | 1025 Btu/hr | |
| Thermal output (maximum) | 1536 Btu/hr | |
| Power requirements (typical) | 300 watts | |
| Power requirements (maximum) | 450 watts | |
| Power factor | 0.95 | |
| Inrush current ¹ | 40 amps | |
| Maximum altitude ² | 2135 m (7000 ft.) | |
| Temperature Requirements² | Operating 10 to 40°C (50 to 104°F) | Non-Operating 10 to 52°C (50 to 125.6°F) |
| Humidity Noncondensing | Operating | Non-Operating |
| Without tape drive | 8 to 80% | 8 to 80% |
| With tape drive | 20 to 80% | 8 to 80% |
| Wet Bulb Requirements | | |
| Without tape drive | 27°C (80.6°F) | 27°C (80.6°F) |
| With tape drive | 23°C (73°F) | 27°C (80.6°F) |
| Noise Emissions³ | Operating | Idle |
| With H80 CEC Drawer only | | |
| L _{WAd} | 5.8 bels | 5.8 bels |
| L _{pAm} | N/A | N/A |
| <L _{pA} > _m | 45 dBA | 45 dBA |
| Impulsive or prominent discrete tones | No | No |

| Noise Emissions³ | Operating | Idle |
|--|--|-------------|
| With H80 and Primary I/O Drawer | | |
| L_{WA_d} | 6.2 bels | 6.2 bels |
| L_{pA_m} | N/A | N/A |
| $\langle L_{pA} \rangle_m$ | 48 dBA | 48 dBA |
| Impulsive or prominent discrete tones | No | No |
| Install/Air Flow Clearance | Maintenance of proper service clearances should allow proper air flow. | |
| Service Clearance | (See service clearances for the 7014 T00 Rack) | |
| <ol style="list-style-type: none"> 1. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle. 2. For altitudes above 915 meters, the maximum temperature limit is derated by 1 degree C for every 137 meters of elevation above 915 meters. 3. See "Noise Emission Notes" on page 61 for definitions of noise emissions positions. | | |

7014 Model T00 and T42 Rack

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

| | | | | |
|--|---|--------------|--------------|--------------|
| Dimensions | | | | |
| Height | 1804 mm 71.0 in. | | | |
| Capacity | 36 EIA Units | | | |
| With PDP - DC only | 1926 mm 75.8 in. | | | |
| Width without side panels | 623 mm 24.5 in. | | | |
| With side panels | 644 mm 25.4 in. | | | |
| Depth with rear door | 1042 mm 41.0 in. | | | |
| RS/6000 T00 with both doors | 1098 mm 43.3 in. | | | |
| pSeries T00 with both doors | 1147 mm 45.2 in. | | | |
| Weight | | | | |
| Base Rack | 244 kg 535 lbs | | | |
| Full Rack ¹ | 816 kg 1795 lbs | | | |
| Electrical² (sum specified values for drawers or enclosures in rack) | | | | |
| DC Rack | | | | |
| Power source loading maximum in kVA ³ | 8.4 | | | |
| AC Rack | | | | |
| Power source loading maximum in kVA (per PDB) ⁴ | 4.8 | | | |
| Voltage range (V ac) | 200 to 240 | | | |
| Frequency (hertz) | 50 or 60 | | | |
| Temperature Requirements | (see specifications for drawers or enclosures) | | | |
| Humidity Requirements | (see specifications for drawers or enclosures) | | | |
| Noise Emissions | (see specifications for drawers or enclosures) | | | |
| Clearances | Front | Back | Left | Right |
| Install/Air Flow | Maintenance of a proper service clearance should allow proper air flow. | | | |
| Service | 915mm(36 in) | 915mm(36 in) | 915mm(36 in) | 915mm(36 in) |

1. Configuration dependent, base rack weight plus the weight of the drawers mounted in the rack. The rack can support up to a maximum weight of 35 lbs/EIA (Unit).
2. The total rack power should be derived from the sum of the power used by the drawers in the rack.
3. The Power Distribution Panel (PDP) on the DC powered rack can hold up to eighteen (nine per power source) 48 volt 20 to 50 amp circuit breakers (configuration dependent). Each power source supports up to 8.4 kVA.
4. Each AC Power Distribution Bus (PDB) can supply 4.8 kVA. A rack can have up to four PDB's as required by the drawers mounted in the rack.

I/O Drawer

The mechanical packaging, cooling, power supply, and environmental requirements for the I/O drawer are shown in the following table:

| | | | | | |
|---------------------------------------|-------------------|---|-------------------------------|-------------|--------------|
| Dimensions | | | | | |
| Height | 218.0 mm 8.6 in. | | | | |
| Width | 445.0 mm 17.5 in. | | | | |
| Depth | 820.0 mm 32.3 in. | | | | |
| Weight | | | | | |
| Minimum configuration | 41 kg 90 lbs. | | | | |
| Maximum configuration | 52 kg 115 lbs. | | | | |
| Electrical | | | | | |
| Power source loading (typical in kVA) | 0.23 | | | | |
| Power source loading (maximum in kVA) | 0.54 | | | | |
| Voltage range | 200 to 240 V ac | | | | |
| Frequency (hertz) | 50 / 60 | | | | |
| Thermal output (typical) | 750 Btu/hr | | | | |
| Thermal output (maximum) | 1750 Btu/hr | | | | |
| Power requirements (typical) | 220 watts | | | | |
| Power requirements (maximum) | 515 watts | | | | |
| Power factor | 0.95 | | | | |
| Inrush current ³ | 41 amps | | | | |
| Maximum altitude | 2135 m (7000 ft.) | | | | |
| Temperature Requirements | | Operating | Non-Operating | | |
| | | 10 to 40°C (50 to 104°F) | 10 to 52°C (50 to 125.6°F) | | |
| Humidity (Noncondensing) | | Operating | Non-Operating | | |
| Without tape drive | | 8 to 80% | 8 to 80% | | |
| With tape drive | | 20 to 80% | 20 to 80% | | |
| Wet Bulb Requirements | | | | | |
| 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} | | Operating | Idle | | |
| L_{wAd} | | 5.8 bels | 5.8 bels | | |
| L_{pAm} | | N/A | N/A | | |
| $\langle L_{pA} \rangle_m$ | | 45 dBA | 45 dBA | | |
| Impulsive or prominent discrete tones | | No | No | | |
| Clearances | | Front | Back | Left | Right |
| Install/Air Flow | | Maintenance of a proper service clearance should allow proper air flow. | | | |
| Service | | (See "System Service Clearances" on page 62) | | | |

1. See "Noise Emission Notes" on page 61 for definitions of noise emissions positions.
2. Noise emissions data are based on the following configuration: the drawer is mounted in a T00 Rack and a power distribution unit.
3. Inrush currents occur only at initial application of power, no inrush occurs during normal power off-on cycle.

Noise Emission Notes

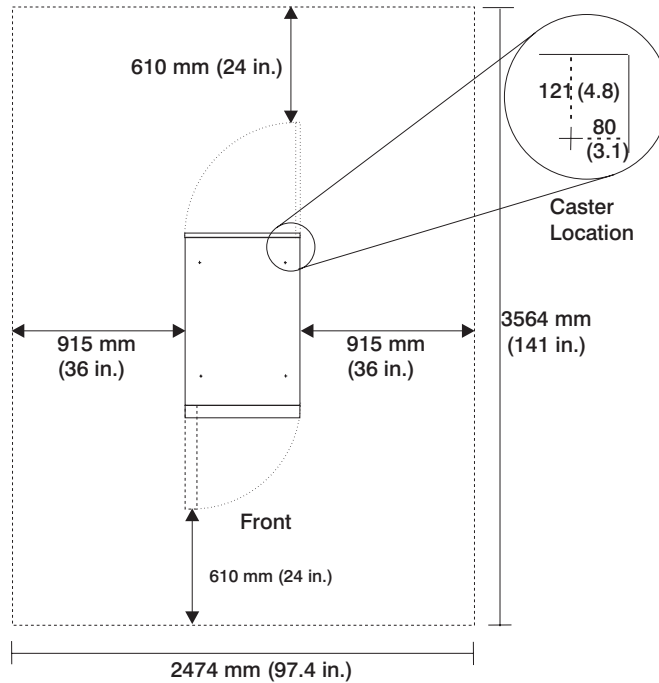
1. $L_{WA,d}$ is the declared (upper limit) sound power emission level for a production series of machines.
2. $L_{pA,m}$ is the mean value of the A-weighted sound pressure emission levels at the operator position (if any) for a production series of machines.
3. $\langle L_{pA} \rangle_m$ is the mean value of the space-averaged A-weighted 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.

System Service Clearances

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

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

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 shows the radius of the swinging doors on the rack. The figure shows the minimum space required.

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 SVT or SJT
- Attachment plugs complying with National Electrical Manufacturers Association (NEMA) 5-15P

"For 230 V operation in the United States use a UL listed cable set consisting of a minimum 18 AWG, Type SVT or SJT three-conductor cable a maximum of 15 feet in length, and a tandem blade, grounding type attachment plug rated at 15 A, 250 V."

- Appliance couplers complying with International Electrotechnical Commission (IEC) Standard 320, Sheet C13

Power cables used in other countries consist of the following:

- Electrical cables, Type HD21
- Attachment plugs approved by the appropriate testing organization for the specific countries where they are used

"For units set at 230 V (outside of U.S.): use a cable set consisting of a minimum 18 AWG cable and grounding type attachment plug rated 15 A, 250 V. The cable set should have the appropriate safety approvals for the country in which the equipment will be installed and should be marked 'HAR'."

Refer to Chapter 10, "Parts Information" on page 463 to find the power cables that are available.

Service Inspection Guide

Perform a service inspection on the system when:

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

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

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

Perform the following checks:

1. Check the covers for sharp edges and for damage or alterations that expose the internal parts of the system unit.
2. Check the covers for proper fit to the system unit. They should be in place and secure.
3. Gently rock the system unit from side to side to determine if it is steady.
4. Set the power switch of the system unit to Off.
5. Remove 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 plug and the metal frame of the device.
13. Install the covers.

Chapter 2. Diagnostics Overview

Model H80 and Models 6H0 and 6H1 systems use an integrated set of software diagnostic procedures to facilitate isolation of failing components and system maintenance. This book, along with the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*, are the basis of the diagnostic procedures for Model H80 and Models 6H0 and 6H1 systems. In particular, the following sections in this book are important for the trained service representative to understand and use when isolating a failure on the system:

- Chapter 4, “Checkpoints” on page 131
- Chapter 5, “Error Code to FRU Index” on page 157
- Chapter 6, “Loading the System Diagnostics In Service Mode” on page 359
- Chapter 10, “Parts Information” on page 463

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

Maintenance Analysis Procedures (MAPs)

Maintenance analysis procedures (MAPs) guide the trained service person through the system. These MAPs are the entry point for all isolation and error-recovery procedures. The MAPs are consistent with existing procedures and methods. The system uses a set of integrated procedures, mentioned earlier, 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 appropriate MAP or service reference information either in this book, or in the common book set, which includes the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems* and the *PCI Adapter Placement Reference*.

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

The 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 to diagnose a power problem. The nature of power problems can be related to powering on and down the system, or power failures that can 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.

Checkpoints

These servers use various types of checkpoints, error codes, and SRNs, which are referred to throughout this book (primarily in Chapter 4, “Checkpoints” on page 131, Chapter 5, “Error Code to FRU Index” on page 157, Chapter 6, “Loading the System Diagnostics In Service Mode” on page 359, and Chapter 10, “Parts Information” on page 463). These codes may appear in the service processor boot progress log, the AIX error log, and the operator panel display. Understanding the definition and relationships of these codes is important to the service personnel who are installing or maintaining these servers.

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

Checkpoints

Checkpoints display in the operator panel from the time ac power (dc power in a dc-powered system) is connected to the system until the AIX login prompt is displayed after a successful operating system boot. These checkpoints have the following forms:

8xxx 8xxx checkpoints display from the time ac power (dc power in a dc-powered system) is connected to the system until the OK prompt is displayed by the service processor on the operator panel display. (Several 9xxx checkpoints are displayed just before the OK prompt displays.)

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

Exxx Exxx checkpoints indicate that a system processor is in control and is initializing the system resources. Control is being passed to AIX when E105 (normal mode boot) or E15B (service mode boot) displays on the operator panel.

Note: Location code information may also display on the operator panel during this time.

0xxx 0xxx codes are AIX checkpoints and configuration codes. Location codes may also be shown on the operator panel display during this time.

2xxx 2xxx codes are AIX checkpoints and configuration codes. Location codes may also be shown on the operator panel display during this time.

Note: Certain checkpoints may remain in the display for long periods of time. A spinning cursor is visible in the upper-right corner of the display during these periods to indicate that system activity is continuing.

Error Codes

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

Checkpoints can become error codes if the system fails to advance past the point at which the code was presented.

For a list of checkpoints, see Chapter 4, “Checkpoints” on page 131. Each entry provides a description of the event and the recommended action if the system fails to advance.

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

SRNs are listed in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*, order number SA38-0509.

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, “Parts Information” on page 463, Chapter 3, “Maintenance Analysis Procedures (MAPs)” on page 71, or provide informational message and directions. If a replacement part is indicated, direct reference is made to the part name. The respective AIX and physical location codes are listed for each occurrence as required. For a list of locations codes, see “AIX and Physical Location Code Reference Tables” on page 33.

To look up part numbers and view component diagrams, see Chapter 10, “Parts Information” on page 463. 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 which make up these servers.

Electronic Service Agent for the @server pSeries and RS/6000

Service support for your system can be enhanced through the use of the application program, Electronic Service Agent. This application provides a number of advantages for the systems customer, including automatic error reporting and analysis without customer intervention. The Electronic Service Agent kit includes the *Electronic Service Agent for @server pSeries and RS/6000* CD, order number LCD4-1060, which contains documentation to help you set up and use Electronic Service Agent.

Using the Service Processor and Electronic Service Agent Features

The service processor and Electronic Service Agent features protect users against unnecessary system downtime by advising support personnel (both internal and external) of any unexpected changes in the system environment. 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 which 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 has the ability to take predetermined corrective actions. The methods of corrective actions are:

- 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 enables AIX 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 functions for a set of systems.

Prior to installing the Electronic Service Agent feature, ensure that you have the latest level of system firmware. You also need a properly configured modem. For more information on configuring a modem, see “Modem Configuration Menu” on page 384.

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 that 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 has been 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 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 384 for more information on configuring your modem.

Chapter 3. Maintenance Analysis Procedures (MAPs)

This chapter contains maintenance analysis procedures (MAPs) for the system.

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. Licensed programs frequently rely on system information stored on the VPD module on the operator panel assembly. If the MAPs indicate that the operator panel assembly should be replaced, swap the VPD module from the old operator panel to the new one. If recovery is not possible, notify the system owner that new keys for licensed programs may be required.
2. If a network adapter is replaced, the network administrator must be notified so that the client IP addresses used by the 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.
3. If you are servicing an SP system, go to the Start-of-Call MAP 100 in the *SP Systems Service Guide*.
4. If you are servicing a clustered @server system, go to the start of call MAP 100 in the *Clustered @server Installation and Service Guide*.

| Symptom | Starting Point |
|--|--|
| You have a problem that does not prevent the system from booting and all the I/O drawer operator panels are functional. | Go to the Fast Path MAP in the <i>Diagnostics Information for Multiple Bus Systems</i> . |
| You have a problem that does not prevent the system from booting and the secondary I/O drawer operator panel is not functioning. | Replace the following parts one at a time in the secondary I/O drawer with the non-functioning operator panel. <ol style="list-style-type: none">1. Secondary I/O drawer operator panel.2. Secondary I/O drawer operator panel cable. |
| You do not have a symptom. | Go to MAP 0020 in the <i>Diagnostics Information for Multiple Bus Systems</i> . |
| You have an SRN. | Go to the Fast Path MAP in the <i>Diagnostics Information for Multiple Bus Systems</i> . |
| 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>Diagnostics Information for Multiple Bus Systems</i> . |

| Symptom | Starting Point |
|---|--|
| The system stops and a 4-digit number beginning with 0 or 2 is displayed in the operator panel display. | Go to the Fast Path MAP in the <i>Diagnostics Information for Multiple Bus Systems</i> . |
| All other symptoms. | Go to "Quick Entry MAP". |

Quick Entry MAP

Quick Entry MAP Table of Contents

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Attention: If you replace FRUs or perform an action and the problem is still not corrected, go to "MAP 1540: Minimum Configuration" on page 106 unless otherwise indicated in the tables.

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

| Symptom | Action |
|--|--|
| Service Actions | |
| You have parts to exchange or a corrective action to perform. | <ol style="list-style-type: none"> 1. Go to the <i>Removal and Replacement Procedures</i>. 2. Go to the <i>Repair Checkout Procedure</i> in the <i>Diagnostics 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>Diagnostics Information for Multiple Bus Systems</i> . |
| You need to verify correct system operation. | Go to the <i>System Checkout Procedure</i> in the <i>Diagnostics Information for Multiple Bus Systems</i> . |
| A Repeating Pattern of Error Code Data Appears on the Primary I/O Drawer Operator Panel Display | |
| A sequence of displays, each appearing for five seconds, repeats continuously as follows: A blank display, followed by an eight-digit error code, followed by up to nine full panels of dump data. | <ol style="list-style-type: none"> 1. Record the 8-digit error code seen after the five second blank display. 2. Reset the service processor, using the pinhole reset. 3. Go to "Checkpoint and Error Code Index" on page 159 with the error code you have recorded. |
| OK Does Not Appear in the Primary I/O Drawer Operator Panel Display Before Pressing the Power On Button | |
| A bouncing or scrolling ball remains on the primary I/O drawer operator panel display or the primary I/O drawer operator panel display is filled with dashes. | <p>If an ASCII terminal is available, connect it to the primary I/O drawer through serial port 1.</p> <ol style="list-style-type: none"> 1. If the service processor menu is displayed: <ol style="list-style-type: none"> a. Replace the primary I/O drawer operator panel assembly. Refer to "Operator Panel" on page 457. b. Replace the primary I/O drawer backplane. Refer to "I/O Drawer Backplane Assembly" on page 439. 2. If the service processor menu is not displayed, replace the primary I/O drawer backplane. Refer to "I/O Drawer Backplane Assembly" on page 439. <p>If an ASCII terminal is <i>not</i> available, replace the following, one at a time.</p> <ol style="list-style-type: none"> 1. Primary I/O drawer operator panel assembly. Refer to "Operator Panel" on page 457. 2. Primary I/O drawer backplane. Refer to "I/O Drawer Backplane Assembly" on page 439. |
| You have a blank display on the primary I/O drawer operator panel. | Go to "MAP 1520: Power" on page 85. |

| Symptom | Action |
|--|---|
| There is an 8-Digit Error Code | |
| <p>You have an 8-digit error code in the form 10n1xxxx and <i>n</i> is greater than the number of I/O drawers in the system.</p> | <p>The failing drawer is drawer <i>n</i>. Look for the drawer with the same value of <i>n</i> in its operator panel, either in the form *0<i>n</i> or U0<i>n</i>. Substitute 2 for <i>n</i> when looking up the error code in "Checkpoint and Error Code Index" on page 159.</p> |
| <p>You have an 8-digit error code of the form 10n1xxxx and two or more drawers have the same drawer number.</p> | <p>Shut down the system and remove all but one of the drawers with duplicate drawer numbers. Refer to the steps in "MAP 1540: Minimum Configuration" on page 106 for a procedure to connect/disconnect I/O drawers. Attempt to reboot the system.</p> <ol style="list-style-type: none"> 1. If the system still fails, you have found the failing drawer. Substitute 2 for <i>n</i> when looking up the error code in Go to "Checkpoint and Error Code Index" on page 159. 2. If the system boots, shut down and add another of the detached drawers back into the system. Repeat steps 1 and 2 until the failing drawer is isolated. <p>Note: As the system successfully boots, duplicate drawer numbers are resolved into unique drawer numbers.</p> |
| <p>You have an 8-digit error code.</p> | <p>Go to "Checkpoint and Error Code Index" on page 159.</p> |

| Symptom | Action |
|--|--|
| System Stops With an 8-Digit Number Displayed in the Primary I/O Drawer Operator Panel Display | |
| <p>You have an 8-digit error code of the form 10n1 xxxx and n is greater than the number of I/O drawers in the system.</p> | <p>The failing drawer is drawer <i>n</i>. Look for the drawer with the same value of <i>n</i> in its operator panel, either in the form *0N or U0.n. Substitute 2 for <i>n</i> when looking up the error code in the "Checkpoint and Error Code Index" on page 159.</p> |
| <p>You have an 8-digit error code of the form 10n1 xxxx and two or more drawers have the same drawer number.</p> | <p>Shut down the system and remove all but one of the drawers with duplicate drawer numbers. Refer to the steps in "MAP 1540: Minimum Configuration" on page 106 for a procedure to connect/reconnect I/O drawers. Attempt to reboot the system.</p> <ol style="list-style-type: none"> 1. If the system fails, you have found the failing drawer. Substitute 2 for <i>n</i> when looking up the error code in "Checkpoint and Error Code Index" on page 159. 2. If the system boots, shut down and add another of the detached drawers back into the system. Repeat steps one and two until the failing drawer is isolated. <p>Note: As the system successfully boots, duplicate drawer numbers are resolved into unique drawer numbers.</p> |
| <p>The system stops with an 8-digit error code displayed when booting.</p> | <p>Go to "Checkpoint and Error Code Index" on page 159.</p> |

| Symptom | Action |
|---|---|
| An Error Indication in the Secondary I/O Drawer Operator Panel Display | |
| A bouncing or scrolling ball remains on the secondary I/O drawer operator panel display or the secondary I/O drawer operator panel display is filled with dashes. | Replace the following, one at a time: <ol style="list-style-type: none"> 1. Secondary I/O drawer backplane Location: U0.2-P1 2. Secondary I/O drawer operator panel assembly Location: U0.2-L1 |
| You have an 8-digit error code in the form 10n1 xxxx. | This is the failing drawer. If n is greater than the number of I/O drawers in the system, substitute 2 for n when looking up the error code in "Checkpoint and Error Code Index" on page 159. |
| System Stops With a 4-Digit Number That Does Not Begin With 0 or 2 Displayed | |
| The system stops and a 4-digit checkpoint that does not begin with 0 or 2 displayed in the operator panel display or on the console. | <p>If the number displayed begins with the characters "8", "9", "A", or "B", then go to "Service Processor Checkpoints" on page 134.</p> <p>If the number displayed is in the range E1xx-EFFF, make note of any location code that is displayed on the second line of the operator panel. If the location code indicates a card slot (for example, P1-I3), replace the card in the indicated slot. If this does not correct the problem, then go to "Firmware Checkpoints" on page 141.</p> <p>For all other numbers record SRN 101-xxxx, where xxxx is the four-digit number displayed in the operator panel, then go to the <i>Fast Path MAP in RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems</i>.</p> <p>Note: If the operator panel displays two sets of numbers, use the bottom set of numbers as the error code.</p> |
| System Stops With a 3-Digit Number Displayed (888 sequence, see below) | |
| The system stops with a 3-digit error code. | Add 101- to the left of the 3 digits to make an SRN. Go to <i>Diagnostics Information for Multiple Bus Systems</i> . |
| There is a Display Problem (Distortion, Blurring, Etc.) | |

| Symptom | Action |
|--|--|
| 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 problem determination procedures 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 106. 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 problem determination procedures for the terminal. c. If you do not find a problem, suspect the I/O planar. Go to "MAP 1540: Minimum Configuration" on page 106. |
| Power and Cooling Problems | |
| You cannot power on the system. | Go to "MAP 1520: Power" on page 85. |
| The power on/off LED on an I/O drawer operator panel does not come on or stay on. (both the I/O drawer operator panel power-on/off LED and the I/O drawer power supply LEDs do not come on or stay on). | Go to "MAP 1520: Power" on page 85. |
| A rack or a rack mounted unit will not power on. | Go to "MAP 1520: Power" on page 85. |
| You have a power problem. | Go to "MAP 1520: Power" on page 85. |
| The system attention LED on the primary I/O drawer operator panel is on and there is no SRN displayed. | Go to "MAP 1520: Power" on page 85. |
| 888 sequence in Operator Panel Display | |
| An 888 sequence is displayed in the primary I/O drawer operator panel display. | Go to the Fast Path MAP in the <i>Diagnostics Information for Multiple Bus Systems</i> . |
| Other Symptoms or Problems | |
| The operator panel displays OK. 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" refers to the device mnemonics (words memory, keyboard, network, scsi, and speaker) that appear on the system console during the power-on self-test (POST). | Go to "Boot Problems and Concerns" on page 153. |

| Symptom | Action |
|--|--|
| <p>The system stops and all of the POST indicators are displayed on the system console. The term "POST indicators" refers to the device mnemonics (words memory, keyboard, network, scsi, and speaker) that appear on the system console during the power-on self-test (POST).</p> | <p>Go to "MAP 1540: Minimum Configuration" on page 106 to isolate the problem.</p> |
| <p>The system stops and the message STARTING SOFTWARE PLEASE WAIT... is displayed on the system console.</p> | <p>Go to Chapter 4, "Checkpoints" on page 131.</p> |
| <p>The system does not respond to the password being entered or the system login prompt is displayed when booting in service mode.</p> | <ol style="list-style-type: none"> 1. If the password is being entered, or the service mode boot is being initiated, on 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 b. Primary I/O backplane, location: U0.1-P1 2. If the password is being entered, or the service mode boot is being initiated, from an ASCII terminal, first insure that the terminal is connected to S1 or S2. Use the problem determination procedures for the ASCII terminal. <p>If the problem persists, replace the primary I/O backplane, location: U0.1-P1.</p> |
| <p>No codes are displayed on the operator panel within a few seconds of turning on the system. The operator panel displays OK before the system is powered on.</p> | <p>Reseat the operator panel cable. If problem not resolved, replace in order:</p> <ol style="list-style-type: none"> 1. Operator panel assembly. Swap the VPD module. 2. Primary I/O backplane. (See notes on 71.) |
| <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 use System Management Services to change the ID of the SCSI controller or adapter.</p> |

| Symptom | Action |
|---|---|
| The System Management Services menu is displayed. | <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 106. |
| You suspect a cable problem. | Go to the <i>RS/6000 and @server pSeries Adapters, Devices, and Cable Information for Multiple Bus Systems</i> . |
| All other problems. | Go to "MAP 1020: Problem Determination" on page 80. |

MAP 1020: Problem Determination

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 *Diagnostics 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 374).

The service processor may have been set by the user to monitor server operations and to attempt recoveries. You can disable these actions while you diagnose and service the system. If the system was set up according to the recommendations of the *RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide*, all the settings of the service processor (except language) were saved by using the SAVE/RESTORE HARDWARE MAINTENANCE POLICIES service aid. You can use that service aid to restore the settings at the end of your service action.

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

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

Following are the service processor settings of your interest. The service processor menus are described in Chapter 7, “Using the Service Processor” on page 361.

| | |
|------------------|---|
| 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. |

Be prepared to record code numbers and use those numbers in the course of analyzing a problem. Go to “Step 1020-1” on page 81.

Step 1020-1

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

Note: Be prepared to answer questions regarding the operator panel display and 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 421.
2. Select slow boot mode (select disable fast boot) on the system power control menu from the service processor main menu.
3. Power on the system. Refer to “Powering On the System” on page 421
4. Insert the diagnostic CD-ROM into the CD-ROM drive.
5. When the keyboard indicator is displayed (the word keyboard), press the 5 key on the system console.
6. Enter a password, if requested.
7. Wait until the diagnostics are loaded or the system appears to stop.
8. 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 71. |
| 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>Diagnostics Information for Multiple Bus Systems</i> . |
| The primary I/O drawer power on/off LED does not come on or does not stay on or you have a power problem. | Go to "MAP 1520: Power" on page 85. |
| The system login prompt is displayed. | <p>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 is the case, start over at the beginning of this step.</p> <p>Note: Perform the system shutdown procedure before turning off the system.</p> <p>If you are sure you pressed the correct key in a timely manner, go to "Step 1020-2" on page 83.</p> |
| The system does not respond when the password is entered. | Go to "Step 1020-2" on page 83. |
| The system stopped. 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 106. 2. Keyboard <ol style="list-style-type: none"> a. Replace the keyboard. b. Go to "MAP 1540: Minimum Configuration" on page 106. 3. Network, go to "MAP 1540: Minimum Configuration" on page 106. 4. SCSI, go to "MAP 1540: Minimum Configuration" on page 106. 5. Speaker, go to "MAP 1540: Minimum Configuration" on page 106. |
| The System Management Services menu is displayed | Go to "Step 1020-4" on page 84. |
| All other symptoms. | If you were directed here from the Entry MAP, go to "MAP 1540: Minimum Configuration" on page 106. Otherwise, find the symptom in the "Entry MAP" on page 71. |

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 M0KB D001; then go to "Step 1020-3". |
| Type 102 keyboard (W.T.). Identify by the size of the Enter key. The Enter key extends into two horizontal rows. | Record error code M0KB D002; then go to "Step 1020-3". |
| Type 106 keyboard. (Identify by the Japanese characters.) | Record error code M0KB D003; then go to "Step 1020-3". |
| ASCII terminal keyboard | Go to the documentation for this type of ASCII terminal and continue 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", 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 CERADME file (by using the Service Hints service aid).

Note: Service aids can be found in *Diagnostics 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 106.

MAP 1520: Power

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

Observe the following safety notices during service procedures.

DANGER

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

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

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

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

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

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.

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

| Symptom | Action |
|--|--|
| Power Problems | |
| The primary I/O drawer does not become powered on, no OK prompt. | Go to "Map 1521: Cannot Power On The Primary I/O Drawer, Operator Panel Does Not Show OK Prompt" on page 87. |
| The CEC drawer does not become powered on. | Go to "Map 1522: Cannot Power On The CEC Drawer" on page 93. |
| The secondary I/O drawer does not become powered on, no power present LED. | Go to "Map 1523: Cannot Power On The Secondary I/O Drawer, Operator Panel Power Present LED Does Not Come On" on page 100. |

Map 1521: Cannot Power On The Primary I/O Drawer, Operator Panel Does Not Show OK Prompt

Step 1521-1

Attempt to power on the primary I/O drawer (see “Powering Off and Powering On the System” on page 421)

Does the primary I/O drawer power on?

NO Go to “Step 1521-2”.

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

Step 1521-2

Look at the power supply LED(s) at the front of the primary I/O drawer.

Is the primary I/O drawer equipped with two power supplies?

NO Go to “Step 1521-3”.

YES Go to “Step 1521-5” on page 88.

Step 1521-3

Is the power supply LED flashing?

NO Go to “Step 1521-7” on page 88.

YES Go to “Step 1521-4”.

Step 1521-4

Use the information in the “I/O Drawer and Power Supply LED Status” on page 25 to answer the following question.

Is the power supply LED blinking quickly?

NO Check the SPCN cabling.
Check internal drawer cabling from power distribution card to primary I/O backplane. See “Primary I/O Drawer Internal Cables” on page 475 in Chapter 10.

Replace the I/O drawer power supply.

Replace the primary I/O drawer backplane.

Replace the I/O drawer power distribution card.

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

YES Replace the power supply with the flashing LED.

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

Step 1521-5

Is there a power supply with a flashing LED?

NO Go to "Step 1521-7".

YES Go to "Step 1521-6".

Step 1521-6

Are both I/O drawer power supply LEDs flashing?

NO Replace the power supply with the flashing LED.

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

YES Check internal drawer cabling from power distribution card to primary I/O backplane. See "Primary I/O Drawer Internal Cables" on page 475 in Chapter 10.

Replace the following one at a time:

1. primary I/O drawer backplane
2. power distribution board

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

Step 1521-7

Are all circuit breakers reset at the rack power distribution unit(s)?

NO Reset the circuit breaker.

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

YES Go to "Step 1521-8".

Step 1521-8

Are all the cables seated firmly and correctly connected between primary I/O drawer, secondary I/O drawers and CEC drawer?

NO Fix the cable connections.

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

YES Go to "Step 1521-9" on page 89.

Step 1521-9

Are all the ac power cables seated firmly and connected correctly from the rack power distribution unit(s) to the rack drawers?

NO Fix the connection.

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

YES Go to "Step 1521-10".

Step 1521-10

Follow the ac power cable(s) from the primary I/O drawer to the appropriate power distribution unit.

Is the power distribution unit power LED on?

NO Go to "Step 1521-14" on page 91.

YES Go to "Step 1521-11".

Step 1521-11

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

Perform the following:

1. Disconnect the ac power cable(s) from the power distribution unit that supplies power to the primary I/O drawer.
2. Use a multimeter to measure the ac voltage at the power distribution unit socket(s) where the ac power cable(s), just removed, was (were) attached.

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

NO Replace the power distribution unit.

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

YES Go to "Step 1521-12" on page 90.

Step 1521-12

Reconnect the ac power cable(s) to the power distribution unit.

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

Perform the following:

1. Disconnect the ac power cable from each power supply of the primary I/O drawer.
2. Use a multimeter to measure the ac voltage at the drawer end of each ac power cable.

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

NO Replace the ac power cable(s).

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

YES Go to “Step 1521-13” on page 91.

Step 1521-13

Check internal drawer cabling from power distribution card to primary I/O backplane. See "Primary I/O Drawer Internal Cables" on page 475 in Chapter 10.

Replace the following in the primary I/O drawer, one at a time, disconnecting the ac power cable to each power supply before replacement and reconnecting the ac power cable to each supply after replacement:

- Primary I/O drawer operator panel
- Power supply (including redundant power supply, if present)
- Primary I/O drawer backplane

Does the Primary I/O Drawer Operator Panel Show the OK Prompt?

NO Contact your next level of support for assistance.

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

Step 1521-14

Is the ac power cable from the rack power distribution unit to the customer's ac power outlet connected and seated correctly at both ends?

NO Connect the ac power cable correctly at both ends.

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

YES Go to "Step 1521-15".

Step 1521-15

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

Perform the following:

1. Disconnect the mainline ac power cable from the power distribution unit that supplies power to the primary I/O drawer.
2. Use a multimeter to measure the ac voltage at the power distribution unit end of the mainline ac power cable.

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

NO Go to "Step 1521-16" on page 92.

YES Replace the power distribution unit.

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

Step 1521-16

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

Perform the following:

1. Disconnect the mainline ac power cable from the customer's ac power outlet.
2. 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 *Diagnostics Information for Multiple Bus Systems*.

YES Replace the mainline ac power cable.

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

Map 1522: Cannot Power On The CEC Drawer

Step 1522-1

Attempt to power on the CEC drawer (see “Powering Off and Powering On the System” on page 421)

Does the CEC drawer power on?

NO Go to “Step 1522-2”.

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

Step 1522-2

Look at the power supply LED(s) at the front of the CEC drawer.

Is the CEC drawer equipped with two power supplies?

NO Go to “Step 1522-3”.

YES Go to “Step 1522-5” on page 94

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

Step 1522-3

Is the power supply LED flashing?

NO Go to “Step 1522-7” on page 95.

YES Go to “Step 1522-4” on page 94.

Step 1522-4

Use the information in the “I/O Drawer and Power Supply LED Status” on page 25 to answer the following question.

Note: This table also applies to the CEC drawer LEDs.

Is the power supply LED blinking quickly?

NO Check the SPCN cabling.

Replace the CEC drawer power supply.

Replace the CEC drawer backplane.

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

YES Replace the power supply with the flashing LED.

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

Step 1522-5

Is there a power supply with a flashing LED?

NO Go to “Step 1522-7” on page 95.

YES Go to “Step 1522-6”.

Step 1522-6

Are both I/O drawer power supply LEDs flashing?

NO Replace the power supply with the flashing LED.

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

YES Replace the CEC backplane.

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

Step 1522-7

Are all circuit breakers reset at the rack power distribution unit(s)?

NO Reset the circuit breaker..

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

YES Go to "Step 1522-8".

Step 1522-8

Are all the cables seated firmly and correctly connected between the primary I/O drawer, secondary I/O drawers and CEC drawer?

NO Fix the cable connections

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

YES Go to "Step 1522-9".

Step 1522-9

Are all the ac power cables seated firmly and connected correctly from the rack power distribution unit(s) to the rack drawers?

NO Fix the connection.

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

YES Go to "Step 1522-10".

Step 1522-10

Follow the ac power cable(s) from the CEC drawer to the appropriate power distribution unit.

Is the power distribution unit power LED on?

NO Go to "Step 1522-18" on page 98.

YES Go to "Step 1522-11" on page 96.

Step 1522-11

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

Perform the following:

1. Disconnect the ac power cable(s) from the power distribution unit that supplies power to the CEC drawer.
2. Use a multimeter to measure the ac voltage at the power distribution unit socket(s) where the ac power cable(s), just removed, was (were) attached.

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

NO Replace the power distribution unit.

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

YES Go to “Step 1522-12”.

Step 1522-12

Reconnect the ac power cable(s) to the power distribution unit.

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

Perform the following:

1. Disconnect the ac power cable from each power supply of the CEC drawer.
2. Use a multimeter to measure the ac voltage at the drawer end of each ac power cable.

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

NO Replace the ac power cable(s).

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

YES Go to “Step 1522-13” on page 97.

Step 1522-13

Disconnect the ac power cable to each power supply of the CEC drawer and remove the following from the CEC drawer:

1. CEC processor card
2. CEC memory card(s)

Reconnect the ac power cables to each power supply of the CEC drawer and attempt to power on the CEC.

Does the CEC power on?

NO Go to "Step 1522-16" on page 98.

YES Go to "Step 1522-14".

Step 1522-14

Disconnect the ac power cable from each power supply. Then reinsert the following components in the CEC drawer, one at a time, in the sequence listed. After reinserting, reconnect the ac power cable to each power supply.

1. CEC processor card
2. CEC memory card(s)

Does the CEC power on?

NO Replace the defective card just reinserted.

Reinsert any remaining cards in this step.

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

YES Go to "Step 1522-15".

Step 1522-15

Have all cards in this step been reinserted?

NO Go to "Step 1522-14".

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

YES The symptom has changed. Call your next level of support for assistance.

Step 1522-16

Disconnect the ac power cable from the power supply. Then replace the CEC backplane. After replacing, reconnect the ac power cable to the power supply.

Does the CEC power on?

NO Go to "Step 1522-17".

YES Reinsert the cards removed in "Step 1522-13" on page 97.

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

Step 1522-17

Have all cards in this step been replaced?

NO Go to "Step 1522-16".

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

YES Call your next level of support for assistance.

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

Step 1522-18

Is the ac power cable from the rack power distribution unit to the customer's ac power outlet connected and seated correctly at both ends?

NO Connect the ac power cable correctly at both ends.

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

YES Go to "Step 1522-19" on page 99.

Step 1522-19

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

Perform the following:

1. Disconnect the mainline ac power cable from the power distribution unit that supplies power to the CEC drawer.
2. Use a multimeter to measure the ac voltage at the power distribution unit end of the mainline ac power cable.

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

NO Go to “Step 1522-20”.

YES Replace the power distribution unit.

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

Step 1522-20

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

Perform the following:

1. Disconnect the mainline ac power cable from customer’s ac power outlet.
2. 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 *Diagnostics Information for Multiple Bus Systems*.

YES Replace the mainline ac power cable.

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

Map 1523: Cannot Power On The Secondary I/O Drawer, Operator Panel Power Present LED Does Not Come On

Step 1523-1

Attempt to power on the secondary I/O drawer (see “Powering Off and Powering On the System” on page 421.)

Does the secondary I/O drawer power on?

NO Go to “Step 1523-2”.

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

Step 1523-2

Look at the power supply LED(s) at the front of the secondary I/O drawer.

Is the secondary I/O drawer equipped with two power supplies?

NO Go to “Step 1523-3”.

YES Go to “Step 1523-5” on page 101

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

Step 1523-3

Is the power supply LED flashing?

NO Go to “Step 1523-7” on page 102.

YES Go to “Step 1523-4” on page 101.

Step 1523-4

Use the information in the “I/O Drawer and Power Supply LED Status” on page 25 to answer the following question.

Is the power supply LED blinking quickly?

- NO** Check the SPCN cabling.
Check internal drawer cabling from power distribution card to primary I/O backplane. See “Primary I/O Drawer Internal Cables” on page 475 in Chapter 10.

Replace the I/O drawer power supply.

Replace the secondary I/O drawer backplane.

Replace the I/O drawer power distribution card.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostics Information for Multiple Bus Systems*
- YES** Replace the power supply with the flashing LED.

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

Step 1523-5

Is there a power supply with a flashing LED?

- NO** Go to “Step 1523-7” on page 102.
- YES** Go to “Step 1523-6”.

Step 1523-6

Are both I/O drawer power supply LEDs flashing?

- NO** Replace the power supply with the flashing LED.

This ends the procedure. Go to “Map 0410: Repair Checkout” in the *Diagnostics Information for Multiple Bus Systems*
- YES** Check internal drawer cabling from power distribution card to primary I/O backplane. See “Primary I/O Drawer Internal Cables” on page 475 in Chapter 10.

Replace the following one at a time:
1. secondary I/O drawer backplane
 2. power distribution board
- This ends the procedure.** Go to “Map 0410: Repair Checkout” in the *Diagnostics Information for Multiple Bus Systems*

Step 1523-7

Are all circuit breakers reset at the rack power distribution unit(s)?

NO Reset the tripped circuit breaker.

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

YES Go to "Step 1523-8".

Step 1523-8

Are all the cables seated firmly and correctly connected between the primary I/O drawer, secondary I/O drawers and CEC drawer?

NO Fix the cable connections.

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

YES Go to "Step 1523-9".

Step 1523-9

Are all the ac power cables seated firmly and connected correctly from the rack power distribution unit(s) to the rack drawers?

NO Fix the connection.

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

YES Go to "Step 1523-10".

Step 1523-10

Follow the ac power cable(s) from the secondary I/O drawer to the appropriate power distribution unit.

Is the power distribution unit power LED on?

NO Go to "Step 1523-14" on page 104.

YES Go to "Step 1523-11" on page 103.

Step 1523-11

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

Perform the following:

1. Disconnect the ac power cable(s) from the power distribution unit that supplies power to the secondary I/O drawer.
2. Use a multimeter to measure the ac voltage at the power distribution unit socket(s) where the ac power cable(s), just removed, was (were) attached.

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

NO Replace the power distribution unit. Reconnect the ac power cable(s) to the power distribution unit.

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

YES Go to “Step 1523-12”.

Step 1523-12

Reconnect the ac power cables(s) to the power distribution unit.

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

Perform the following:

1. Disconnect the ac power cable from each power supply of secondary I/O drawer.
2. Use a multimeter to measure the ac voltage at the drawer end of each ac power cable.

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

NO Replace the ac power cable(s).

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

YES Go to “Step 1523-13” on page 104.

Step 1523-13

Check internal drawer cabling from power distribution card to primary I/O backplane. See "Primary I/O Drawer Internal Cables" on page 475 in Chapter 10.

Disconnect the ac power cable from each power supply. Then replace the following components in the secondary I/O drawer, one at a time, in the sequence listed. After replacing, reconnect the ac power cable to each power supply.

- Secondary I/O drawer operator panel
- Secondary I/O drawer backplane
- Power supply (including redundant power supply, if present)

Does the secondary I/O drawer operator panel turn on the power present LED?

NO Contact your next level of support for assistance.

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

Step 1523-14

Is the ac power cable from the secondary rack power distribution unit to the customer's ac power outlet connected and seated correctly at both ends?

NO Connect the ac power cable correctly at both ends.

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

YES Go to "Step 1523-15".

Step 1523-15

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

Perform the following:

1. Disconnect the mainline ac power cable from the power distribution unit that supplies power to the secondary I/O drawer.
2. Use a multimeter to measure the ac voltage at the power distribution unit end of the mainline ac power cable.

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

NO Go to "Step 1523-16" on page 105.

YES Replace the power distribution unit.

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

Step 1523-16

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

Perform the following:

1. Disconnect the mainline ac power cable from the customer's ac power outlet.
2. 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 *Diagnostics Information for Multiple Bus Systems*.

YES Replace the mainline ac power cable.

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

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 rack that contains the CEC drawer, the primary drawer, and any secondary drawer before removing or installing the processor cards, memory cards, CEC backplane or I/O backplane to avoid damage.
2. This MAP assumes that a CD-ROM drive is installed and connected to a the internal SCSI adapter 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* refers to the device mnemonics (words memory, keyboard, network, scsi, and speaker) that appear on the system console during the power-on self-test (POST).
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 can disable these actions while you diagnose and service the system. If you disable them, make notes of their current settings so that you can restore them easily. The following table lists the settings:

| | |
|------------------|---|
| Surveillance | From the service processor setup menu, go to the surveillance setup menu and disable surveillance. |
| 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. Turn off the power.
3. Select slow boot mode (select disable fast boot) on the system power control menu from the service processor main menu.
4. Turn on the power to boot standalone diagnostics from CD.

Does the primary I/O drawer power come on and stay on?

NO Go to "Step 1540-4" on page 109.

YES Go to step 5.

5. Insert the diagnostic CD-ROM into the CD-ROM drive.

Does the CD-ROM appear to operate correctly?

NO Go to "Boot Problems and Concerns" on page 153.

YES Go to "Step 1540-2".

Step 1540-2

1. When the keyboard indicator is displayed (the word keyboard), press the 5 key on the system console.
2. Enter the appropriate password when you are prompted to do so.

Is the Please define the System Console screen displayed?

NO Go to "Step 1540-3".

YES Go to "Step 1540-10" on page 113.

Step 1540-3

The system is unable to boot standalone diagnostics.

Check the Service Processor error log and the primary I/O drawer operator panel for additional error codes resulting from the slow boot in step 1540-1.

Did the slow boot generate a different error code than the one that originally sent you to MAP 1540?

YES Restore fast boot mode (select enable fast boot) on the system power control menu from the service processor main menu, go to "Checkpoint and Error Code Index" on page 159 and follow the actions for the new error code.

NO Continue "Step 1540-3" below.

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.

Use the following table to locate, if possible, the error code that sent you to minimum configuration:

Note: x = indicates any character (6 to F) associated with this code.

| First Four Characters | Second Four Characters |
|----------------------------|--|
| 406x | 0009 00A1 00A3 00A6 00A7 |
| ----- | ----- |
| 450x or 460x or 4B2x | 244C 244D 244E 244F 24A1 24A2 24A3 24A4 25BB 25BD 25BE 25BF 25CB 25EA 25EB 25F2 263D 271A 271D 288D 2A00 |
| ----- | ----- |
| B006 | 1406 1407 1408 |
| ----- | ----- |
| B1xx | 4601 4648 4660 4690 4691 469E 469F |

Use the following table to locate, if possible, the checkpoint that sent you to minimum configuration:

| Checkpoint | Checkpoint | Checkpoint |
|------------|------------|------------|
| 91FF | 94B2 | 9503 |
| 9380 | 94BB | 9504 |
| 94B0 | 9501 | 9505 |
| 94B1 | 9502 | 9506 |

Did you find the error code or checkpoint that sent you here in the above tables or did the action that sent you to MAP 1540 explicitly tell you to run the CEC Drawer Minimum Configuration?

NO Go to "Step 1540-13" on page 115.

YES Go to "Step 1540-4".

Step 1540-4

1. Turn off the power.
2. At the CEC drawer, disconnect the RIO cable at RIO port 0.
3. At the primary I/O drawer, disconnect the RIO cable at RIO port 0. The RIO cable should be loose and can be removed from the system.
4. At the CEC drawer, disconnect the RIO cable at RIO port 1 and reconnect it to RIO port 0.
5. Follow the RIO cable you have connected to RIO port 0 of the CEC drawer back to an I/O drawer, disconnect the I/O drawer end (RIO port 1, note location) of the RIO cable and reconnect it to the primary I/O drawer RIO port 0.
6. With only one RIO cable connected between the CEC drawer RIO port 0 and the primary I/O drawer RIO port 0, power the system on to boot standalone diagnostics from CD.

Is the Please Define the System Console screen displayed?

NO Reconnect the RIO cable that was removed in substep 3 above. Connect from CEC drawer RIO port 1 to the I/O drawer RIO port 1 noted in substep 5 above. Go to "Step 1540-5" on page 110.

YES The RIO cable you removed in substep 3 above is defective. Replace the RIO cable. Connect from CEC drawer RIO port 1 to the I/O drawer RIO port 1 noted in substep 5 above. The last item replaced was defective. Return the machine to the original configuration. Go to "MAP 410: Repair Checkout" in the *Diagnostics Information for Multiple Bus Systems*.

Step 1540-5

1. Turn off the power.
2. Disconnect the ac power cable(s) from the front of the CEC drawer.
3. If the system has a one-way processor card with memory DIMMs installed, record the DIMM locations and remove all the memory DIMMs except the ones in slots 1 and 8–pair A. If a memory riser card with memory DIMMs is installed in slot U1.1-P1-M1, record the DIMM locations and remove all the memory DIMMs except the ones in slots 1, 2, 15, and 16–quad A.

Make sure the minimum memory DIMMs configuration of 256 MB is installed in the memory riser card in the first slot of the system, or the one-way processor card if there is no memory riser card. Use either a pair or a quad, depending on the memory DIMMs available.

4. Replace the second memory riser card from slot U1.1-P1-M2, (if present), with a memory filler card if one is available. Otherwise, record the DIMM locations, remove all the memory DIMMs from the second memory riser card and install it back in slot U1.1-P1-M2.
5. With the CEC drawer now configured with only minimum required memory, connect the ac power cable to the CEC drawer and turn on the power to boot standalone diagnostics from CD.

Is the Please define the System Console screen displayed?

- NO** Go to “Step 1540-6” on page 111.
- YES** Go to “Step 1540-8” on page 112.

Step 1540-6

1. Turn off the power.
2. Disconnect the ac power cable from the CEC drawer.
3. Replace the items in the following list, ONE at a time.
 - a. Memory DIMMs quad A on memory riser card 1, if present, with new or previously removed DIMMs
 - b. Memory riser card (Location: U1.1-P1-M1), if present, with a new or previously removed memory riser card
 - c. Memory riser card (Location: U1.1-P1-M2), if present, with a new or previously removed memory riser card
 - d. Memory DIMMs pair A on one-way processor card, if present, with new or previously removed DIMMs
 - e. Processor card (Location: U1.1-P1-C1)
 - f. CEC drawer backplane (Location: U1.1-P1)
4. Reconnect the ac power to the CEC drawer.
5. Turn on the power to boot standalone diagnostics from CD.

Is the Please define the System Console screen displayed?

- NO** Go to "Step 1540-7".
- YES** The last item replaced was defective. Return the machine to the original configuration. Go to "MAP 410: Repair Checkout" in the *Diagnostics Information for Multiple Bus Systems*.

Step 1540-7

Have all the parts, if present, listed in "Step 1540-6" been replaced?

- NO** Go to "Step 1540-6".
- YES** Go to "Step 1540-11" on page 114.

Step 1540-8

1. Turn off the power.
2. Disconnect the ac power cable from the CEC drawer.
3. Reinsert the cards in the following list one at a time. Continue to reinsert cards in the list until you have reinserted all the cards in the list.
 - a. Memory DIMMs in quads B in memory riser card 1 if previously present or memory DIMMs in pairs B in one-way processor card if previously present.
 - b. Memory DIMMs in quads C in memory riser card 1 if previously present or memory DIMMs in pairs C in one-way processor card if previously present.
 - c. Memory DIMMs in quads D in memory riser card 1 if previously present or memory DIMMs in pairs D in one-way processor card if previously present.
 - d. If a memory riser card filler was installed in the place of the memory riser card 2, replace the memory riser card filler with memory riser card 2.
 - e. Memory DIMMs in quad A in memory riser card 2 if previously present.
 - f. Memory DIMMs in quad B in memory riser card 2 if previously present.
 - g. Memory DIMMs in quad C in memory riser card 2 if previously present.
 - h. Memory DIMMs in quad D in memory riser card 2 if previously present.
4. Reconnect the ac power cable to the CEC drawer.
5. Turn on the power to boot standalone diagnostics from CD.

Is the Please define the System Console screen displayed?

- NO** The DIMMs or memory riser card you just reinserted or the one-way processor card is defective. Isolate to the failing memory DIMM pairs or quads by temporarily replacing with new or previously removed or populated memory DIMM pairs or quads. Otherwise, the memory riser card or one-way processor card is bad. Return to the original configuration and replace the failing memory DIMM or memory riser card or one-way processor card with new memory DIMMs, memory riser card, or one-way processor card. Return the machine to the original configuration. Go to "MAP 410: Repair Checkout" in the *Diagnostics Information for Multiple Bus Systems*.
- YES** Go to "Step 1540-9" on page 113.

Step 1540-9

Have all the cards in the list in “Step 1540-8” on page 112 been replaced with new or original cards?

NO Go to “Step 1540-8” on page 112.

YES Go to “Step 1540-10”.

Step 1540-10

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

Standalone diagnostics can be booted. Perform the following:

1. Follow the instructions on the screen to select the system console.
2. When the DIAGNOSTIC OPERATING INSTRUCTIONS screen is displayed, press Enter.
3. If the terminal type has not been defined, you must use the **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. Be sure to select fast boot mode (select enable fast boot) on the system power control menu from the service processor main menu. Go to “Map 0410: Repair Checkout” in the *Diagnostics Information for Multiple Bus Systems*

YES The boot attempts that follow will attempt to isolate any remaining I/O drawer problems with missing devices. Ignore any codes that may appear on the operator panel unless stated otherwise. Go to “Step 1540-11” on page 114.

Step 1540-11

You were directed here because the defect seems to be related to the I/O system.

Select fast boot mode (select enable fast boot) on the system power control menu from the service processor main menu.

Look at the rear of the CEC drawer and locate the RIO cable connected to port 1. Refer to “CEC Drawer Rear View” on page 10 for location of RIO connectors.

Follow the RIO cable back to the secondary I/O drawer.

Is the secondary I/O drawer attached to the CEC drawer ?

NO Did you perform “Step 1540-4” on page 109?

NO Go to “Step 1540-37” on page 129.

YES Go to “Step 1540-15” on page 117.

YES Did you perform “Step 1540-4” on page 109?

NO Go to “Step 1540-12”.

YES Go to “Step 1540-13” on page 115.

Step 1540-12

The secondary I/O Drawer is attached to the CEC drawer. Isolate a faulty RIO cable by performing the following steps:

Note: Before continuing, check the cabling from the CEC drawer to I/O Drawer(s) to ensure that the system is cabled correctly. Refer to “Cabling the CEC Drawer, Primary I/O Drawer, and Secondary I/O Drawer” on page 45 for valid configurations. Record the current cabling configuration and then continue with the following steps.

1. Turn the system power off.
2. At the CEC drawer, disconnect the cable connection at RIO port 0.
3. At the primary I/O drawer, disconnect the cable connection at RIO port 0. The RIO cable that was connected to RIO port 0 should now be loose and can be removed.
4. At the CEC drawer, disconnect the cable connection at RIO port 1 and reconnect to RIO port 0.
5. Follow the RIO cable you have connected to RIO port 0 of the CEC drawer back to the secondary I/O drawer, disconnect the I/O drawer end (RIO port 1, note location) of the RIO cable and reconnect it to the primary I/O drawer RIO port 0.
6. Verify that primary I/O drawer RIO port 0 is connected to the CEC drawer RIO port 0.
7. Turn on the power to boot standalone diagnostics from CD.
8. If the Please Define System Console screen is displayed, follow directions to select the system console.

9. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
10. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

- NO** Go to “Step 1540-13”
- YES** The RIO cable that was removed in substep 3 above is defective. Replace the RIO cable. Connect the new RIO cable from CEC drawer RIO port 1 to the secondary I/O drawer RIO port 1 noted in substep 5 above. Reconfigure the system to its original condition. Go to “MAP 410: Repair Checkout” in the *Diagnostics Information for Multiple Bus Systems*

Step 1540-13

Isolate the primary I/O drawer by performing the following steps:

1. Turn off the system power.
2. Select fast boot mode (select enable fast boot) on the system power control menu from the service processor main menu.
3. Verify that primary I/O drawer RIO port 0 is connected to CEC drawer RIO port 0.
4. At the primary I/O drawer, remove the cable connected to RIO port 1.
5. Verify that the primary I/O drawer V/S COMM and JTAG ports are connected to the CEC V/S COMM and JTAG ports.

Note: The primary I/O drawer should be cabled as shown in “Cabling the CEC Drawer, Primary I/O Drawer, and Secondary I/O Drawer” on page 45. Be sure to examine all the RIO, V/S COMM, and JTAG cables.

6. Disconnect ac power cables from the secondary I/O drawer.
Attention: The rack that you are working on may have I/O drawers that are connected to other CEC drawers or other third-party drawers attached to the power distribution unit (PDU). 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.
7. All I/O drawers except the primary I/O drawer should now be physically disconnected from the CEC drawer.

Go to “Step 1540-14” on page 116.

Step 1540-14

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

1. Turn on the power to boot standalone diagnostics from CD.
2. If the Please Define System Console screen is displayed, follow directions to select the system console.
3. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
4. Check that all attached devices and adapters are listed.

If the Please Define System Console screen did not display or all attached devices and adapters are not listed, the problem is in the primary I/O drawer.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-15" on page 117.

YES Go to "Step 1540-25" on page 123.

Step 1540-15

Perform the following to deconfigure 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 106. Then return here and continue.
3. Exit the service processor menus, and remove the ac power cables from the CEC drawer and the I/O drawer.

Attention: The rack that you are working on may have I/O drawers that are connected to other CEC drawers or other third-party drawers attached to the power distribution unit (PDU). 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 standalone serial terminal (possibly a 3151) and connect to the S1 serial port.
5. Remove the keyboard and mouse, if they are attached to the primary I/O drawer.
6. Leave the remaining external cables (RIO-port0, V/S COMM, RIO-port1, and JTAG) connected.
7. Disconnect the diskette drive cable from the diskette drive connector on the primary I/O drawer backplane.
8. Disconnect the boot devices, if present, other than the device used for booting.
9. Plug in the ac power cables for the CEC drawer and the I/O drawer. The primary I/O drawer operator panel momentarily displays an OK prompt.

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

NO Go to "Step 1540-16".

YES Go to "Step 1540-18" on page 118.

Step 1540-16

Are there any adapters in slots 5, 6, 7, 8 or 9?

NO Go to "Step 1540-17".

YES Go to "Step 1540-19" on page 118.

Step 1540-17

Are there any adapters in slots 10, 11, 12, 13 or 14?

NO Go to "Step 1540-23" on page 122.

YES Go to "Step 1540-20" on page 119.

Step 1540-18

1. If it is not already off, turn power off.
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 to boot standalone diagnostics from CD.
6. If the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-16" on page 117.

YES Go to "Step 1540-21" on page 120.

Step 1540-19

1. If it is not already off, turn power off.
2. Remove all adapters from slots 5, 6, 7, 8, and 9 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 to boot standalone diagnostics from CD.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-17" on page 117.

YES Go to "Step 1540-21" on page 120.

Step 1540-20

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 10, 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 to boot standalone diagnostics from CD.
6. If the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-23" on page 122.

YES Go to "Step 1540-21" on page 120.

Step 1540-21

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 to boot standalone diagnostics from CD.
4. If the Please Define System Console screen is displayed, follow directions to select the system console.
5. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
6. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-22" on page 121.

YES Reinstall the next adapter or device and return to the beginning of this step. Continue repeating this process until an adapter or device causes the Please Define System Console screen to not display or all attached devices and adapters to not be listed.

After installing all the adapters and the Please Define System Console screen does display and all attached devices and adapters are listed, return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostics Information for Multiple Bus Systems*.

Step 1540-22

Replace the adapter or device you just installed with a new adapter or device and retry the boot to standalone diagnostics from CD.

1. If the Please Define System Console screen is displayed, follow directions to select the system console.
2. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
3. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

- NO** The I/O drawer backplane is defective. Replace the I/O drawer backplane, and then reinstall all remaining adapters and reconnect all devices. Return the system to its original configuration. Go to "Map 0410: Repair Checkout" in the *Diagnostics Information for Multiple Bus Systems*.
- YES** The adapter was defective. Go to "Step 1540-24" on page 123.

Step 1540-23

1. Turn off the power.
2. Disconnect the I/O drawer AC power cables.
3. Replace the parts in the list below one at a time.
 - a. Primary I/O drawer backplane
 - b. Boot device
 - c. RIO adapter card
 - d. Power supply and redundant power supply (if present)
 - e. Fan controller card
 - f. Power distribution card
4. Reconnect the I/O drawer AC power cables.
5. Turn power on.
6. Boot standalone diagnostics from CD.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Reinstall the next part in the list and return to the beginning of this step. Continue repeating this process until a part causes the Please Define System Console screen to be displayed and all attached devices and adapters to be listed.

If you have replaced all the items listed above and the Please Define System Console screen does not display or all attached devices and adapters are not listed, check any external devices and cabling. If you do not find a problem, contact your next level of support for assistance.

YES Go to "Step 1540-24" on page 123.

Step 1540-24

1. Turn off the power.
2. The item just replaced 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 primary I/O drawer backplane.
5. Connect all the boot devices to the SCSI cable.
6. Plug in all adapters that were previously removed but not reinstalled.
7. Reconnect the primary 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 *Diagnostics Information for Multiple Bus Systems*.

Step 1540-25

If the Please Define System Console screen does display and all attached devices and adapters are listed, the problem is with the secondary I/O drawer. Turn the power off.

Reconnect the secondary I/O drawer.

Note: The I/O drawers should be cabled as shown in “Cabling the CEC Drawer, Primary I/O Drawer, and Secondary I/O Drawer” on page 45. Be sure to look at RIO cables, SPCN cables, V/S COMM cables, and JTAG cables. Go to “Step 1540-27” on page 124.

Step 1540-26

Connect ac power to the secondary I/O drawer.

Step 1540-27

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

NO Go to "Step 1540-28".

YES Go to "Step 1540-30" on page 125.

Step 1540-28

Are there any adapters in slots 5, 6, 7, 8 or 9?

NO Go to "Step 1540-29".

YES Go to "Step 1540-31" on page 125.

Step 1540-29

Are there any adapters in slots 10, 11, 12, 13 or 14?

NO Go to "Step 1540-35" on page 128.

YES Go to "Step 1540-32" on page 126.

Step 1540-30

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 to boot standalone diagnostics from CD.
6. If the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-28" on page 124.

YES Go to "Step 1540-33" on page 126.

Step 1540-31

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 5, 6, 7, 8, and 9 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 to boot standalone diagnostics from CD.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-29" on page 124.

YES Go to "Step 1540-33" on page 126.

Step 1540-32

1. If it is not already off, turn off the power.
2. Remove all adapters from slots 10, 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 to boot standalone diagnostics from CD.
6. When the TTY screen displays Enter 0 to select this console, press the 0 key on the TTY terminal's keyboard.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-35" on page 128.

YES Go to "Step 1540-33".

Step 1540-33

If the Please Define System Console screen does display and all attached devices and adapters are listed, the problem is with one of the adapter cards or devices that was removed or disconnected from the I/O drawer.

1. Turn off the power.
2. Replace one adapter or device that was removed. Place the original adapter cards in their original slots when reinstalling adapters.
3. Turn on the power to boot standalone diagnostics from CD.
4. If the Please Define System Console screen is displayed, follow directions to select the system console.
5. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
6. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-34" on page 127.

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 Please Define System Console screen to not be displayed or all attached devices and adapters to not be listed.

Step 1540-34

Replace the adapter or device that is causing the Please Define System Console screen to not be displayed or all attached devices and adapters to not be listed with a new adapter.

1. Turn on power and boot standalone diagnostics from CD.
2. If the Please Define System Console screen is displayed, follow directions to select the system console.
3. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
4. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-35" on page 128.

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

Step 1540-35

1. Turn off the power.
2. Disconnect the I/O drawer AC power cables.
3. Replace the remaining parts (listed below) in this drawer, one at a time.
 - a. Secondary I/O drawer backplane
 - b. RIO adapter card
 - c. Secondary drawer I/O operator panel
 - d. Fan controller card
 - e. Power supply and redundant power supply (if present)
 - f. Power distribution card
4. Reconnect the I/O drawer AC power cables.
5. Turn power on.
6. Boot standalone diagnostics from CD.
7. If the Please Define System Console screen is displayed, follow directions to select the system console.
8. Use the Display Configuration and Resource List to list all attached devices and adapters (refer to the *Diagnostics Information for Multiple Bus Systems* if necessary).
9. Check that all attached devices and adapters are listed.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

- NO** 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 1540-36".

Step 1540-36

If the Please Define System Console screen is displayed and all attached devices and adapters are listed, do the following:

1. Turn off the power.
2. The item just replaced fixed the problem.
3. Plug in all adapters that were previously removed but not installed.
4. Reconnect the secondary 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 "Map 0410: Repair Checkout" in the *Diagnostics Information for Multiple Bus Systems*.

Step 1540-37

The primary I/O Drawer is the only I/O Drawer that was connected to the CEC drawer. Perform the following steps to isolate a faulty RIO cable:

Note: Before continuing, check the cabling from the CEC drawer to I/O Drawer(s) to ensure that the system is cabled correctly. Refer to "Cabling the CEC Drawer, Primary I/O Drawer and Secondary I/O Drawer(s)" on page 41 for valid configurations. Record the current cabling configuration and then continue with the following steps.

1. Turn the system power off.
2. At the CEC drawer, disconnect the cable connection at RIO port 0.
3. At the primary I/O drawer, disconnect the cable connection at RIO port 0. The RIO cable that was connected to RIO port 0 should now be loose and can be removed.
4. At the CEC drawer, disconnect the cable connection at RIO port 1 and reconnect to RIO port 0.
5. At the primary I/O drawer, disconnect the RIO connection at RIO port 1. Reconnect this RIO cable end to RIO port 0.
6. Verify that primary I/O drawer RIO port 0 is connected to the CEC drawer RIO port 0.
7. Turn on the power to boot standalone diagnostics from CD.

Did the Please define the System Console screen display and are all attached devices and adapters listed?

NO Go to "Step 1540-15" on page 117

YES The RIO cable that was removed in step 3 above is defective. Replace the RIO cable. Connect the new RIO cable from CEC drawer RIO port 1 to the primary I/O drawer RIO port 1. Reconfigure the system to its original condition. Go to "MAP 410: Repair Checkout" in *Diagnostics Information for Multiple Bus Systems*.

Chapter 4. Checkpoints

Checkpoints display on the primary I/O drawer operator panel while the system is powering on and going through the initial program load (IPL). This chapter explains the IPL flow of the system and provides a table that lists checkpoints that you might see in the primary I/O drawer operator panel.

IPL Flow

The IPL process starts when ac power is connected to the system. The IPL process has four phases:

- **Phase 1: Service Processor Initialization**

Phase 1 starts when ac power is connected to the system and ends when 0K is displayed in the primary I/O drawer operator panel. 8xxx checkpoints are displayed during this phase. Several 9xxx codes may also be displayed. Service processor menus are available at the end of this phase by pressing any key on the console keyboard.

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

Phase 2 starts when system power up is initiated by pressing the power on button on the primary I/O drawer operator panel. 9xxx checkpoints are displayed during this time. 91FF, the last checkpoint in this phase, indicates the transition to Phase 3 is taking place.

- **Phase 3: System Firmware initialization**

At phase 3, a system processor takes over control and continues initializing system resources. During this phase, checkpoints in the form Exxx are displayed. E105, the last checkpoint in this phase, indicates that control is being passed to the AIX boot program. Location codes may also be displayed in the second line of the primary I/O drawer operator panel.

- **Phase 4: AIX Boot**

When AIX starts to boot, checkpoints in the form 0xxx and 2xxx are displayed. Location codes may also be displayed in the second line of the primary I/O drawer operator panel. This phase ends when the AIX login prompt displays on the AIX console. The primary I/O drawer operator panel should be blank.

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 | 8xxx => OK | Approx. 1 | |
| Phase 2 | 9xxx => 91FF | 3 to 6 | Number of I/O drawers |
| Phase 3 | Exxx => E105 | 1 to 3 | Number of bootable adapters |
| Phase 4 | 0xxx => blank | 2 to 30+ | Number of SSA drives Number of SCSI drives Number of Async sessions Number of processors Number of adapters Amount of memory |

Checkpoints enable users and service personnel to know what the server is doing, with some detail, as it initializes. These checkpoints are not intended to be error indicators, but in some cases a server could hang at one of the checkpoints without displaying an 8-character error code. It is for these hang conditions, only, that any action should be taken with respect to checkpoints. The most appropriate action is included with each checkpoint.

Before taking actions listed with a checkpoint, check for additional symptoms in the service processor error log. See the “System Information Menu” on page 374 for information on how to access the service processor error log.

Note: Go to “MAP 1540: Minimum Configuration” on page 106 for any of the following checkpoint conditions. If mentioned as an action, remember to run the System Rack Minimum Configuration:

- A four-digit code in the range of 8xxx through EFFF not listed in the checkpoint tables.
- A four-digit code is in the checkpoint tables, but does not contain a repair action or FRU listing.
- All of the FRUs listed in the repair action have been replaced and the problem has not been corrected.

Checkpoints listed in the following tables are in the format 8xxx, 9xxx, Axxx, Bxxx, or Exxx, where x is any hexadecimal digit from 1-9 or A-F. If your system hangs with a checkpoint displayed that begins with anything other than 8, 9, A, B, or E, go to the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

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

| Symptom | Action |
|---|--|
| You have a code that is of the form 8xxx, 9xxx, Axxx, or Bxxx. | Go to “Service Processor Checkpoints” on page 134. |
| You have a code of the form Exxx. | Go to “Firmware Checkpoints” on page 141. |
| You have a four-character code that is NOT of the form 8xxx, 9xxx, Axxx, Bxxx, or Exxx. | Refer to the <i>RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems</i> manual. |

Service Processor Checkpoints

Service processor checkpoints are in the range 8xxx to Bxxx. **OK** in the primary I/O drawer's operator panel indicates successful service processor testing and initialization. Firmware checkpoints are listed in "Firmware Checkpoints" on page 141.

Note: A spinning (or twirling) slash will be shown in the upper right corner of the operator panel display while some checkpoints are being displayed. If the slash stops spinning, a hang condition is indicated.

Table 1. Service Processor Checkpoints

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|--|---------------------------------|
| 8000 | Test of the service processor DRAM | See note 1 on page 138 |
| 8004 | Verify base code checksum | See note 1 on page 138 |
| 8008 | Verify base code mirror checksum | See note 1 on page 138 |
| 8009 | Set NVRAM configuration in TITAN | See note 1 on page 138 |
| 800F | Start base code | See note 1 on page 138 |
| 8010 | Start supervisor in base code | See note 1 on page 138 |
| 8012 | Initialize hardware interrupts | See note 1 on page 138 |
| 8014 | Allocate and initialize area in DRAM | See note 1 on page 138 |
| 8016 | Initialize debugger and build VPD | See note 1 on page 138 |
| 8018 | Initialize service processor interfaces | See note 1 on page 138 |
| 801A | Initialize external FLASH load | See note 1 on page 138 |
| 801B | Initialize and test ISA hub chip | See note 1 on page 138 |
| 801C | Initialize and test SUPER I/O chip | See note 1 on page 138 |
| 801F | Initialize diskette, verify VDASD and start operational loader | See note 1 on page 138 |
| 809x | Related to recovery mode system firmware update from diskette | See note 3 on page 138 |
| 8092 | Diskette initialization during recovery mode system firmware update | See note 3 on page 138 |
| 8098 | Firmware image being read during recovery mode system firmware update | See note 3 on page 138 |
| 809C | Firmware image being written during recovery mode system firmware update | See note 3 on page 138 |
| 809F | Diskette error during recovery mode system firmware update | See note 3 on page 138 |
| 8100 | Start operational loader | See note 1 on page 138 |

Table 1. Service Processor Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|---|---------------------------------|
| 81xx | Load code into DRAM from VDASD (where xx = number of loads) | See note 1 on page 138 |
| 81FE | Load service processor operating system | See note 1 on page 138 |
| 81FF | Start service processor operating system | See note 1 on page 138 |
| 9000 | Primary service processor task initializing | See note 1 on page 138 |
| 9009 | System processor IPL has started | See note 1 on page 138 |
| 9010 | Primary service processor thread waiting for response | See note 1 on page 138 |
| 9020 | Service processor state set to pre-standby | See note 1 on page 138 |
| 9021 | Service processor state set to standby | See note 1 on page 138 |
| 9022 | Service processor state set to IPL | See note 1 on page 138 |
| 9030 | Waiting for secondary thread acknowledge | See note 1 on page 138 |
| 9033 | I/O base initialization | See note 1 on page 138 |
| 9034 | I2C initialization | See note 1 on page 138 |
| 9035 | ISA initialization | See note 1 on page 138 |
| 9036 | Mailbox initialization | See note 1 on page 138 |
| 9037 | SLLA initialization (VPD) | See note 1 on page 138 |
| 9038 | NVRAM initialization | See note 1 on page 138 |
| 9039 | Serial port initialization | See note 1 on page 138 |
| 903A | Serial I/O initialization | See note 1 on page 138 |
| 903B | SPCN initialization | See note 1 on page 138 |
| 9051 | End of reset/reload operation: service processor dump has completed | See note 1 on page 138 |
| 9060 | Checking/configuring modem on serial port 1 | See note 4 on page 140 |
| 9061 | Checking/configuring modem on serial port 2 | See note 4 on page 140 |
| 906A | Create mailbox processing thread | See note 1 on page 138 |
| 906B | Create menu interface thread | See note 1 on page 138 |
| 906C | Create general thread | See note 1 on page 138 |
| 906D | Create SPCN thread | See note 1 on page 138 |
| 9080 | Start VPD collection program | See note 1 on page 138 |

Table 1. Service Processor Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|---|---------------------------------|
| 9081 | Start SC VPD data collection | See note 1 on page 138 |
| 9082 | I2C/SPCN VPD data collection | See note 1 on page 138 |
| 9083 | End SC VPD data collection | See note 1 on page 138 |
| 9084 | End I2C VPD data collection | See note 1 on page 138 |
| 90FD | Waiting for IBIST to complete | See note 1 on page 138 |
| 9101 | Create CEC box | See note 1 on page 138 |
| 9102 | Open load source | See note 1 on page 138 |
| 9103 | Verify open status of load source | See note 1 on page 138 |
| 9104 | Load IPL LIDs | See note 1 on page 138 |
| 9105 | System flush | See note 1 on page 138 |
| 9106 | Scan interface BATs | See note 1 on page 138 |
| 9107 | ABIST | See note 1 on page 138 |
| 9108 | LBIST | See note 1 on page 138 |
| 9109 | LBIST | See note 1 on page 138 |
| 910A | Configure and initialize processors | See note 1 on page 138 |
| 910B | Configure main storage (system memory) | See note 1 on page 138 |
| 910C | Initialize main storage (system memory) | See note 1 on page 138 |
| 910D | Configure and initialize I/O | See note 1 on page 138 |
| 910E | Test main storage (system memory) | See note 1 on page 138 |
| 910F | Free IPL LIDS | See note 1 on page 138 |
| 9110 | Load runtime LIDS | See note 1 on page 138 |
| 9111 | Load dump LIDS | See note 1 on page 138 |
| 9112 | Enable attention | See note 1 on page 138 |
| 9113 | Enable function 22 | See note 1 on page 138 |
| 9114 | Load system IPL program | See note 1 on page 138 |
| 9115 | Load system data areas (NACA/PACA) | See note 1 on page 138 |
| 9116 | Start system IPL program | See note 1 on page 138 |
| 9118 | Waiting for VPD collection to complete | See note 1 on page 138 |

Table 1. Service Processor Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 9184 | Firmware image being loaded into service processor's control storage during firmware update. | <ol style="list-style-type: none"> 1. Remove, then reapply power to the system. If the service processor enters recovery mode, (indicated by A1FD 0000 in the display), attempt to update the firmware again in recovery mode. If the service processor comes up to the OK prompt, try again to update the firmware using the service processor menus. 2. Call service support |
| 91FF | Control being handed to system processor from service processor | See note 2 on page 138 |
| 9380 | Built-in-self-test (BIST) | See note 2 on page 138 |
| 94B0 | Wire test faulty driver status refcode | See note 2 on page 138 |
| 94B1 | Wire test shorted net status refcode | See note 2 on page 138 |
| 94B2 | Wire test L2 cache status refcode | See note 2 on page 138 |
| 94BB | Wire test status SRC refcode | See note 2 on page 138 |
| 9501 | Main storage initialization | See note 2 on page 138 |
| 9502 | Main storage L3 cache march test | See note 2 on page 138 |
| 9503 | Main storage L3 connections test | See note 2 on page 138 |
| 9504 | Main storage L3 cache march test | See note 2 on page 138 |
| 9505 | MS extra testing (RIO, etc.) | See note 2 on page 138 |
| 9506 | MS cleanup | See note 2 on page 138 |
| 99FD | Service processor receiving firmware update module | See note 1 on page 138 |
| 99FF | Service processor writing firmware update module | See note 1 on page 138 |
| A800 | Start service processor dump process | See note 1 on page 138 |
| A801 | Start dump to debug port | See note 1 on page 138 |
| A802 | Start dump to debug port | See note 1 on page 138 |
| A803 | NVRAM not usable | See note 1 on page 138 |
| A804 | NVRAM dump done | See note 1 on page 138 |
| A805 | Start dump to flash | See note 1 on page 138 |
| A806 | Flash dump area done | See note 1 on page 138 |
| A807 | Flash area not usable | See note 1 on page 138 |
| A808 | Flash error log to debug port | See note 1 on page 138 |

Table 1. Service Processor Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|---|--|
| A809 | Flash erase start | See note 1 |
| A80A | Flash erase end | See note 1 |
| A80B | Reserved; not used | See note 1 |
| A80C | Reserved; not used | See note 1 |
| A80D | Reserved; not used | See note 1 |
| A80E | Reserved; not used | See note 1 |
| A80F | Service processor dump done | See note 1 |
| B00B | Firmware delaying to determine if MOPs error is the result of power disturbance. After delay, SPCN is queried for CEC power status. | 1. Remove, then reapply power to the system. 2. Call service support. |
| B0F5 | Delayed power-off sequence has begun | See note 1 |
| B0FA | Delayed power-off acknowledged | See note 1 |
| B0FF | Power-off requested program executing | See note 1 |

Notes:

1. If the system fails to progress after this checkpoint is put in the display, do the following:
 - a. Activate the service processor pinhole reset switch on the system's operator panel.
 - b. If the hang repeats, check with service support to see if there is a firmware update that fixes the problem.
 - c. If not, or the update does not fix the problem, change the primary I/O backplane.
 - d. If this procedure does not fix the problem, call service support.
2. If the system fails to progress after this checkpoint is put in the display, do the following:
 - a. Activate the service processor pinhole reset switch on the system's operator panel.
 - b. If the hang repeats, check with service support to see if there is a firmware update that fixes the problem.
 - c. If not, or the update does not fix the problem, go to "MAP 1540: Minimum Configuration" on page 106.
 - d. If this procedure does not fix the problem, call service support.
3. Recovery mode flash update has failed. Do the following:
 - a. Activate the service processor pinhole reset switch on the system's operator panel and try the recovery mode flash update again.
 - b. If the system hangs again, make a new set of firmware update diskettes, using new, blank diskettes. Retry the flash update with the new diskettes.

- c. If the same hang occurs with the new diskettes, replace the following FRUs one at a time in this order:
 - 1) Diskette drive
 - 2) I/O backplane in the primary I/O drawer
- d. If this procedure does not fix the problem, call service support.

4. The service processor was unable to configure the modem(s) attached to the serial port(s). Do the following:
 - a. Check the modem, modem cable, and serial port for loose or unconnected cables. Reset the service processor using the pinhole reset switch on the primary I/O drawer operator panel.
 - b. If the hang repeats, check with service support to see if there is a firmware update that fixes the problem.
 - c. If there is not, or the update does not fix the problem, replace the following FRUs one at a time in this order:
 - 1) Modem cable
 - 2) Modem
 - 3) I/O backplane in the primary I/O drawer
 - d. If this procedure does not fix the problem, call service support.

Firmware Checkpoints

Firmware uses checkpoints (progress codes) in the range of Exxx to EFFF. These checkpoints occur during system startup and can be useful in diagnosing certain problems. Service processor checkpoints are listed in “Service Processor Checkpoints” on page 134.

If you replace FRUs and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 106 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to “MAP 410: Repair Checkout” in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Note: Firmware can hang due to multiple causes. In many cases, it can be caused by the primary processor or a memory problem in the first 64 MB of real memory. If a location code is not provided with the checkpoint, the following procedure will use the primary processor and low memory as the probable FRUs.

1. If firmware is hung (E100 through EFFF) and a location code is displayed on the second line of the operator panel, use that location code as the primary FRU.
2. If no location code is present or if replacing the primary FRU indicated in the location code did not fix the problem, then perform the following actions:
 - a. Power off the system and go to the service processor menus.
 - b. From the service processor main menu, select option 3, **System Information Menu**, then select option 5, **Read NVRAM**.
 - c. Enter 330 when prompted for an address.
 - d. Look at the byte of data at address 330. If value is FF, go to note 3. If the value is 00–0F, replace the processor card, location: U1.1–P1–C1. Attempt to reboot the system. If the system hangs at the same checkpoint, go to note 3. If the system hangs at a new checkpoint, perform the actions associated with the new checkpoint.
3. Power off the system. From the service processor main menu, select option 3, **System Information Menu**, then option 8, **Memory Configuration/Deconfiguration Menu**. Identify the first configured DIMM pair if DIMMs reside on a 1–way processor card, or the first configured memory riser card and quad of DIMMs. Replace the first group of DIMMs.
4. If replacing the first group of configured DIMMs doesn’t fix the problem, replace the memory riser card. If the problem is not fixed, go to “MAP 1540: Minimum Configuration” on page 106.

Table 2. Firmware Checkpoints

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|---|--|
| E100 | Reserved | See the note on page 133. |
| E101 | Create RTAS node | See the note on page 133. |
| E102 | Load/Init RTAS | See the note on page 133. |
| E105 | Transfer control to Operating System (normal boot). | See "Boot Problems and Concerns" on page 153. |
| E10A | Load RTAS device tree | See the note on page 133. |
| E10B | Set RTAS device properties | See the note on page 133. |
| E122 | RTAS sensor setup complete | See the note on page 133. |
| E130 | Build device tree | See the note on page 133. |
| E134 | Create memory node | See the note on page 133. |
| E137 | Create openprom node | See the note on page 133. |
| E138 | Create options node | See the note on page 133. |
| E139 | Create node aliases and system aliases | See the note on page 133. |
| E13A | Create packages node | See the note on page 133. |
| E140 | Operating system load | See the note on page 133. |
| E149 | Create boot mgr node | See the note on page 133. |
| E14C | Create terminal-emulator node | See the note on page 133. |
| E14D | Loading boot image | See "Boot Problems and Concerns" on page 153. |
| E14F | NVRAM initialization | See the note on page 133. |
| E150 | Create host (primary) PCI controller node | <ol style="list-style-type: none"> 1. If a location code is associated with the checkpoint, replace the adapter identified by the location code. See "Checkpoint and Error Code Index" on page 159. If a network adapter is replaced, see "Replacing the Network Adapter" on page 157. 2. Replace the primary I/O backplane. |
| E151 | Probing primary PCI bus | <ol style="list-style-type: none"> 1. If a location code is associated with the checkpoint, replace the FRU identified by the location code. See "Checkpoint and Error Code Index" on page 159. If a network adapter is replaced, see "Replacing the Network Adapter" on page 157. 2. Replace the primary I/O backplane. |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|--|--|
| E152 | Probing for adapter FCODE, evaluate if present | Follow the repair action listed for checkpoint E151. |
| E153 | End adapter FCODE, probe/evaluate | See the note on page 133. |
| E154 | Create PCI bridge node | Follow the repair action listed for checkpoint E151. |
| E155 | Probing PCI bridge secondary bus | Follow the repair action listed for checkpoint E151. |
| E156 | Create PCI ethernet node | Follow the repair action listed for checkpoint E151. |
| E15A | Create 64-bit host (primary) PCI controller node | See the note on page 141. |
| E15B | Transferring control to Operating System (service mode boot) | See "Boot Problems and Concerns" on page 153. |
| E15C | Probe primary 64-bit PCI bus | See the note on page 141. |
| E15D | Create host PCI controller node | See the note on page 141. |
| E15F | Adapter VPD probe | Follow the repair action listed for checkpoint E151. |
| E162 | SP node VPD creation | See the note on page 141. |
| E163 | Create CPU VPD | See the note on page 141. |
| E165 | Create planar-clock VPD | See the note on page 141. |
| E166 | Create CEC VPD | See the note on page 141. |
| E167 | Collect power cards VPD. | See the note on page 141. |
| E170 | Start of PCI Bus Probe | Follow the repair action listed for checkpoint E151. |
| E172 | First pass PCI device probe | Follow the repair action listed for checkpoint E151. |

Table 2. 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 (this 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 “Boot Problems and Concerns” on page 153. |
| E177 | Transfer failure due to TFTP error condition | See “Boot Problems and Concerns” on page 153. |
| E17B | Processor clock speed check measurement | <p>Primary I/O backplane.</p> <p>See the note on page 133.</p> |
| E180 | Service processor command setup | See the note on page 133. |
| E183 | Service processor post | See the note on page 133. |
| E186 | Request PS1 VPD | See the note on page 133. |
| E187 | Add PS1 VPD to NVRAM and device tree | See the note on page 133. |
| E188 | Request PS2 VPD | See the note on page 133. |
| E189 | Add PS2 VPD to NVRAM and device tree | See the note on page 133. |
| E18C | VPD and data communications with I/O planar complete | See the note on page 133. |
| E190 | Create ISA node | See the note on page 133. |
| E191 | Create ISA reserved node | See the note on page 133. |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|--|--|
| E193 | Initialize Super I/O | See the note on page 133. |
| E196 | Probe ISA bus | See the note on page 133. |
| E199 | Reboot after flash | Try to boot system a second time. If this does not work, replace the primary I/O backplane. See the note on page 133. |
| E19B | Create service processor node | See the note on page 133. |
| E19C | Create tablet node | See the note on page 133. |
| E19D | Create NVRAM node | See the note on page 133. |
| E19E | Real-time clock (RTC) initialization | Refer to error code 28030xxx in “Firmware Error Codes” on page 183. |
| E1AD | See description of checkpoint E1DE | See the note on page 133. |
| E1B0 | Create lpt node | See the note on page 133. |
| E1B1 | Create serial node | See the note on page 133. |
| E1B2 | Create audio node | See the note on page 133. |
| E1B3 | Create 8042 node | See the note on page 133. |
| E1B6 | Probe for (ISA) keyboard | See the note on page 133. |
| E1BD | Probe for (ISA) mouse | See the note on page 133. |
| E1BF | Create pwr-mgmt node | See the note on page 133. |
| E1C4 | Build ISA timer chip node | See the note on page 133. |
| E1C5 | Create ISA interrupt controller (pic) node | See the note on page 133. |
| E1C6 | Create DMA node | See the note on page 133. |
| E1D0 | Create PCI SCSI node | Perform Repair actions from checkpoint E156. |
| E1D3 | Create SCSI block device node (SD) | Perform Repair actions from checkpoint E156. |
| E1D4 | Create SCSI byte device node (ST) | Perform Repair actions from checkpoint E156. |
| E1DB | Create floppy controller (FDC) node | Replace the primary I/O backplane. See the note on page 133. |

Table 2. 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 primary I/O backplane. • If selecting the console with an ASCII terminal, suspect the ASCII terminal. Use the problem determination procedures for the terminal. Replace the primary I/O backplane if these procedures do not reveal a problem. <p>Note: Terminal settings should be set to:</p> <ul style="list-style-type: none"> – 9600 Baud – No Parity – 8 Data bits – 1 Stop bit |
| 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 page 133. |
| E1DF | Create diskette drive (disk) node | See the note on page 133. |
| E1F0 | Start O.B.E. | See the note on page 133. |
| E1F1 | Begin selftest sequence on boot device(s). Begin SMS. | See the note on page 133. |
| E1F2 | Power-on password prompt. | <p>Prompt should be visible on the system console.</p> <p>If a console is attached but nothing is displayed on it, go to the "Entry MAP" on page 71 with the symptom "All display problems."</p> |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|------------------------------------|--|
| E1F3 | Privileged-access password prompt | <p>Prompt should be visible on the system console.</p> <p>If a console is attached but nothing is displayed on it, go to the “Entry MAP” on page 71 with the symptom “All display problems.”</p> |
| E1F5 | Build boot device list | See the note on page 133. |
| E1F6 | Determine boot device sequence | See the note on page 133. |
| E1F7 | No boot image located | Follow the repair actions listed for error code 20EE000B. |
| E1FB | Scan SCSI bus for attached devices | If a location code is available, follow the repair actions listed for error code 21A000XX. |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|---|---|
| E1FD | The operator panel will alternate between the code E1FD and another Exxx code, where Exxx is the point at which the error occurred. | <p>Checkpoint E1FD indicates that an error has occurred during system startup. The display alternates between E1FD and another checkpoint, Exxx, where the error occurred. Check the list of checkpoints for Exxx. If the description for that checkpoint does not resolve the problem, return here for more instruction.</p> <p>Checkpoint E1FD may be displayed when an adapter or peripheral device is malfunctioning. To determine which device is most likely to have caused the error, follow these steps.</p> <ol style="list-style-type: none"> 1. Check the "progress codes from last boot" in the service processor's Information menu. Look for the last location code that was displayed before the E1FD error code. 2. The device pointed to by this location is suspect. 3. If the progress code listing only contains the E1FD and Exxx checkpoints, restart the system and power off when the E1FD and Exxx codes are displayed. Repeat step 1. 4. Try removing the suspect device (if it is not integrated). Remove power from the system before changing the hardware configuration. 5. Restart the system. If it now boots normally, without stopping at checkpoint E1FD, the device that was removed in the previous step should be replaced. 6. If the above steps have not resolved the problem, go to "MAP 1540: Minimum Configuration" on page 106. |

Table 2. 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 primary I/O backplane if problem persists. <p>See the note on page 133.</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 primary I/O backplane if problem persists. <p>See the note on page 133.</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 primary I/O backplane if problem persists. <p>See the note on page 133.</p> |
| E443 | Generate NVRAM configuration variable dictionary words | <p>Suspect a system firmware problem if problem persists. Verify that the system firmware is at current release level. Update back-level system firmware.</p> <p>See the note on page 133.</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 page 133.</p> |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|---|--|--|
| <p>E5xy (E511 - E5FF) Where x is not equal to 0, and y is not equal to 0.</p> | <p>Configure remote I/O subsystem components</p> | <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 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 Tables” in Chapter 1, for location codes.</p> <p>Using the information above, go to “MAP 1540: Minimum Configuration” on page 106.</p> |
| <p>E600</p> | <p>SSA PCI adapter open firmware has run successfully.</p> | <p>Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error.</p> |
| <p>E601</p> | <p>SSA PCI adapter BIST has started but failed to complete after four seconds.</p> | <p>Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error.</p> |
| <p>E602</p> | <p>SSA PCI adapter open firmware has started.</p> | <p>Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error.</p> |
| <p>E603</p> | <p>SSA PCI adapter BIST has completed with an error.</p> | <p>Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error.</p> |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|---|--|
| E604 | SSA PCI adapter BIST and subsequent POSTs have completed successfully. | Replace the adapter. See “Checkpoint and Error Code Index” on page 159 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 “Checkpoint and Error Code Index” on page 159 for location code information related to this error. |
| E60E | SSA PCI adapter open firmware about to exit (no stack corruption). | Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error. |
| E60F | SSA PCI adapter open firmware has run unsuccessfully. | Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error. |
| E6FF | SSA PCI adapter open firmware about to exit (with stack corruption). | Replace the adapter. See “Checkpoint and Error Code Index” on page 159 for location code information related to this error. |
| E700 | Create system firmware VPD | Replace the primary I/O drawer backplane, location: U0.1–P1. |
| E701 | Create memory VPD. | Go to “MAP 1540: Minimum Configuration” on page 106 to isolate the failing memory components. |
| E702 | Create processor card VPD. | Replace the processor card, location: U1.1–P1–C1. See the note on page 133. |
| E703 | Create operator panel VPD. | <ol style="list-style-type: none"> 1. Replace the operator panel, location U0.1–L1. See “Replacing the Primary Drawer Operator Panel” on page 157. 2. Replace the primary I/O drawer backplane, location: U0.1–P1. |
| E704 | Create CEC VPD. | See the note on page 133. |
| E705 | Create clock card VPD. | See the note on page 133. |
| E706 | Create RIO extender card VPD. | Replace RIO extender card. See the note on page 133. |
| E707 | Create system VPD. | See the note on page 133. |
| E708 | Create RIO to PCI adapter VPD. | See the note on page 133. |
| E709 | Create VPD via SPCN. | See the note on page 133. |
| E70A | Create service processor VPD. | Replace the primary I/O drawer backplane, location: U0.1–P1. |

Table 2. Firmware Checkpoints (continued)

| Checkpoint | Description | Action/ Possible Failing FRU |
|------------|------------------------------|--|
| E8xx | RTAS initialization problem. | Call for support. |
| EAA1 | Probe PCI-PCI bridge. | Follow the repair actions for checkpoint E151. |

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 106.

Boot Problems and Concerns

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 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. If the checkpoint is displayed for an extended period of time and the drive LED is not indicating any activity, there might be a problem loading the boot image from the device.

Note: For network boot attempts, if the system is not connected to an active network or if the target server is inaccessible (this 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.

This procedure assumes that a CD-ROM drive is connected to internal SCSI connector in the primary I/O drawer and a diagnostic CD-ROM is available.

Step 1

Restart the system and access the firmware SMS Main Menu. Select **Multiboot**.

1. Check to see if the intended boot device is correctly specified in the boot list. If it is in the boot list:
 - a. Remove all removable media from devices in the boot list from which you do not want to boot.
 - b. If attempting to boot from the network, go to "Step 2".
 - c. If attempting to boot from a disk drive or CD-ROM, go to "Step 3" on page 154.
2. If the intended boot device is not correctly identified in the boot sequence, add it to the boot sequence using the SMS menus. If the device can be added to the boot sequence, reboot the system. If the intended boot device cannot be added to the boot list, go to "Step 3" on page 154.

Step 2

If attempting to boot from the network:

1. Verify that IP parameters are correct.
2. Attempt to "ping" the target server using the SMS Ping utility. If the ping is not successful, have the network administrator verify the server configuration for this client.
3. Check with the network administrator to ensure that the network is up.
4. Check the network cabling to the adapter.
5. Turn the power off, then on and retry the boot operation.

Step 3

Try to boot and run standalone diagnostics against the system, particularly against the intended boot device.

If diagnostics boot successfully:

1. Go to the Task Selection Menu and select Display Configuration and Resource List. If the intended boot device is not listed, go to "MAP 0290: Missing Resource Problem Resolution" in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.
2. If an SRN, not an 8-digit error code, is reported, go to the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems* manual.
3. If the diagnostics are successful, it may be necessary to perform an operating system-specific recovery process, or reinstall the operating system.

If diagnostics do not boot successfully:

1. Verify proper SCSI bus termination.
2. Check SCSI cabling.
3. It is possible that another attached SCSI device is causing the problem. Do the following:
 - a. Disconnect the signal and power cables from the disk drive cage backplane.
 - b. Disconnect the disk drive(s) in the disk drive cage from the backplane.
 - c. Disconnect the signal and power cables from any other SCSI devices attached to the SCSI adapter that the CD-ROM drive is attached to.
 - d. Try to boot the standalone diagnostics again.
 - e. If you are still unable to load standalone diagnostics, go to "Step 4" on page 155.
 - f. If standalone diagnostics load, one of the disconnected devices is causing the problem. Reconnect the devices one at a time and retry the boot operation until the problem recurs and replace the device that caused the problem. (If the problem appears to be one of the disk drives in the disk drive cage, be aware it could be either the disk drive or the backplane.) Go to "MAP 410: Repair Checkout" in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Step 4

It is possible that another installed adapter is causing the problem. Do the following:

1. Remove all installed adapters except the one the CD-ROM drive is attached to and the one used for the console.
2. Try to boot the standalone diagnostics again.
3. If unable to load standalone diagnostics, go to "Step 5".
4. If standalone diagnostics load, reinstall adapters (and attached devices as applicable) one at a time and retry the boot operation until the problem recurs. Then replace the adapter or device that caused the problem. (The primary I/O drawer backplane can also cause the device or adapter to fail.) Go to "MAP 410: Repair Checkout" in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Step 5

The CD-ROM drive, SCSI cable, SCSI adapter, graphics adapter, or the primary I/O drawer backplane is most likely defective. A TTY terminal attached to the serial port also can be used to determine if the graphics adapter is causing the problem. This is done by removing the graphics adapter, attaching a TTY to the serial port, and retrying standalone diagnostics. If the standalone diagnostics load, replace the graphics adapter.

1. Replace the CD-ROM drive.
2. Replace the SCSI cable.
3. If the CD-ROM drive is attached to a SCSI adapter rather than the integrated SCSI on the primary I/O drawer backplane, replace the SCSI adapter.
4. Replace the primary I/O drawer backplane.
5. If you replaced the indicated FRUs and the problem is still not corrected, or the above descriptions did not address your particular situation, go to "MAP 1540: Minimum Configuration" on page 106.
6. Go to "MAP 410: Repair Checkout" in *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Chapter 5. Error Code to FRU Index

Attention: Start your activity in this chapter by going to “Checkpoint and Error Code Index” on page 159. In this section, you may be asked to perform additional isolation procedures before looking up the actions for a 4-character checkpoint or 8-character error code.

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.

- If you replace FRUs or perform an action and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 106 unless otherwise indicated in the tables.
- If you replace FRUs and the problem is corrected, go to “MAP 410: Repair Checkout” in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Note: Do not shut down the system if the FRU was replaced by hot swap.

Four-Character Checkpoints

Four-character progress codes and checkpoints in the form 8xxx, 9xxx, Axxx, Bxxx, and Exxx are listed in “Firmware Checkpoints” on page 141. If you have a four-character code that begins with any character other than 8, 9, A, B, or E, refer to the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Replacing the Primary Drawer Operator Panel

Licensed programs frequently rely on system information that is stored in the VPD module on the primary drawer’s operator panel. If the MAPs indicate that the operator panel should be replaced, the pluggable VPD module must be swapped. If the old module is defective, or cannot be recovered, contact service support.

Replacing the Network Adapter

If a network adapter is replaced, the network administrator must be notified so that the client IP addresses used by the server can be updated. In addition, the operating system configuration of the network controller may need to be changed in order to enable system startup. Also check to ensure that any client or server that accesses this system is updated.

Analyzing SPCN Errors on Secondary Drawers

The drawer number of a secondary I/O drawer (which displays in the operator panel in the form U0.n, where n is the drawer number) does not change unless a repair action or a configuration change has occurred. However, after a secondary I/O drawer has been removed, added, or had its backplane replaced, there is a window of time during the

IPL process in which the drawer number may appear to be out of range. For example, if there is one I/O drawer in the system and one is added, it may temporarily be assigned a drawer number of 3 or greater. The drawer numbers are reallocated and finalized during the latter stages of the boot process.

If a fatal SPCN error occurs while the drawer has a temporary number, the system halts with an 8-character error code displayed in the form 10n1xxxx, where n is the drawer number. To determine the error, if n is not equal to 1, substitute the number 2 for n, then look up the error code in “SPCN Error Codes” on page 163. Perform the indicated actions on the failing drawer.

If a non-fatal SPCN error occurs while the drawer has a temporary number, this temporary number may appear as part of a location code in the service processor error log or while running AIX diagnostics. If the non-fatal error becomes fatal or is the cause of a fatal error, the drawer address will have been resolved and the original error log entry can be ignored.

Isolating the I/O Drawer Failure

The primary I/O drawer is drawer number 1, although it is not displayed on the operator panel.

To determine which I/O drawer is failing, you may find the attention LED on an I/O drawer indicates a fault. Check the LEDs on the front of each I/O drawer to isolate failures to a single drawer. See “Primary I/O Drawer Operator Panel” on page 20 and “Secondary I/O Drawer Operator Panel” on page 21 for the location and meaning of the LEDs on the I/O drawer operator panels.

Determining Location Code

If you have an error code in the form 2xxx xxxx or Exxx, and no location code associated with it, the location code may possibly be found in three places, depending on the state of the system:

- If the system will boot into AIX, the location code will be reported when error log analysis is run under AIX diagnostics.
- If the system will boot into the system management services (SMS) menus, the SMS error log will contain the location code associated with the error code. See “Display Error Log” on page 409.
- If the system halted when the error occurred, the error code and location can be found in the LCD progress indicator log, which can be accessed using the service processor menus. See “System Information Menu” on page 374, then select “Read Progress Indicator From Last System Boot”. Find the error code in the list that directed you to this note, and the location code should be a part of the entry in the log.

Checkpoint and Error Code Index

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

| Checkpoint or Error Code | What You Should Do |
|------------------------------|--|
| 0000 xxxx | Operator Panel Error Codes Go to "Operator Panel Error Codes" on page 162 and follow the instructions in the Operator Panel Error Code table. |
| 1xxx xxxx | System Power Control Network (SPCN) Error Codes Go to "SPCN Error Codes" on page 163 and follow the instructions in the SPCN Error Code table. |
| 2xxx xxxx | Firmware Error Codes Go to "Firmware Error Codes" on page 183 and follow the instructions in the Firmware Error Code table. |
| 4xxx xxxx | Service Processor Error Codes 1. Perform slow boot. See "Performing Slow Boot" on page 160. 2. If the error codes are 406x xxxx or 450x xxxx, and if their actions call out memory DIMMs or cards containing memory DIMMs, go to "Memory-Related Error Codes" on page 161. For all other error codes, go to "Confirming Initial Error Code" on page 160. 3. Go to "Service Processor Error Codes" on page 206 and follow the instructions in the Service Processor Error Codes table. |
| 8xxx 9xxx Axxx Bxxx | Service Processor Checkpoints Go to "Service Processor Checkpoints" on page 134 for more information on these checkpoints. |
| B006 xxxx B1xx xxxx | Common Firmware Error Codes 1. Go to "Common Firmware Error Codes" on page 347 and follow the instructions in the Common Firmware Error Code table. 2. Perform slow boot. See "Performing Slow Boot" on page 160. 3. Confirm initial error code. See "Confirming Initial Error Code" on page 160. |
| Exxx | Firmware Checkpoints Go to "Firmware Checkpoints" on page 141 for more information on these checkpoints. |
| Mxxx xxxx | Problem Determination Generated Error Codes Go to "Problem Determination Generated Error Codes" on page 357 and follow the instructions in the Problem Determination Generated Error Code table. |

Performing Slow Boot

On this system, the error code displayed in the operator panel may not indicate the root cause of the problem. To fully analyze all of the available information, perform the following steps before doing a hardware repair or replacement:

1. Record the 8-character error code (and location code if present) in the primary I/O drawer operator panel.
2. Do a slow-mode boot to the SMS menus. This boot can be specified using the System Power Control Menu on the service processor main menu. (A fast-mode boot skips much of the built-in diagnostic testing.) A slow-mode boot may yield a new 8-character error code on the primary I/O drawer operator panel and new errors in the service processor error log. If a new error code is reported, use it in subsequent steps to continue problem analysis. If the system hangs with the same error code, continue with the next step in the Checkpoints and Error Codes Index. If no 8-character error code is displayed in the op panel, use the original error code and continue with the next step in the Checkpoints and Error Codes Index.
3. A slow boot in service mode should result in the "Diagnostic Operating Instructions" panel being displayed.
4. Press enter to continue to the "Function Selection" menu
5. Enter option 5, "Single User Mode".
6. When prompted, enter the root password.
7. At the prompt, issue the shutdown -F command.
8. At this point, the service processor menus should be available to examine the service processor error log.

Confirming Initial Error Code

The service processor may have recorded one or more symptoms in its error log. If the system has attempted to boot since an error terminated normal operation, there may be specific fault information in the service processor error log. Examine this error log before proceeding (see "System Information Menu" on page 374).

In the service processor error log, the most recent error is at the top of the list and the oldest error is at the bottom. It is also important to look at the time stamp associated with each error. (The time stamps in the service processor error log reflect coordinated universal time (UTC), which is also referred to as Greenwich mean time.)

On this system, the error code displayed in the primary drawer op panel may not be indicative of the root cause of the problem. Find the error code in the service processor error log that directed you to this note. (If the error code is not in the error log, perform the service actions for the error code that was first reported.) Observing the timestamps, look for a group of failures that happened within minutes prior to this error code. In this group, start at the error code with the earliest timestamp. To get a list of possible FRUs, select the detail screen for each error code and perform the listed repair actions. If the repair actions for an error code are ineffective, continue to work upward through this group of errors codes (which is forward in time from the earliest timestamp to the latest) until the problem is fixed, or you reach the error code that was first reported. If the system is still not fixed, go to "MAP 1540: Minimum Configuration" on page 106.

Memory-Related Error Codes

You have been directed here because you have an 8-character error code that indicates a problem with system memory. This section will help you isolate to the failing FRU.

- If the location code or the service action calls out one DIMM:
 1. Replace the memory DIMM.
 2. Replace the memory group (pair or quad).
 3. Replace the memory card.
- If more than one DIMM is called out, go to the service processor memory configuration/deconfiguration menu to verify memory DIMM state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information.
 1. From the Memory Configuration/Deconfiguration Menu, select the card(s) specified by the location code(s) of the failing DIMM(s). If the first character of the error status of any DIMM is 1, 2, or 3 (but not 0 or 4), this is a suspect DIMM. Record its location. See "System Information Menu" on page 374 for more information on the error status of the DIMMs.
 2. If only one DIMM was recorded in the previous step:
 - a. Replace the DIMM.
 - b. Replace the memory group (pair or quad).
 - c. Replace the memory card.
 3. If more than one DIMM was recorded, and the DIMMs reside in more than one group (pair or quad):
 - a. Replace the memory card.
 - b. Replace all of the failing DIMMs.
 4. If more than one DIMM was recorded, and the DIMMs reside in one group (pair or quad):
 - a. Replace all of the failing DIMMs.
 - b. Replace the memory card.
- Boot the system to the SMS menus. Power off the system and go the service processor memory configuration/deconfiguration menu to verify that all memory DIMMs are in the configured state after the repair action. Go to "MAP 410: Repair Checkout" in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Operator Panel 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 106 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to “MAP 410: Repair Checkout” in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Table 3. Operator Panel Error Codes.

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 0000 1111 | At power on, failure of power-good signal from power supply. | <ol style="list-style-type: none"> 1. Primary I/O backplane Location: U0.1-P1 2. Primary I/O power supply Locations: U0.1-V1 U0.1-V2 |
| 0000 1112 | At power off, failure of power-good signal from power supply. | <ol style="list-style-type: none"> 1. Primary I/O backplane Location: U0.1-P1 2. Primary I/O power supply Locations: U0.1-V1 U0.1-V2 |
| 0000 1113 | While power on, failure of power-good signal from power supply. | <ol style="list-style-type: none"> 1. Primary I/O backplane Location: U0.1-P1 2. Primary I/O power supply Locations: U0.1-V1 U0.1-V2 |
| 0000 1114 | Operator panel and service processor have been reset after main power disturbance. | Information message |
| 0000 2222 | Operator panel not communicating with service processor | <ol style="list-style-type: none"> 1. If system cannot be powered off, reset the service processor (via the pinhole reset or by disconnecting then reconnecting power). 2. Primary I/O backplane Location: U0.1-P1 |
| 0000 3333 | SPCN communications error | Primary I/O backplane Location: U0.1-P1 |
| 0000 3334 | I2C repeater error | Primary I/O backplane Location: U0.1-P1 |
| 0000 BBBB | TOD battery malfunction | TOD battery Location: U0.1-P1-V3 |

SPCN Error Codes

Attention: If a power supply or fan is hot-swapped, wait five minutes, then recheck the AIX error log. If the system has to be shut down to replace a power supply or fan, reboot the system, wait five minutes after the AIX login prompt appears, then recheck the AIX error log. If the detailed information for the most recent error with the same identifier indicates that the original problem has not been fixed by performing the first action in the action column, continue with the next action in the action column.

Attention: If you replace FRUs or perform an action and the problem is still not corrected, go to "MAP 1540: Minimum Configuration" on page 106 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to "MAP 410: Repair Checkout" in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Table 4. SPCN Error Codes

| Error Code | Description | Action/ Possible Failing FRU |
|------------|-------------------------------------|--|
| 1011 00AC | AC loss or brownout detected | Information message |
| 1011 00EF | Room emergency power off detected | Information message |
| 1011 1510 | Power supply 1 power source failure | <ol style="list-style-type: none"> 1. Check input power to the power supply 2. Primary I/O drawer power supply 1 Location: U0.1-V1 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1511 | Power supply 1 fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 1 Location: U0.1-V1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1512 | Power supply 1 non-power fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 1 Location: U0.1-V1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1513 | Power supply 1 domain fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 1 Location: U0.1-V1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1514 | Power supply 1 cooling fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 1 Location: U0.1-V1 2. Primary I/O backplane Location: U0.1-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 1011 1516 | Swapped power supply and cooling unit or missing power supply 1 | <ol style="list-style-type: none"> 1. Verify correct installation of primary power supply and cooling unit 2. Primary I/O power supply 1 Location: U0.1-V1 |
| 1011 1520 | Power supply 2 power source failure | <ol style="list-style-type: none"> 1. Check input power to the power supply 2. Primary I/O drawer power supply 2 Location: U0.1-V2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1521 | Power supply 2 fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 2 Location: U0.1-V2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1522 | Power supply 2 non-power fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 2 Location: U0.1-V2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1523 | Power supply 2 domain fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 2 Location: U0.1-V2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1524 | Power supply 2 cooling fault | <ol style="list-style-type: none"> 1. Primary I/O drawer power supply 2 Location: U0.1-V2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1526 | Power supply 2 missing | Primary I/O drawer power supply 2 Location: U0.1-V2 |
| 1011 1611 | CEC regulator 1 fault | Processor card Location: U1.1-P1-C1 |
| 1011 1612 | CEC regulator 1 non-power fault | <ol style="list-style-type: none"> 1. Processor card Location: U1.1-P1-C1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1613 | CEC regulator 1 domain fault | Processor card Location: U1.1-P1-C1 |
| 1011 1621 | CEC regulator 2 fault | Processor card Location: U1.1-P1-C1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 1011 1622 | CEC regulator 2 non-power fault | <ol style="list-style-type: none"> 1. Processor card Location: U1.1-P1-C1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1623 | CEC regulator 2 domain fault | Processor card Location: U1.1-P1-C1 |
| 1011 1910 | Power supply 1 power source failure | <ol style="list-style-type: none"> 1. Check input power to the power supply 2. CEC drawer power supply 1 Location: U1.1-V1 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1911 | Power supply 1 fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 1 Location: U1.1-V1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1912 | Power supply 1 non-power fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 1 Location: U1.1-V1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1913 | Power supply 1 domain fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 1 Location: U1.1-V1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1914 | Power supply 1 cooling fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 1 Location: U1.1-V1 2. CEC drawer fan controller card Location: U1.1-X2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1916 | Swapped power supply and cooling unit, or missing power supply 1 | <ol style="list-style-type: none"> 1. Verify correct installation of power supply or cooling unit 2. CEC drawer power supply 1 Location: U1.1-V1 |
| 1011 1920 | Power supply 2 power source failure | <ol style="list-style-type: none"> 1. Check input power to the power supply 2. CEC drawer power supply 2 Location: U1.1-V2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1921 | Power supply 2 fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 2 Location: U1.1-V2 2. Primary I/O backplane Location: U0.1-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--------------------------------|--|
| 1011 1922 | Power supply 2 non-power fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 2 Location: U1.1-V2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1923 | Power supply 2 domain fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 2 Location: U1.1-V2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 1924 | Power supply 2 cooling fault | <ol style="list-style-type: none"> 1. CEC drawer power supply 2 Location: U1.1-V2 2. CEC drawer fan controller card Location: U1.1-X2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1926 | Power supply 2 missing | CEC drawer power supply 2 Location: U1.1-V2 |
| 1011 1B01 | 12V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1B02 | 5V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1B03 | 3.3V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1B04 | -12V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--------------------------------------|--|
| 1011 1B05 | 1.8V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1B06 | 2.5V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1B07 | 2.5V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.1-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 1F00 | Power system communication fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 1F01 | S/N write to secondary drawer failed | <ol style="list-style-type: none"> 1. Check for system firmware update. 2. Call service support. |
| 1011 2600 | Pgood fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 2601 | Pgood fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 2602 | Power domain fault in CEC drawer | <ol style="list-style-type: none"> 1. Verify that the V/S COMM cable is properly connected 2. CEC drawer power supply Locations: U1.1-V1 U1.1-V2 3. Power distribution board Location: U1.1-X1 4. CEC drawer backplane Location: U1.1-P1 5. Primary I/O backplane Location: U0.1-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 1011 2603 | Power domain fault in primary I/O drawer | <ol style="list-style-type: none"> I/O drawer power supply Locations: U0.1-V1 U0.1-V2 Power distribution board Location: U0.1-X1 Primary I/O backplane Location: U0.1-P1 |
| 1011 2604 | Power domain fault affecting CEC and primary I/O drawers | <ol style="list-style-type: none"> Primary I/O drawer power supply Locations: U0.1-V1 U0.1-V2 CEC drawer power supply Locations: U1.1-V1 U1.1-V2 CEC drawer power distribution board Location: U1.1-X1 Primary I/O drawer power distribution board Location: U0.1-X1 CEC drawer backplane Location: U1.1-P1 Primary I/O backplane Location: U0.1-P1 |
| 1011 2610 | Missing or misplugged memory | Inspect the system memory for proper installation of DIMMs and memory riser cards |
| 1011 2612 | SPCN problem | Primary I/O drawer backplane Location: U0.1-P1 |
| 1011 2613 | Power configuration fault | 220 V ac power required |
| 1011 3100 | I2C controller fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 3101 | I2C bus 1 fault | <ol style="list-style-type: none"> Primary drawer op panel Location: U0.1-L1 Primary I/O backplane Location: U0.1-P1 |
| 1011 3102 | I2C bus 2 fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 3104 | I2C bus 4 fault | Primary I/O backplane Location: U0.1-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 1011 3105 | I2C bus 5 fault | <ol style="list-style-type: none"> 1. Primary I/O fan controller card Location: U0.1-X2 2. Primary I/O backplane Location: U0.1-P1 3. Primary I/O drawer power distribution board Location: U0.1-X1 |
| 1011 3106 | I2C bus 6 fault | <ol style="list-style-type: none"> 1. CEC drawer fan controller card Location: U1.1-X2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 3113 | RIO bus adapter fault | Primary I/O drawer RIO bus adapter Location: U0.1-P1.1 |
| 1011 3114 | PCI backplane fault | Primary I/O PCI backplane Location: U0.1-P1 |
| 1011 3115 | Operator panel fault | Operator panel Location: U0.1-L1 |
| 1011 3116 | Primary I/O drawer fan controller fault | <ol style="list-style-type: none"> 1. Primary I/O drawer fan controller card Location: U0.1-X2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 3117 | CEC drawer fan controller fault | <ol style="list-style-type: none"> 1. CEC drawer fan controller card Location: U1.1-X2 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 3118 | Backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 311B | CEC thermal malfunction | CEC backplane Location: U1.1-P1 |
| 1011 311C | Primary I/O drawer thermal malfunction | <ol style="list-style-type: none"> 1. Primary I/O Op Panel Location: U0.1-L1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 7610 | Slow I/O drawer fan 1 | <ol style="list-style-type: none"> 1. Fan 1 Location: U0.1-F1 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |
| 1011 7611 | Missing I/O drawer fan 1 | Fan 1 Location: U0.1-F1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 1011 7620 | Slow I/O drawer fan 2 | <ol style="list-style-type: none"> 1. Fan 2 Location: U0.1-F2 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |
| 1011 7621 | Missing I/O drawer fan 2 | Fan 2 Location: U0.1-F2 |
| 1011 7630 | Slow I/O drawer fan 3 | <ol style="list-style-type: none"> 1. Fan 3 Location: U0.1-F3 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |
| 1011 7631 | Missing I/O drawer fan 3 | Fan 3 Location: U0.1-F3 |
| 1011 7640 | Slow I/O drawer fan 4 | <ol style="list-style-type: none"> 1. Fan 4 Location: U0.1-F4 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |
| 1011 7641 | Missing I/O drawer fan 4 | Fan 4 Location: U0.1-F4 |
| 1011 7650 | Slow fan in primary I/O drawer power supply 1 | <ol style="list-style-type: none"> 1. I/O drawer power supply 1 Location: U0.1-V1 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |
| 1011 7651 | Missing fan 5 in primary I/O drawer power supply 1 | I/O drawer power supply 1 Location: U0.1-V1 |
| 1011 7660 | Slow fan in primary I/O drawer power supply 2 | <ol style="list-style-type: none"> 1. I/O drawer power supply 2 Location: U0.1-V2 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |
| 1011 7661 | Missing fan 6 in primary I/O drawer power supply 2 | I/O drawer power supply 2 Location: U0.1-V2 |
| 1011 7690 | Slow I/O drawer fan 9 in cooling unit | <ol style="list-style-type: none"> 1. Fan 9 (cooling unit) Location: U0.1-F9 2. Primary fan controller Location: U0.1-X2 3. Power distribution card Location: U0.1-X1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 1011 7691 | Missing I/O drawer fan 9 in cooling unit | Fan 9 (cooling unit) Location: U0.1-F9 |
| 1011 7710 | Slow CEC fan 1 | <ol style="list-style-type: none"> 1. Fan 1 Location: U1.1-F1 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7711 | Missing CEC fan 1 | <ol style="list-style-type: none"> 1. Check the cabling to fan 1 Location: U1.1-F1. If no problem is found with the cabling, replace the fan. Note: If the primary I/O drawer planar has been replaced recently, verify that the I/O type is set correctly before changing this fan. See "Power Control Network Utilities Menu" on 381. |
| 1011 7720 | Slow CEC fan 2 | <ol style="list-style-type: none"> 1. Fan 2 Location: U1.1-F2 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7721 | Missing CEC fan 2 | Fan 2 Location: U1.1-F2 |
| 1011 7730 | Slow CEC fan 3 | <ol style="list-style-type: none"> 1. Fan 3 Location: U1.1-F3 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7731 | Missing CEC fan 3 | Fan 3 Location: U1.1-F3 |
| 1011 7740 | Slow CEC fan 4 | <ol style="list-style-type: none"> 1. Fan 4 Location: U1.1-F4 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7741 | Missing CEC fan 4 | Fan 4 Location: U1.1-F4 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 1011 7750 | Slow fan in CEC drawer power supply 1 | <ol style="list-style-type: none"> 1. CEC power supply 1 Location: U1.1-V1 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7751 | Missing fan 5 in CEC drawer power supply 1 | CEC drawer power supply 1 Location: U1.1-V1 |
| 1011 7760 | Slow fan in CEC drawer power supply 2 | <ol style="list-style-type: none"> 1. CEC drawer power supply 2 Location: U1.1-V2 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7761 | Missing fan 6 in CEC drawer power supply 2 | CEC drawer power supply 2 Location: U1.1-V2 |
| 1011 7770 | Slow CEC fan 7 | <ol style="list-style-type: none"> 1. Fan 7 Location: U1.1-F7 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7771 | Missing fan 7 | Fan 7 Location: U1.1-F7 |
| 1011 7780 | Slow CEC fan 8 | <ol style="list-style-type: none"> 1. Fan 8 Location: U1.1-F8 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7781 | Missing fan 8 | Fan 8 Location: U1.1-F8 |
| 1011 7790 | Slow CEC fan 9 | <ol style="list-style-type: none"> 1. Fan 9 (cooling unit) Location: U1.1-F9 2. CEC fan controller Location: U1.1-X2 3. Power distribution card Location: U1.1-X1 |
| 1011 7791 | Missing CEC fan 9 | Fan 9 (cooling unit) Location: U1.1-F9 |
| 1011 8400 | VPD configuration problem | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| 1011 8401 | VPD access problem | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|-----------------------------------|--|
| 1011 8402 | VPD access problem | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| 1011 8403 | VPD level mismatch | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| 1011 8404 | Processor unit VPD mismatch | <ol style="list-style-type: none"> 1. Processor card Location: U1.1-P1-C1 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 8409 | VPD for processor card | <ol style="list-style-type: none"> 1. Ensure that the processor assembly(s) are the correct type for the system and are properly installed. 2. Processor card Location: U1.1-P1-C1 |
| 1011 840A | VPD +5 stuck high | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| 1011 840B | VPD +5 stuck low | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| 1011 840C | Memory DIMM misplugged | Inspect system memory for proper installation of DIMMs and memory cards |
| 1011 840D | I/O type mismatch | <ol style="list-style-type: none"> 1. Check cabling 2. Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 840E | SPCN default configuration loaded | <ol style="list-style-type: none"> 1. Check cabling 2. Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 840F | I/O type not recognized | <ol style="list-style-type: none"> 1. Check cabling 2. Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 8413 | Invalid processor VPD | Processor card Location: U1.1-P1-C1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 1011 8423 | No processor VPD | Processor card Location: U1.1-P1-C1 |
| 1011 8430 | V/S Comm cable not connected | Check cabling |
| 1011 8431 | Frame ID error | 1. Check cabling 2. Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. 3. Primary I/O backplane Location: U0.1-P1 |
| 1011 8441 | Internal SPCN error in a drawer | 1. Check the internal SPCN cables in the CEC drawer Location: U1.1 2. Check the internal SPCN cables in the I/O drawer Location: U0.x |
| 10118450 | I/O type set incorrectly | Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. |
| 1011 8A00 | A different I/O drawer is connected to the CEC | Informational only |
| 1011 9014 | Invalid address mode | Update system firmware |
| 1011 9038 | Node fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 9039 | Node fault | Primary I/O backplane Location: U0.1-P1 |
| 1011 9042 | EPROM failure | Primary I/O backplane Location: U0.1-P1 |
| 1011 9043 | Download failure | 1. Check for system firmware update. 2. Call service support. |
| 1011 9046 | QDS packet sequence error | 1. Check for system firmware update. 2. Call service support. |
| 1011 9047 | QDS block sequence error | 1. Check for system firmware update. 2. Call service support. |
| 1011 9080 | Undefined status code received | Primary I/O backplane Location: U0.1-P1 |
| 1011 90F0 | CEC backplane not present in configuration table | Check cabling |
| 1011 9101 | SPCN failed to respond to service processor in time | Primary I/O backplane Location: U0.1-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 1011 9102 | Permanent address assignment failed | Primary I/O backplane Location: U0.1-P1 |
| 1011 9103 | Download initialize timeout | Primary I/O backplane Location: U0.1-P1 |
| 1011 9104 | Download completion timeout | Primary I/O backplane Location: U0.1-P1 |
| 1011 9105 | Load damaged timeout | Primary I/O backplane Location: U0.1-P1 |
| 1011 9109 | Download failure | Primary I/O backplane Location: U0.1-P1 |
| 1011 9111 | Network too large for service processor | 1. Check for system firmware update. 2. Call service support. |
| 1011 9114 | Firmware image corrupted | 1. Reinstall system firmware 2. Primary I/O backplane Location: U0.1-P1 |
| 1011 9116 | SCPN communication with operator panel failure | 1. Primary I/O operator panel Location: U0.1-L1 2. Primary I/O backplane Location: U0.1-P1 |
| 1021 00AA | SCPN firmware update started | Information message |
| 1021 1510 | Power supply 1 power source failure | 1. Check input power to power supply 2. Secondary I/O power supply 1 Location: U0.2-V1 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1511 | Power supply 1 fault | 1. Secondary I/O power supply 1 Location: U0.2-V1 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1512 | Power supply 1 non-power fault | 1. Secondary I/O power supply 1 Location: U0.2-V1 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1513 | Power supply 1 domain fault | 1. Secondary I/O power supply 1 Location: U0.2-V1 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1514 | Power supply 1 cooling fault | 1. Secondary I/O power supply 1 Location: U0.2-V1 2. Secondary I/O backplane Location: U0.2-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 1021 1516 | Power supply 1 missing or swapped power supply and cooling unit | <ol style="list-style-type: none"> 1. Verify correct installation of primary power supply and cooling unit 2. Secondary I/O power supply 1 Location: U0.2-V1 |
| 1021 1520 | Power supply 2 power source failure | <ol style="list-style-type: none"> 1. Check input power to power supply 2. Secondary I/O power supply 2 Location: U0.2-V2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1521 | Power supply 2 fault | <ol style="list-style-type: none"> 1. Secondary I/O power supply 2 Location: U0.2-V2 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1522 | Power supply 2 fault | <ol style="list-style-type: none"> 1. Secondary I/O power supply 2 Location: U0.2-V2 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1523 | Power supply 2 domain fault | <ol style="list-style-type: none"> 1. Secondary I/O power supply 2 Location: U0.2-V2 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1524 | Power supply 2 cooling fault | <ol style="list-style-type: none"> 1. Secondary I/O power supply 2 Location: U0.2-V2 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1526 | Power supply 2 missing | Secondary I/O drawer power supply 2 Location: U0.2-V2 |
| 1021 1B01 | 12V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1B02 | 5V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--------------|--|
| 1021 1B03 | 3.3V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1B04 | -12V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1B05 | 1.8V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1B06 | 2.5V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 1B07 | 2.5V loading | <ol style="list-style-type: none"> 1. Replace power supply 1 Location: U0.2-V1 2. If power supply 2 is present (no cooling unit), use removed power supply 1 to replace power supply 2 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 2600 | Pgood fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 2601 | Pgood fault | Secondary I/O backplane Location: U0.2-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 1021 2603 | Power domain fault in secondary I/O drawer | 1. Secondary I/O drawer power supply Locations: U0.2-V1 U0.2-V2 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 2612 | SPCN problem | Secondary I/O backplane Location: U0.2-P1 |
| 1021 3100 | I2C controller fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 3101 | I2C bus 1 fault | 1. Secondary I/O operator panel Location: U0.2-L1 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 3102 | I2C bus 2 fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 3104 | I2C bus 4 fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 3105 | I2C bus 5 fault | 1. Secondary I/O fan controller card Location: U0.2-L1 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 3113 | RIO bus adapter fault | RIO bus adapter Location: U0.2-P1.1 |
| 1021 3114 | PCI backplane fault | Secondary I/O PCI backplane Location: U0.2-P1 |
| 1021 3115 | Operator panel fault | Operator panel Location: U0.2-L1 |
| 1021 3116 | Fan controller fault | 1. Fan controller card Location: U0.2-X2 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 3118 | Backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 311C | Secondary I/O thermal sensor fault | 1. Secondary I/O operator panel Location: U0.2-L1 2. Secondary I/O backplane Location U0.2-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---------------------------------|---|
| 1021 7610 | Slow I/O drawer fan 1 | <ol style="list-style-type: none"> 1. Fan 1 Location: U0.2-F1 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |
| 1021 7611 | Missing I/O drawer fan 1 | Fan 1 Location: U0.2-F1 |
| 1021 7620 | Slow I/O drawer fan 2 | <ol style="list-style-type: none"> 1. Fan 2 Location: U0.2-F2 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |
| 1021 7621 | Missing I/O drawer fan 2 | Fan 2 Location: U0.2-F2 |
| 1021 7630 | Slow I/O drawer fan 3 | <ol style="list-style-type: none"> 1. Fan 3 Location: U0.2-F3 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |
| 1021 7631 | Missing I/O drawer fan 3 | Fan 3 Location: U0.2-F3 |
| 1021 7640 | Slow I/O drawer fan 4 | <ol style="list-style-type: none"> 1. Fan 4 Location: U0.2-F4 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |
| 1021 7641 | Missing I/O drawer fan 4 | Fan 4 Location: U0.2-F4 |
| 1021 7650 | Slow fan in power supply 1 | <ol style="list-style-type: none"> 1. I/O drawer power supply 1 Location: U0.2-V1 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |
| 1021 7651 | Missing fan 5 in power supply 1 | I/O drawer power supply 1 Location: U0.2-V1 |
| 1021 7660 | Slow fan 6 in power supply 2 | <ol style="list-style-type: none"> 1. I/O drawer power supply 2 Location: U0.2-V2 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 1021 7661 | Missing fan 6 in power supply 2 | I/O drawer power supply 2 Location: U0.2-V2 |
| 1021 7690 | Slow secondary I/O drawer fan 9 in cooling unit | 1. Fan 9 (cooling unit) Location: U0.2-F9 2. Secondary fan controller Location U0.2-X2 3. Power distribution card Location U0.2-X1 |
| 1021 7691 | Missing secondary I/O drawer fan 9 in cooling unit | Fan 9 (cooling unit) Location: U0.2-F9 |
| 1021 8400 | VPD configuration problem | 1. Check for system firmware update. 2. Call service support. |
| 1021 8401 | VPD access problem | 1. Check for system firmware update. 2. Call service support. |
| 1021 840A | VPD +5 stuck high | Secondary I/O backplane Location: U0.2-P1 |
| 1021 840B | VPD +5 stuck low | Secondary I/O backplane Location: U0.2-P1 |
| 1021 840D | I/O type mismatch | 1. Check cabling 2. Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. 3. Primary I/O backplane Location: U0.1-P1 |
| 1021 840E | SPCN default configuration loaded | User error |
| 1021 840F | I/O type not recognized | 1. Check cabling 2. Set the I/O type to 85. See Power Control Network Utilities Menu on page 381. 3. Primary I/O backplane Location: U0.1-P1 |
| 1021 8A00 | A different I/O drawer is connected to the CEC | Informational only |
| 1021 9012 | Invalid address | 1. Check SPCN cabling 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 9013 | Invalid address | 1. Check SPCN cabling 2. Secondary I/O backplane Location: U0.2-P1 |
| 1021 9014 | Invalid address mode | Update system firmware Note: Allow up to 30 minutes for update to take effect |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 1021 9021 | SPCN temporary internal error | Information message |
| 1021 9022 | Secondary I/O drawer not present | Check cabling |
| 1021 9023 | Secondary I/O drawer present but off | Information message |
| 1021 902D | Secondary I/O drawer not present | Information message |
| 1021 9038 | Node fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9039 | Node fault | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9042 | EPROM Failure | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9043 | Download failure | 1. Check for system firmware update. 2. Call service support. |
| 1021 9046 | QDS packet sequence error | 1. Check for system firmware update. 2. Call service support. |
| 1021 9047 | QDS block sequence error | 1. Check for system firmware update. 2. Call service support. |
| 1021 9080 | Undefined status code received | Secondary I/O backplane Location: U0.2-P1 |
| 1021 90F0 | Drawer not present in configuration table | 1. Check SPCN cabling 2. Reset system, then reboot 3. Secondary I/O backplane Location: U0.2-P1 |
| 1021 90F1 | Drawer added to configuration table | Information message |
| 1021 9102 | Permanent address assignment failed | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9109 | Download failure | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9113 | Firmware image corrupted | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9114 | Firmware image corrupted | Secondary I/O backplane Location: U0.2-P1 |
| 1021 9116 | SPCN communication with operator panel failure | 1. Secondary I/O operator panel Location: U0.2-L1 2. Secondary I/O backplane Location: U0.2-P1 |

Table 4. SPCN Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--------------------|--|
| 1021 C62E | Polling error | <ol style="list-style-type: none">1. Cabling fault2. Secondary I/O backplane Location: U0.2-P13. Primary I/O backplane Location: U0.1-P1 |

Firmware 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 106 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to “MAP 410: Repair Checkout” in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Table 5. Firmware Error Codes.

| Error Code | Description | Action/ Possible Failing FRU |
|------------|-----------------------------------|--|
| 2011 00xy | I/O drawer power supply failure | <ol style="list-style-type: none"> Replace power supply “y” in I/O drawer “x”. If y=_, then the power supply is: y = power supply 3 = Both power supplies (I/O drawer) 2 = Reserved 1 = Reserved See “AIX and Physical Location Code Tables” in Chapter 1 for location codes. Check AC power source to I/O drawer “x”. See “AIX and Physical Location Code Tables” in Chapter 1 for location codes. |
| 2022 0000 | The I/O system is running slowly. | <ol style="list-style-type: none"> Check cabling Call for support |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 203w 0xyz | <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 or 2 on a system with 2 loops. y indicates the nearest associated RIO port number on the CEC drawer according to the following table: <p style="margin-left: 40px;">y = Nearest RIO Port 1 = 0 2 = 1</p> <ul style="list-style-type: none"> • z = B, indicates a missing return line from the I/O drawer to the CEC drawer. • 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 CEC drawer, 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 because the cause of the error and the proper location of the I/O cannot be determined. | <ol style="list-style-type: none"> 1. Check the RIO cables 2. Go to “MAP 1540: Minimum Configuration” on page 106. |
| 20A8 0000 | Insufficient information to boot. | Verify the IP address. |
| 20A8 0001 | 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 |
|------------|---|--|
| 20A8 0002 | Cannot get gateway IP address | Refer to Table 2 on page 142 using code E174 . |
| 20A8 0003 | Cannot get server hardware address | Refer to Table 2 on page 142 using code E174 . |
| 20A8 0004 | Bootup failed | Refer to Table 2 on page 142 using code E175 . |
| 20A80005 | File transmission (TFTP) failed. | Check network connection, try again. |
| 20A8 0006 | Boot image too large | Contact your next level of support for assistance. |
| 20D0 000F | Self-test failed on device, no error and/or location code information available | Refer to note "AIX and Physical Location Code Reference Tables" on page 33 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 106 |
| 20D0 0010 | Self-test failed on device, cannot locate package | Contact your service support representative for assistance. |
| 20D0 0011 | Firmware RTAS attempt to allocate memory failed. | Contact your next level of support for assistance. |
| 20E0 0001 | Privileged-access password entry error. | The password has been entered incorrectly. Retry installing the password. |
| 20E0 0004 | Battery drained or needs replacement | 1. Replace battery. 2. Replace primary I/O backplane Location: U0.1-P1 |
| 20E0 0009 | Invalid password entered - system locked | The password has been entered incorrectly 3 times. Turn off, then turn on the system unit, then enter the password correctly. |
| 20EE 0003 | IP parameter requires 3 dots "." | Enter valid IP parameter. Example: 000.000.000.000 |
| 20EE 0004 | Invalid IP parameter | Enter valid IP parameter. Example: 000.000.000.000 |
| 20EE 0005 | Invalid IP parameter (>255) | Enter valid IP parameter. Example: 255.192.002.000 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 20EE 0006 | 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 board in drawer(s) containing SCSI adapter(s). |
| 20EE 0007 | Keyboard not found | 1. Plug in keyboard. 2. Replace primary I/O backplane Location: U0.1-P1 |
| 20EE 0008 | No configurable adapters were found in the system by the remote IPL menu in the SMS utilities | This warning occurs when the remote IPL menu in the SMS utilities cannot locate any LAN adapters that are supported by the remote IPL function. If a supported device is installed: 1. Replace the adapter. 2. Replace the I/O drawer planar in the drawer(s) containing the adapter. |
| 20EE 0009 | Unable to communicate with the service processor | Replace primary I/O backplane Location: U0.1-P1 |
| 20EE 000B | The system was not able to find an operating system boot record on the devices listed in the boot list. This can be caused by the wrong devices being in the boot list, a problem that prevents the system from communicating with the device that contains the boot record, or the boot record being corrupted. | Go to "Boot Problems and Concerns" on page 153 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 20EE 000C | <p>Pointer to the operating system not found in non-volatile storage.</p> | <p>Values normally found in non-volatile storage that point to the location of an operating system were not found. This can happen for two reasons, either your installed operating system does not support storing the values or some event occurred that caused the system to lose non-volatile storage information (drainage or replacement of the battery). If you are running AIX, this information can be reconstructed by running the bootlist command 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 off the system and power it on again. This should cause the system to look for the operating system in the devices contained in the custom boot list or in the default boot list, depending on the condition of the system. If this is not successful, use the System Management Services Menus to modify the Boot Sequence (also known as boot list) to include devices that are known to contain a copy of the operating system. 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> |
| 20FB 0xxx | <p>Permanent addressing to map SPCN addresses to match RIO addresses of the I/O drawers. Note: 20FB 0xxx error codes will cause the system to hang.</p> | |
| 20FB 0010 | <p>Failed to find the keyword offset of SPCN configuration table in NVRAM</p> | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Clear NVRAM and retry 3. Check for system firmware update 4. Replace primary I/O drawer backplane Location: U0.1-P1 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 20FB 0020 | Invalid SPCN configuration table flag before SPCN table update | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Clear NVRAM and retry 3. Check for system firmware update 4. Replace primary I/O drawer backplane Location: U0.1-P1 |
| 20FB 0021 | Invalid SPCN configuration table flag after SPCN table update | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Clear NVRAM and retry 3. Check for system firmware update 4. Replace primary I/O drawer backplane Location: U0.1-P1 |
| 20FB 0025 | The number of I/O drawers reported by SPCN is not equal to the number of I/O drawers reported by RIO (remote I/O) | <ol style="list-style-type: none"> 1. If there is an error indication in any secondary I/O drawer operator panel, follow the repair action for that error indication. 2. Go to "MAP 1540: Minimum Configuration" on page 106 to isolate the failing I/O drawer, then isolate the failure within that drawer. |
| 20FB 0030 | Failure to read I/O drawer SPCN address | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Check for system firmware update 3. Replace RIO card assembly 4. Replace I/O backplane if not already replaced (location code indicates which drawer) |
| 20FB 0031 | Failure to read I/O drawer SPCN address | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Check for system firmware update 3. Replace RIO card assembly 4. Replace I/O backplane if not already replaced (location code indicates which drawer) |
| 20FB 0032 | Failure to read I/O drawer SPCN address | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Check for system firmware update 3. Replace RIO card assembly 4. Replace I/O backplane if not already replaced (location code indicates which drawer) |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 20FB 003A | Failure to read I/O drawer SPCN address | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Check for system firmware update 3. Replace RIO card assembly 4. Replace I/O backplane if not already replaced (location code indicates which drawer) |
| 20FB 0040 | Failed to match SPCN address to SPCN node entry address. | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Check for system firmware update 3. Replace RIO card assembly 4. Replace I/O backplane if not already replaced (location code indicates which drawer) |
| 20FB 0050 | Service processor mailbox failed to update SPCN configuration table. | <ol style="list-style-type: none"> 1. Check RIO cable connections 2. Check for service processor firmware update 3. Replace primary I/O drawer backplane Location: U0.1-P1 |
| 20FB 99xy | The number of I/O drawers reported by RIO does not match the number of I/O drawers reported by SPCN, where x is the number of drawers reported by RIO and y is the number of drawers reported by SPCN. This error code should cause the system to hang. | <ol style="list-style-type: none"> 1. Check RIO and SPCN cabling. 2. If there is an error code displayed by any of the secondary I/O drawers, perform the actions for that error code. 3. If there is no error code displayed by any of the secondary I/O drawers, examine the service processor error logs to obtain an error code. 4. RIO Bus Adapter Location: U0.2-P1.1 5. Secondary I/O Backplane Location: U0.2-P1 |
| 20FC 0xxx | Retrieving power, package, cooling VPD via SPCN for the CEC and I/O drawers | |
| 20FC 0010 | Failed to match RIO addressing with SPCN node entry address. | Replace I/O backplane if not already replaced (location code indicates which drawer) |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 20FC 0020 | Failed to retrieve power, package, cooling VPD via SPCN for the corresponding drawer. Service processor mailbox failed to get VPD | <ol style="list-style-type: none"> 1. Check RIO cable connection 2. Check for service processor firmware update 3. Replace corresponding I/O backplane (location code indicates which drawer) 4. Replace primary I/O backplane if not already replaced Location: U0.1-P1 |
| 20FC 0021 | Failed to retrieve power, package, cooling VPD via SPCN. Service processor mailbox failed to get power, packaging, and cooling device VPD | <ol style="list-style-type: none"> 1. Check for service processor firmware update 2. Replace primary I/O backplane Location: U0.1-P1 |
| 20FC 0030 | Corrupted power, packaging, and cooling device VPD format in the SPCN configuration table. | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Replace the I/O backplane (location code indicates which drawer) |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---------------------------|--|
| 2100 0001 | Unsupported SCSI bus mode | <p>Before replacing any system components, refer to the notes in error code 21A0 0xxx.</p> <ol style="list-style-type: none"> 1. Disconnect the SCSI cable from the SCSI controller the location code identifies and reboot the system. 2. If the error code persists, replace the SCSI controller (or I/O planar if SCSI controller is integrated). 3. Reconnect the SCSI cable disconnected in step 1, and remove all the SCSI devices attached to the cable and reboot the system. 4. If the error code persists, replace the SCSI cable. 5. One at a time, reconnect the SCSI devices disconnected in step 3. If the error code returns, replace the last SCSI device you reconnected. <p>If all SCSI devices have been reattached and the error code has not been returned, there may have been a bad connection. Go to "MAP 410: Repair Checkout" in the <i>RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems</i>.</p> |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 2100 0002 | Unsupported SCSI bus mode - high voltage differential | <p>Before replacing any system components, refer to the notes in error code 21A0 0xxx.</p> <ol style="list-style-type: none"> 1. Disconnect the SCSI cable from the SCSI controller the location code identifies and reboot the system. 2. If the error code persists, replace the SCSI controller (or I/O planar if SCSI controller is integrated). 3. Reconnect the SCSI cable disconnected in step 1, and remove all the SCSI devices attached to the cable and reboot the system. 4. If the error code persists, replace the SCSI cable. 5. One at a time, reconnect the SCSI devices disconnected in step 3. If the error code returns, replace the last SCSI device you reconnected. <p>If all SCSI devices have been reattached and the error code has not been returned, there may have been a bad connection. Go to "MAP 410: Repair Checkout" in the <i>RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems</i>.</p> |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--------------------------------|--|
| 2100 0004 | Cannot determine SCSI bus mode | <p>Before replacing any system components, refer to the notes in error code 21A0 0xxx.</p> <ol style="list-style-type: none"> 1. Disconnect the SCSI cable from the SCSI controller the location code identifies and reboot the system. 2. If the error code persists, replace the SCSI controller (or I/O planar if SCSI controller is integrated). 3. Reconnect the SCSI cable disconnected in step 1, and remove all the SCSI devices attached to the cable and reboot the system. 4. If the error code persists, replace the SCSI cable. 5. One at a time, reconnect the SCSI devices disconnected in step 3. If the error code returns, replace the last SCSI device you reconnected. <p>If all SCSI devices have been reattached and the error code has not been returned, there may have been a bad connection. Go to "MAP 410: Repair Checkout" in the <i>RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems</i>.</p> |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 21A0 0001 | SCSI DASD - test unit ready failed - hardware error | <p>Note:</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. <ol style="list-style-type: none"> a. Replace the SCSI device. b. Replace the SCSI cable. c. Replace the SCSI controller. |
| 21A0 0002 | SCSI DASD - test unit ready failed - sense data available | <p>Before replacing any system components, refer to the notes in error code 21A0 0001.</p> <ol style="list-style-type: none"> 1. Replace the media (removable media devices). 2. Replace the SCSI device. |
| 21A0 0003 | SCSI DASD - send diagnostic failed - sense data available | <p>Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device.</p> |
| 21A0 0004 | SCSI DASD - send diagnostic failed - DevOfI cmd | <p>Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device.</p> |
| 21E0 0001 | SCSI tape - test unit ready failed - hardware error | <p>Before replacing any system components, refer to the notes in error code 21A0 0001.</p> <ol style="list-style-type: none"> 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller. |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 21E0 0002 | SCSI tape - test unit ready failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the media. 2. Replace the SCSI device. |
| 21E0 0003 | SCSI tape - send diagnostic failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21E0 0004 | SCSI tape - send diagnostic failed - DevOfI cmd | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21ED 0001 | SCSI changer - test unit ready failed - hardware error | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller. |
| 21ED 0002 | SCSI changer - test unit ready failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the media. 2. Replace the SCSI device. |
| 21ED 0003 | SCSI changer - send diagnostic failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21ED 0004 | SCSI changer - send diagnostic failed - DevOfI cmd | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21EE 0001 | Undetermined SCSI device type - test unit ready failed - hardware error | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. If the missing SCSI devices are connected to the same backplane, replace the SCSI backplane. 4. Replace the SCSI controller. |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|---|
| 21EE 0002 | Undetermined SCSI device type - test unit ready failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the media (removable media devices). 2. Replace the SCSI device. |
| 21EE 0003 | Undetermined SCSI device type - send diagnostic failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21EE 0004 | Undetermined SCSI device type - send diagnostic failed - DevOfI cmd | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21F0 0001 | SCSI CD-ROM - test unit ready failed - hardware error | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller. |
| 21F0 0002 | SCSI CD-ROM - test unit ready failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the media. 2. Replace the SCSI device. |
| 21F0 0003 | SCSI CD-ROM - send diagnostic failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21F0 0004 | SCSI CD-ROM - send diagnostic failed - DevOfI cmd | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21F2 0001 | SCSI read/write optical - test unit ready failed - hardware error | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the SCSI device. 2. Replace the SCSI cable. 3. Replace the SCSI controller. |
| 21F2 0002 | SCSI read/write optical - test unit ready failed - sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. 1. Replace the media. 2. Replace the SCSI device. |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 21F2 0003 | SCSI read/write optical - send diagnostic failed- sense data available | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 21F2 0004 | SCSI read/write optical - send diagnostic failed- DevOfI cmd | Before replacing any system components, refer to the notes in error code 21A0 0001. Replace the SCSI device. |
| 2200 0001 | PCI Ethernet BNC/RJ-45 or PCI Ethernet AUI/RJ-45 Adapter internal wrap test failure | Replace the adapter. See "Checkpoint and Error Code Index" on page 159 for location code information related to this error. Also see "Replacing the Network Adapter" on page 157. |
| 2200 1001 | 10/100 Mbps Ethernet PCI Adapter internal wrap test failure | Replace the adapter. See "Checkpoint and Error Code Index" on page 159 for location code information related to this error. Also see "Replacing the Network Adapter" on page 157. |
| 2201 0001 | PCI Auto LANstreamer token ring adapter Adapter failed to complete hardware initialization. | Replace the adapter. See "Checkpoint and Error Code Index" on page 159 for location code information related to this error. Also see "Replacing the Network Adapter" on page 157. |
| 2201 1001 | PCI token ring adapter Adapter failed to complete hardware initialization. | Replace the adapter. See "Checkpoint and Error Code Index" on page 159 for location code information related to this error. Also see "Replacing the Network Adapter" on page 157. |
| 25A0 0001 | Cache L2 controller failure | 1. Replace the processor card. Location: U1.1-P1-C1 2. Replace the CEC backplane assembly. Location: U1.1-P1. |
| 25A1 0001 | Cache L2 SRAM failure | 1. Replace the processor card. Location: U1.1-P1-C1 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 25A8 0xxx | 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 primary I/O backplane Location: U0.1-P1</p> |
| 25A8 0000 | Initialization failed, device test failed | Refer to Action under error code 25A80xxx. |
| 25A8 0001 | Init-NVRAM invoked, all of NVRAM initialized | Refer to Action under error code 25A80xxx. |
| 25A8 0002 | Init-NVRAM invoked, some data partitions may have been preserved. | Refer to Action under error code 25A80xxx. |
| 25A8 0011 | Data corruption detected, all of NVRAM initialized | Refer to Action under error code 25A80xxx. |
| 25A8 0012 | Data corruption detected, some data partitions may have been preserved. | Refer to Action under error code 25A80xxx. |
| 25A8 0100 | NVRAM data validation check failed. | <p>Turn off, turn on system unit and retry the operation before replacing any system component.</p> <p>Refer to Action under error code 25A80xxx.</p> |
| 25A8 0201 | Unable to expand target partition - saving configuration variable. | Refer to Action under error code 25A80xxx. |
| 25A8 0202 | Unable to expand target partition - writing error log entry. | Refer to Action under error code 25A80xxx. |
| 25A8 0203 | Unable to expand target partition - writing VPD data. | Refer to Action under error code 25A80xxx. |
| 25A8 0210 | Setenv/\$Setenv parameter error - name contains a null character. | Refer to Action under error code 25A80xxx. |
| 25A8 0211 | 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 |
|------------|--|--|
| 25A8 0998 | 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. |
| 25A8 0999 | NVRAMRC script evaluation error - stack unbalanced on completion | This is a firmware debug environment error. There is no user action or FRU replacement for this error. |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|-----------------------|---|
| 25Cy y001 | DIMM is not supported | <p>Replace unsupported DIMM(s). Note that DIMMs are in groups (2, 4, 8, 16 or 32 DIMMs) but you may only receive an error for a single DIMM. Verify that all DIMMs in the group containing the specified DIMM are of the same type and size.</p> <p>yy describes the DIMM as follows:</p> <p>00 Unrecognized/unsupported DIMM</p> <p>28 512MB DIMM</p> <p>38 128MB DIMM</p> <p>58 32MB DIMM</p> <p>68 256MB DIMM</p> <p>78 1GB memory DIMM</p> <p>Note: Refer to “System Memory” on page 23 for DIMM configuration rules. A DIMM must be replaced with a supported type of DIMM, and all DIMMs in a group must be of the same size.</p> <p>Check the system error logs to determine the location code associated with the error code. Consult the “AIX and Physical Location Code Reference Tables” on page 33 to locate the DIMM and the rest of its group.</p> |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--------------|---|
| 25Cy y002 | DIMM failure | <p>If one DIMM is called out:</p> <ol style="list-style-type: none"> 1. Replace the DIMM. 2. Replace the DIMM group. 3. Replace the memory riser card. <p>If more than one DIMM is called out, go to the Memory Configuration/Deconfiguration menu, which is under the System Information Menu on the main service processor menu:</p> <ol style="list-style-type: none"> 1. From the memory configuration/deconfiguration menu, select the card(s) specified by the location code(s) of the failing DIMM(s). If the first character of the error status of any DIMM is 1, 2, or 3 (but not 0 or 4), this is a suspect DIMM. Record its location. See "System Information Menu" on page 374 for more information on the error status of DIMMs. 2. If only one DIMM was recorded in step 1: <ol style="list-style-type: none"> a. Replace DIMM b. Replace the DIMM group c. Replace the memory riser card 3. If more than one DIMM was recorded in step 1 and the DIMMs reside in more than one group: <ol style="list-style-type: none"> a. Replace the memory riser card b. Replace all failing DIMMs 4. If more than 1 DIMM was recorded in step 1 and they reside in one group: <ol style="list-style-type: none"> a. Replace all failing DIMMs b. Replace the DIMM group c. Replace the memory riser card |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--------------------------------|---|
| 2602 0001 | 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 primary I/O backplane Location: U0.1-P1 |
| 2602 0002 | 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 primary I/O backplane Location: U0.1-P1 |
| 2602 0003 | 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 primary I/O backplane Location: U0.1-P1 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 2602 0007 | 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 primary I/O backplane Location: U0.1-P1 |
| 2680 0Axy | MX-PCI bridge BIST Failure | <p>The problem is associated with bridge "y" in I/O drawer "x."</p> <p>Replace I/O backplane in I/O drawer "x". Location: U0.x-P1</p> <p>See "AIX and Physical Location Code Tables" in Chapter 1 for location codes.</p> |
| 2680 0Cxx | 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 primary I/O backplane Location: U0.1-P1 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 2803 0001 | RTC not updating - RTC initialization required | <p>Errors reported against the real-time clock can be caused by low battery voltage and (more rarely) power outages that occur during normal system usage. These errors are warnings that the real-time clock 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 battery. 2. Replace primary I/O backplane Location: U0.1-P1 |
| 2803 0002 | Bad time/date values | <ol style="list-style-type: none"> 1. Set time and date. 2. Refer to Action under error code 28030001. |
| 2803 0003 | RTC not updating - not correctable | <p>Replace primary I/O backplane Location: U0.1-P1</p> |
| 2803 0004 | RTC operating mode parameters (eg. data mode) changed | <ol style="list-style-type: none"> 1. Set time and date. 2. Refer to Action under error code 28030001. |
| 2803 0005 | RTC battery error | <ol style="list-style-type: none"> 1. Replace the battery. Note: Password, time, and date need to be set. 2. Refer to Action under error code 28030001. |
| 2900 0002 | Keyboard/mouse controller failed self-test | <p>Replace primary I/O backplane Location: U0.1-P1</p> |
| 29A0 0003 | Keyboard not present/detected | <ol style="list-style-type: none"> 1. Keyboard 2. Keyboard cable 3. Replace primary I/O backplane Location: U0.1-P1 |
| 29A0 0004 | Keyboard stuck key detected | <ol style="list-style-type: none"> 1. Keyboard 2. Replace primary I/O backplane Location: U0.1-P1 |
| 29B0 0004 | Mouse not present/detected | <ol style="list-style-type: none"> 1. Mouse 2. Replace primary I/O backplane Location: U0.1-P1 |

Table 5. Firmware Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 2B2x xx11 | Processor is manually disabled | Use the service processor menus to re-enable the processor and reboot the system |
| 2B20 0022 | Processor is deconfigured by the system | 1. Replace the processor card. Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 2B2x xx31 | Processor is failing POST | Replace the processor card. Location: U1.1-P1-C1 |
| 2B20 0031 | Processor is failing POST or is manually disabled. | 1. If the processor is not enabled, then use the service processor menus to enable the processor. Then reboot the system. 2. If the processor is failing POST, then replace the processor card at the location specified in the error log. Location: U1.1-P1-C1 |
| 2B20 0042 | Unknown processor card | Remove the unknown processor card. |
| 2BA00000 | Service processor POST failure | Replace primary I/O backplane Location: U0.1-P1 |
| 2BA0 0012 | Service processor reports self test failure | Replace primary I/O backplane Location: U0.1-P1 |
| 2BA0 0013 | Service processor reports bad NVRAM CRC | If problem persists, replace primary I/O backplane Location: U0.1-P1 |
| 2BA0 0017 | Service processor reports bad or low battery. | 1. Replace the battery. 2. Replace primary I/O backplane Location: U0.1-P1 |
| 2BA0 0041 | Service processor VPD is corrupted. | Replace primary I/O backplane Location: U0.1-P1 |
| 2BA0 0080 | Service processor reports memory riser card VPD module not present. | Replace memory card (s). |
| 2BA0 0081 | VPD data corrupted for memory riser card in slot 0. | Replace memory card in slot 0. |
| 2BA0 0083 | VPD data corrupted for memory riser card in slot 1. | Replace memory card in slot 1. |

Service Processor Error Codes

Attention: Follow the procedure defined in the “Checkpoint and Error Code Index” on page 159. If you replace FRUs or perform an action and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 106 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to “MAP 410: Repair Checkout” in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Table 6. Service Processor Error Codes.

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4066 0001 | Scan interface basic assurance tests detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 4066 0003 | Scan interface basic assurance tests detected processor fault | 1. Verify loose or defective JTAG cable or connector. 2. All processors Location: U1.1-P1-C1 |
| 4066 0009 | Scan interface basic assurance tests detected memory fault | All memory Location: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to “MAP 1540: Minimum Configuration” on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4066 00A0 | Scan interface basic assurance tests detected service processor firmware fault | Update system firmware |
| 4066 00A1 | Scan interface basic assurance tests detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 4066 00A2 | Scan interface basic assurance tests detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |
| 4066 00A3 | Scan interface basic assurance tests detected memory plugging fault | All pluggable memory. Go to “MAP 1540: Minimum Configuration” on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4066 00A4 | Scan interface basic assurance tests detected application caused fault | Application software |
| 4066 00A5 | Scan interface basic assurance tests detected invalid system configuration | Verify system components are supported and properly installed |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 4066 00A6 | Scan interface basic assurance tests detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMS and cards are properly installed 2. Go to service processor Memory Configuration/Deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4066 00A7 | Scan interface basic assurance tests detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4066 00B0 | Scan interface basic assurance tests detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 4066 00B1 | Scan interface basic assurance tests detected bus controller failure | RIO adapter Location: U0.1-P1.1 |
| 4066 00B7 | Scan interface basic assurance tests detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 4066 0100 | Scan interface basic assurance tests detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 4066 0101 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 4066 0102 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 4066 0103 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 4066 0104 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 4066 010D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 4066 0111 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 4066 0112 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 4066 0113 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4066 0114 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 4066 011D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 4066 0121 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 4066 0122 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 4066 0123 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 4066 0124 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 4066 012D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 4066 0131 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 4066 0132 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 4066 0133 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 4066 0134 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 4066 013D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 4066 01FF | Scan interface basic assurance tests detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4066 0200 | Scan interface basic assurance tests detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 4066 0201 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 4066 0202 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 4066 0203 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 4066 0204 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 4066 020D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4066 020E | Scan interface basic assurance tests detected memory pair A fault | Memory Pair A Location: U1.1-P1-M1.1 x2 |
| 4066 0211 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 4066 0212 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 4066 0213 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 4066 0214 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 4066 021D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 4066 0221 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 4066 0222 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 4066 0223 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 4066 0224 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 4066 022D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 4066 022D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 4066 0231 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 4066 0232 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 4066 0233 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 4066 0234 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 4066 023D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 4066 02FF | Scan interface basic assurance tests detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4066 0300 | Scan interface basic assurance tests detected processor card fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4066 0301 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 4066 0302 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 4066 030D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 4066 0311 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 4066 0312 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 4066 031D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 4066 0321 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 4066 0322 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 4066 032D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 4066 0331 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 4066 0332 | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 4066 033D | Scan interface basic assurance tests detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 4066 03FF | Scan interface basic assurance tests detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4066 3101 | Scan interface basic assurance tests detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4066 3102 | Scan interface basic assurance tests detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4066 3121 | Scan interface basic assurance tests detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 4066 3122 | Scan interface basic assurance tests detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4066 31FF | Scan interface basic assurance tests detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 4066 3200 | Scan interface basic assurance tests detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4066 3201 | Scan interface basic assurance tests detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4066 3280 | Scan interface basic assurance tests detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4066 3281 | Scan interface basic assurance tests detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4066 3282 | Scan interface basic assurance tests detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4066 3283 | Scan interface basic assurance tests detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4066 3284 | Scan interface basic assurance tests detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4066 3285 | Scan interface basic assurance tests detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4066 3286 | Scan interface basic assurance tests detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4067 0001 | 6xx bus processor runtime diagnostics detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 4067 0003 | 6xx bus processor runtime diagnostics detected processor fault | All processors Location: U1.1-P1-C1 |
| 4067 0009 | 6xx bus processor runtime diagnostics detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 4067 00A0 | 6xx bus processor runtime diagnostics detected service processor firmware fault | Update system firmware |
| 4067 00A1 | 6xx bus processor runtime diagnostics detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 4067 00A2 | 6xx bus processor runtime diagnostics detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |
| 4067 00A3 | 6xx bus processor runtime diagnostics detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4067 00A4 | 6xx bus processor runtime diagnostics detected application caused fault | Application software |
| 4067 00A5 | 6xx bus processor runtime diagnostics detected invalid system configuration | Verify system components are supported and properly installed |
| 4067 00A6 | 6xx bus processor runtime diagnostics detected no usable memory | 1. Ensure that memory DIMMs and cards are properly installed 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4067 00A7 | 6xx bus processor runtime diagnostics detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4067 00B0 | 6xx bus processor runtime diagnostics detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 4067 00B1 | 6xx bus processor runtime diagnostics detected bus controller failure | RIO adapter Location: U0.1-P1.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4067 00B7 | 6xx bus processor runtime diagnostics detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 4067 0100 | 6xx bus processor runtime diagnostics detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 4067 0101 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 4067 0102 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 4067 0103 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 4067 0104 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 4067 010D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 4067 0111 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 4067 0112 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 4067 0113 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 4067 0114 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 4067 011D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 4067 0121 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4067 0122 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 4067 0123 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 4067 0124 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 4067 012D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 4067 0131 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 4067 0132 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 4067 0133 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 4067 0134 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 4067 013D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 4067 01FF | 6xx bus processor runtime diagnostics detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4067 0200 | 6xx bus processor runtime diagnostics detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 4067 0201 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 4067 0202 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 4067 0203 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4067 0204 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 4067 020D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 4067 020E | 6xx bus processor runtime diagnostics detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |
| 4067 0211 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 4067 0212 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 4067 0213 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 4067 0214 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 4067 021D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 4067 0221 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 4067 0222 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 4067 0223 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 4067 0224 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 4067 022D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 4067 0231 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 4067 0232 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4067 0233 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 4067 0234 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 4067 023D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 4067 02FF | 6xx bus processor runtime diagnostics detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4067 0300 | 6xx bus processor runtime diagnostics detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 4067 0301 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 4067 0302 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 4067 030D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 4067 0311 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 4067 0312 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 4067 031D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 4067 0321 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 4067 0322 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 4067 032D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4067 0331 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 4067 0332 | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 4067 033D | 6xx bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 4067 03FF | 6xx bus processor runtime diagnostics detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4067 3101 | 6xx bus processor runtime diagnostics detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4067 3102 | 6xx bus processor runtime diagnostics detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4067 3121 | 6xx bus processor runtime diagnostics detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 4067 3122 | 6xx bus processor runtime diagnostics detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 4067 31FF | 6xx bus processor runtime diagnostics detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 4067 3200 | 6xx bus processor runtime diagnostics detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4067 3201 | 6xx bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4067 3280 | 6xx bus processor runtime diagnostics detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4067 3281 | 6xx bus processor runtime diagnostics detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4067 3282 | 6xx bus processor runtime diagnostics detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4067 3283 | 6xx bus processor runtime diagnostics detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4067 3284 | 6xx bus processor runtime diagnostics detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4067 3285 | 6xx bus processor runtime diagnostics detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4067 3286 | 6xx bus processor runtime diagnostics detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4068 0001 | Other bus processor runtime diagnostics detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 4068 0003 | Other bus processor runtime diagnostics detected processor fault | All processors Location: U1.1-P1-C1 |
| 4068 0009 | Other bus processor runtime diagnostics detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4068 00A0 | Other bus processor runtime diagnostics detected service processor firmware fault | Update system firmware |
| 4068 00A1 | Other bus processor runtime diagnostics detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 4068 00A2 | Other bus processor runtime diagnostics detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4068 00A3 | Other bus processor runtime diagnostics detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4068 00A4 | Other bus processor runtime diagnostics detected application caused fault | Application software |
| 4068 00A5 | Other bus processor runtime diagnostics detected invalid system configuration | Verify system components are supported and properly installed |
| 4068 00A6 | Other bus processor runtime diagnostics detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMS and cards are properly installed 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4068 00A7 | Other bus processor runtime diagnostics detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4068 00B0 | Other bus processor runtime diagnostics detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 4068 00B1 | Other bus processor runtime diagnostics detected bus controller failure | RIO adapter Location: U0.1-P1.1 |
| 4068 00B7 | Other bus processor runtime diagnostics detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 4068 0100 | Other bus processor runtime diagnostics detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 4068 0101 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4068 0102 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 4068 0103 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 4068 0104 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 4068 010D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 4068 0111 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 4068 0112 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 4068 0113 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 4068 0114 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 4068 011D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 4068 0121 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 4068 0122 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 4068 0123 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 4068 0124 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 4068 012D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 4068 0131 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4068 0132 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 4068 0133 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 4068 0134 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 4068 013D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 4068 01FF | Other bus processor runtime diagnostics detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4068 0200 | Other bus processor runtime diagnostics detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 4068 0201 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 4068 0202 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 4068 0203 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 4068 0204 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 4068 020D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 4068 020E | Other bus processor runtime diagnostics detected memory pair A Fault | Memory pair A Location: U1.1-P1-M1.1 x2 |
| 4068 0211 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 4068 0212 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4068 0213 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 4068 0214 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 4068 021D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 4068 0221 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 4068 0222 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 4068 0223 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 4068 0224 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 4068 022D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 4068 0231 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 4068 0232 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 4068 0233 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 4068 0234 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 4068 023D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 4068 02FF | Other bus processor runtime diagnostics detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4068 0300 | Other bus processor runtime diagnostics detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 4068 0301 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 4068 0302 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 4068 030D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 4068 0311 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 4068 0312 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 4068 031D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 4068 0321 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 4068 0322 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 4068 032D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 4068 0331 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 4068 0332 | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 4068 033D | Other bus processor runtime diagnostics detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 4068 03FF | Other bus processor runtime diagnostics detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 4068 3101 | Other bus processor runtime diagnostics detected RIO port 0 Fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4068 3102 | Other bus processor runtime diagnostics detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4068 3121 | Other bus processor runtime diagnostics detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 4068 3122 | Other bus processor runtime diagnostics detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 4068 31FF | Other bus processor runtime diagnostics detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 4068 3200 | Other bus processor runtime diagnostics detected primary I/O drawer fault | Primary I/O drawer Location: U0.1 |
| 4068 3201 | Other bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4068 3280 | Other bus processor runtime diagnostics detected primary RIO adapter fault | Primary I/O adapter Location: U0.1-P1.1 |
| 4068 3281 | Other bus processor runtime diagnostics detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4068 3282 | Other bus processor runtime diagnostics detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4068 3283 | Other bus processor runtime diagnostics detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4068 3284 | Other bus processor runtime diagnostics detected PCI Controller PHB0 Fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4068 3285 | Other bus processor runtime diagnostics detected PCI Controller PHB1 Fault | Primary I/O backplane Location: U0.1-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4068 3286 | Other bus processor runtime diagnostics detected PCI Controller PHB2 Fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4069 0001 | Memory test detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 4069 0003 | Memory test detected processor fault | All processors Location: U1.1-P1-C1 |
| 4069 0009 | Memory test detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4069 00A0 | Memory test detected service processor firmware fault | Update system firmware |
| 4069 00A1 | Memory test detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 4069 00A2 | Memory test detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |
| 4069 00A3 | Memory test detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 4069 00A4 | Memory test detected application caused fault | Application software |
| 4069 00A5 | Memory test detected invalid system configuration | Verify system components are supported and properly installed |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4069 00A6 | Memory test detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMs and cards are properly installed 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4069 00A7 | Memory test detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 4069 00B0 | Memory test detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 4069 00B1 | Memory test detected bus controller failure | RIO adapter Location: U0.1-P1.1 |
| 4069 00B7 | Memory test detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 4069 0100 | Memory test detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 4069 0101 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 4069 0102 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 4069 0103 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 4069 0104 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 4069 010D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 4069 0111 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 4069 0112 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 4069 0113 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 4069 0114 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4069 011D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 4069 0121 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 4069 0122 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 4069 0123 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 4069 0124 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 4069 012D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 4069 0131 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 4069 0132 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 4069 0133 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 4069 0134 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 4069 013D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 4069 01FF | Memory test detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4069 0200 | Memory test detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 4069 0201 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 4069 0202 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 4069 0203 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 4069 0204 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 4069 020D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 4069 020E | Memory test detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4069 0211 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 4069 0212 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 4069 0213 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 4069 0214 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 4069 021D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 4069 0221 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 4069 0222 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 4069 0223 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 4069 0224 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 4069 022D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 4069 0231 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 4069 0232 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 4069 0233 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 4069 0234 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 4069 023D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 4069 02FF | Memory test detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4069 0300 | Memory test detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 4069 0301 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 4069 0302 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4069 030D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 4069 0311 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 4069 0312 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 4069 031D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 4069 0321 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 4069 0322 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 4069 032D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 4069 0331 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 4069 0332 | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 4069 033D | Memory test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 4069 03FF | Memory test detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 4069 3101 | Memory test detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4069 3102 | Memory test detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 4069 3121 | Memory test detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 4069 3122 | Memory test detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 4069 31FF | Memory test detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 4069 3200 | Memory test detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4069 3201 | Memory test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4069 3280 | Memory test detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4069 3281 | Memory test detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4069 3282 | Memory test detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 4069 3283 | Memory test detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 4069 3284 | Memory Test detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4069 3285 | Memory Test detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4069 3286 | Memory Test detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406A 0001 | Self test detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 406A 0003 | Self test detected processor fault | All processors Location: U1.1-P1-C1 |
| 406A 0009 | Self test detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406A 00A0 | Self test detected service processor firmware fault | Update system firmware |
| 406A 00A1 | Self test detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406A 00A2 | Self test detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |
| 406A 00A3 | Self test detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406A 00A4 | Self test detected application caused fault | Application software |
| 406A 00A5 | Self test detected invalid system configuration | Verify system components are supported and properly installed |
| 406A 00A6 | Self test detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMs and cards are properly installed. 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406A 00A7 | Self test detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406A 00B0 | Self test detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 406A 00B1 | Self test detected bus controller failure | RIO adapter bus Location: U0.1-P1.1 |
| 406A 00B7 | Self test detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either |
| 406A 0100 | Self test detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 406A 0101 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 406A 0102 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 406A 0103 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 406A 0104 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 406A 010D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 406A 0111 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 406A 0112 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 406A 0113 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 406A 0114 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 406A 011D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 406A 0121 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 406A 0122 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 406A 0123 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 406A 0124 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 406A 012D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 406A 0131 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 406A 0132 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 406A 0133 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 406A 0134 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 406A 013D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 406A 01FF | Self test detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406A 0200 | Self test detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 406A 0201 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 406A 0202 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 406A 0203 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 406A 0204 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 406A 020D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 406A 020E | Self test detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |
| 406A 0211 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 406A 0212 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 406A 0213 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 406A 0214 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 406A 021D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 406A 0221 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 406A 0222 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 406A 0223 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 406A 0224 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 406A 022D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 406A 0231 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 406A 0232 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 406A 0233 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 406A 0234 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 406A 023D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 406A 02FF | Self test detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406A 0300 | Self test detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 406A 0301 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 406A 0302 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 406A 030D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 406A 0311 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 406A 0312 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 406A 031D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 406A 0321 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 406A 0322 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 406A 032D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 406A 0331 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 406A 0332 | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 406A 033D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 406A 03FF | Self test detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406A 3101 | Self test detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 406A 3102 | Self test detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406A 3121 | Self test detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 406A 3122 | Self test detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 406A 31FF | Self test detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 406A 3200 | Self test detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406A 3201 | Self test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 406A 3280 | Self test detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406A 3281 | Self test detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406A 3282 | Self test detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406A 3283 | Self test detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406A 3284 | Self test detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406A 3285 | Self test detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406A 3286 | Self test detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406B 0001 | Wire test detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 406B 0003 | Wire test detected processor fault | All processors Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406B 0009 | Wire test detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406B 00A0 | Wire test detected service processor firmware fault | Update system firmware |
| 406B 00A1 | Wire test detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 406B 00A2 | Wire test detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |
| 406B 00A3 | Wire test detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406B 00A4 | Wire test detected application caused fault | Application software |
| 406B 00A5 | Wire test detected invalid system configuration | Verify system components are supported and properly installed |
| 406B 00A6 | Wire test detected no usable memory | 1. Ensure that memory DIMMs and cards are properly installed. 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406B 00A7 | Wire test detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406B 00B0 | Wire test detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 406B 00B1 | Wire test detected bus controller failure | RIO adapter Location: U0.1-P1.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 406B 00B7 | Wire test detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 406B 0100 | Wire test detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 406B 0101 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 406B 0102 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 406B 0103 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 406B 0104 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 406B 010D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 406B 0111 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 406B 0112 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 406B 0113 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 406B 0114 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 406B 011D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 406B 0121 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 406B 0122 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 406B 0123 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 406B 0124 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 406B 012D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 406B 0131 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 406B 0132 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 406B 0133 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 406B 0134 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 406B 013D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 406B 01FF | Wire test detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406B 0200 | Wire test detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 406B 0201 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 406B 0202 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 406B 0203 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 406B 0204 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 406B 020D | Self test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 406B 020E | Wire test detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |
| 406B 0211 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 406B 0212 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 406B 0213 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 406B 0214 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 406B 021D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 406B 0221 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 406B 0222 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 406B 0223 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 406B 0224 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 406B 022D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 406B 0231 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 406B 0232 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 406B 0233 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 406B 0234 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 406B 023D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 406B 02FF | Wire test detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406B 0300 | Wire test detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 406B 0301 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 406B 0302 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 406B 030D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 406B 0311 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 406B 0312 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 406B 031D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 406B 0321 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 406B 0322 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 406B 032D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406B 0331 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 406B 0332 | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 406B 033D | Wire test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 406B 03FF | Wire test detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406B 3101 | Wire test detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406B 3102 | Wire test detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406B 3121 | Wire test detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 406B 3122 | Wire test detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 406B 31FF | Wire test detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 406B 3200 | Wire test detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406B 3201 | Wire test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 406B 3280 | Wire test detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406B 3281 | Wire test detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406B 3282 | Wire test detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406B 3283 | Wire test detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 406B 3284 | Wire test detected PCI controller PHB0 fault | <ol style="list-style-type: none"> 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406B 3285 | Wire test detected PCI controller PHB1 fault | <ol style="list-style-type: none"> 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406B 3286 | Wire test detected PCI controller PHB2 fault | <ol style="list-style-type: none"> 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406C 0001 | IPL detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 406C 0003 | IPL detected processor fault | All processors Location: U1.1-P1-C1 |
| 406C 0009 | IPL detected Memory Fault | <p>All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component.</p> |
| 406C 00A0 | IPL test detected service processor firmware fault | Update system firmware |
| 406C 00A1 | IPL test detected system firmware fault | <ol style="list-style-type: none"> 1. Check for AIX updates 2. Check for system firmware update |
| 406C 00A2 | IPL test detected service processor firmware (processor runtime diagnostics) fault | Check for system firmware update |
| 406C 00A3 | IPL test detected memory plugging fault | <p>All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component.</p> |
| 406C 00A4 | IPL test detected application caused fault | Application software |
| 406C 00A5 | IPL test detected system firmware fault | Verify system components are supported and properly installed |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406C 00A6 | IPL test detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMs and cards are properly installed. 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406C 00A7 | IPL test detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406C 00B0 | IPL test detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 406C 00B1 | IPL test detected bus controller failure | RIO adapter Location: U0.1-P1.1 |
| 406C 00B7 | IPL MOPS detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 406C 0100 | IPL test detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 406C 0101 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 406C 0102 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 406C 0103 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 406C 0104 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 406C 010D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 406C 0111 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 406C 0112 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 406C 0113 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 406C 0114 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406C 011D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 406C 0121 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 406C 0122 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 406C 0123 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 406C 0124 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 406C 012D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 406C 0131 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 406C 0132 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 406C 0133 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 406C 0134 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 406C 013D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 406C 01FF | IPL detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406C 0200 | IPL test detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 406C 0201 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 406C 0202 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 406C 0203 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 406C 0204 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 406C 020D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 406C 020E | IPL detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406C 0211 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 406C 0212 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 406C 0213 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 406C 0214 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 406C 021D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 406C 0221 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 406C 0222 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 406C 0223 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 406C 0224 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 406C 022D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 406C 0231 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 406C 0232 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 406C 0233 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 406C 0234 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 406C 023D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 406C 02FF | IPL detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 406C 0300 | IPL test detected processor card fault | Processor card Location: U1.1-P1-C1 Note: If this error occurs on a model 6H0, first verify that the correct type of processor card is installed in the system. Up to four processor are supported in a model 6H0 system; if a 6-way processor is plugged into the system, this error code will be generated and the system will not boot. |
| 406C 0301 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 406C 0302 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 406C 030D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 406C 0311 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 406C 0312 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 406C 031D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 406C 0321 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 406C 0322 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 406C 032D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 406C 0331 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 406C 0332 | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 406C 033D | IPL test detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 406C 03FF | IPL detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406C 3101 | IPL detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 406C 3102 | IPL detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406C 3121 | IPL detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 406C 3122 | IPL detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 406C 31FF | IPL detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 406C 3200 | IPL detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406C 3201 | IPL detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 406C 3280 | IPL detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406C 3281 | IPL detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406C 3282 | IPL detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406C 3283 | IPL detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406C 3284 | IPL detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406C 3285 | IPL detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406C 3286 | IPL detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406D 0001 | Attention handler detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 406D 0003 | Attention handler detected processor fault | All processors Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406D 0009 | Attention handler detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406D 00A0 | Attention handler detected service processor firmware fault | Update system firmware |
| 406D 00A1 | Attention handler detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 406D 00A2 | Attention handler detected service processor firmware (processor runtime diagnostics) Fault | Check for system firmware update |
| 406D 00A3 | Attention handler detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406D 00A4 | Attention handler detected application caused fault | Application software |
| 406D 00A5 | Attention handler detected invalid system configuration | Verify system components are supported and properly installed |
| 406D 00A6 | Attention handler detected no usable memory | 1. Ensure that memory DIMMs and cards are properly installed. 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406D 00A7 | Attention handler detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406D 00B0 | Attention handler detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 406D 00B1 | Attention handler detected bus controller failure | RIO adapter Location: U0.1-P1.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 406D 00B7 | Attention handler detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 406D 0100 | Attention handler detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 406D 0101 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 406D 0102 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 406D 0103 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 406D 0104 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 406D 010D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 406D 0111 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 406D 0112 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 406D 0113 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 406D 0114 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 406D 011D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 406D 0121 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 406D 0122 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 406D 0123 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 406D 0124 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 406D 012D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 406D 0131 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406D 0132 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 406D 0133 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 406D 0134 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 406D 013D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 406D 01FF | Attention handler detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406D 0200 | Attention handler detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 406D 0201 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 406D 0202 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 406D 0203 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 406D 0204 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 406D 020D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 406D 020E | Attention handler detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |
| 406D 0211 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 406D 0212 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 406D 0213 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 406D 0214 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 406D 021D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 406D 0221 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 406D 0222 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 406D 0223 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 406D 0224 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 406D 022D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 406D 0231 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 406D 0232 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 406D 0233 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 406D 0234 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 406D 023D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 406D 02FF | Attention handler detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406D 0300 | Attention handler detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 406D 0301 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 406D 0302 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 406D 030D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 406D 0311 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 406D 0312 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 406D 031D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 406D 0321 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 406D 0322 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 406D 032D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406D 0331 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 406D 0332 | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 406D 033D | Attention handler detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 406D 03FF | Attention handler detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406D 3101 | Attention handler detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406D 3102 | Attention handler detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406D 3121 | Attention handler detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 406D 3122 | Attention handler detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 406D 31FF | Attention handler detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 406D 3200 | Attention handler detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406D 3201 | Attention handler detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 406D 3280 | Attention handler detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406D 3281 | Attention handler detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406D 3282 | Attention handler detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406D 3283 | Attention handler detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 406D 3284 | Attention handler detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406D 3285 | Attention handler detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406D 3286 | Attention handler detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406E 0001 | Scan control routines detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 406E 0003 | Scan control routines detected processor fault | All processors Location: U1.1-P1-C1 |
| 406E 0009 | Scan control routines detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406E 00A0 | Scan control routines detected service processor firmware fault | Update system firmware |
| 406E 00A1 | Scan control routines detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |
| 406E 00A2 | Scan control routine detected service processor firmware (processor runtime diagnostics) Fault | Check for system firmware update |
| 406E 00A3 | Scan control routine detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406E 00A4 | Scan control routine detected application caused fault | Application software |
| 406E 00A5 | Scan control routine detected invalid system configuration | Verify system components are supported and properly installed |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 406E 00A6 | Scan control routine detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMs and cards are properly installed. 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406E 00A7 | Scan control routine detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406E 00B0 | Scan control routine detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 406E 00B1 | Scan control routine detected bus controller failure | RIO adapter Location: U0.1-P1.1 |
| 406E 00B7 | Scan control routines detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 406E 0100 | Scan control routine detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 406E 0101 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 406E 0102 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |
| 406E 0103 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 406E 0104 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 406E 010D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 406E 0111 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 406E 0112 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 406E 0113 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 406E 0114 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 406E 011D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 406E 0121 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 406E 0122 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 406E 0123 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 406E 0124 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 406E 012D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 406E 0131 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 406E 0132 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 406E 0133 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 406E 0134 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 406E 013D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 406E 01FF | Scan control routine detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406E 0200 | Scan control routine detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 406E 0201 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 406E 0202 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 406E 0203 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 406E 0204 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 406E 020D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 406E 020E | Scan control routine detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 406E 0211 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 406E 0212 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 406E 0213 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 406E 0214 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 406E 021D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 406E 0221 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 406E 0222 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 406E 0223 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 406E 0224 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 406E 022D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 406E 0231 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 406E 0232 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 406E 0233 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 406E 0234 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |
| 406E 023D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 406E 02FF | Scan control routine detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406E 0300 | Scan control routine detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 406E 0301 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 406E 0302 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 406E 030D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 406E 0311 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 406E 0312 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 406E 031D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 406E 0321 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 406E 0322 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 406E 032D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 406E 0331 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 406E 0332 | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 406E 033D | Scan control routine detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 406E 03FF | Scan control routine detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406E 3101 | Scan control routine detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406E 3102 | Scan control routine detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406E 3121 | Scan control routine detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 406E 3122 | Scan control routine detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 406E 31FF | Scan control routine detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 406E 3200 | Scan control routine detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406E 3201 | Scan control routine detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 406E 3280 | Scan control routine detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406E 3281 | Scan control routine detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406E 3282 | Scan control routine detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406E 3283 | Scan control routine detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406E 3284 | Scan control routine detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406E 3285 | Scan control routine detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406E 3286 | Scan control routine detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406F 0001 | Error code generation/logging detected CEC backplane fault | CEC backplane Location: U1.1-P1 |
| 406F 0003 | Error code generation/logging detected processor fault | All processors Location: U1.1-P1-C1 |
| 406F 0009 | Error code generation/logging detected memory fault | All memory Locations: U1.1-P1-C1 U1.1-P1-M1 U1.1-P1-M2. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406F 00A0 | Error code generation/logging detected service processor firmware fault | Update system firmware |
| 406F 00A1 | Error code generation/logging detected system firmware fault | 1. Check for AIX updates 2. Check for system firmware update |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406F 00A2 | Error code generation/logging detected service processor Firmware (processor runtime diagnostics) Fault | Check for system firmware update |
| 406F 00A3 | Error code generation/logging detected memory plugging fault | All pluggable memory. Go to "MAP 1540: Minimum Configuration" on page 106 and run CEC drawer minimum configuration to isolate the failing memory component. |
| 406F 00A4 | Error code generation/logging detected application caused fault | Application software |
| 406F 00A5 | Error code generation/logging detected invalid system configuration | Verify system components are supported and properly installed |
| 406F 00A6 | Error code generation/logging detected no usable memory | <ol style="list-style-type: none"> 1. Ensure that memory DIMMs and cards are properly installed. 2. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 3. Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406F 00A7 | Error code generation/logging detected hardware problem | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406F 00B0 | Error code generation/logging detected bus controller lock-unlock failure | RIO adapter Location: U0.1-P1.1 |
| 406F 00B1 | Error code generation/logging detected bus controller failure | RIO adapter Location: U0.1-P1.1 |
| 406F 00B7 | Error code generation/igging detected insufficient hardware resources to continue IPL | This error code appears after the initial testing by the service processor firmware on the CEC was completed correctly, but a problem occurred when the firmware tried to communicate outside the CEC. Suspect a problem with the RIO interface, either cables or adapters. |
| 406F 0100 | Error code generation/logging detected memory riser card fault | Memory riser card Location: U1.1-P1-M2 |
| 406F 0101 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.15 |
| 406F 0102 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 406F 0103 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.16 |
| 406F 0104 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.2 |
| 406F 010D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.1 x4 |
| 406F 0111 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.13 |
| 406F 0112 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 |
| 406F 0113 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.14 |
| 406F 0114 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.4 |
| 406F 011D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.3 x4 |
| 406F 0121 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.11 |
| 406F 0122 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 |
| 406F 0123 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.12 |
| 406F 0124 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.6 |
| 406F 012D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.5 x4 |
| 406F 0131 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.9 |
| 406F 0132 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 |
| 406F 0133 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.10 |
| 406F 0134 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.8 |
| 406F 013D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M2.7 x4 |
| 406F 01FF | Error code generation/logging detected memory on riser card fault | Memory failure on riser card 2 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 406F 0200 | Scan control routine detected memory riser card fault | Memory riser card Location: U1.1-P1-M1 |
| 406F 0201 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.15 |
| 406F 0202 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 |
| 406F 0203 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.16 |
| 406F 0204 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.2 |
| 406F 020D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.1 x4 |
| 406F 020E | Error code generation/logging detected memory pair A fault | Memory pair A Location: U1.1-P1-M1.1 x2 |
| 406F 0211 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.13 |
| 406F 0212 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 |
| 406F 0213 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.14 |
| 406F 0214 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.4 |
| 406F 021D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.3 x4 |
| 406F 0221 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.11 |
| 406F 0222 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 |
| 406F 0223 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.12 |
| 406F 0224 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.6 |
| 406F 022D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.5 x4 |
| 406F 0231 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.9 |
| 406F 0232 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 |
| 406F 0233 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.10 |
| 406F 0234 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.8 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 406F 023D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-M1.7 x4 |
| 406F 02FF | Error code generation/logging detected memory on riser card fault | Memory failure on riser card 1 that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406F 0300 | Error code generation/logging detected processor card fault | Processor card Location: U1.1-P1-C1 |
| 406F 0301 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M8 |
| 406F 0302 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 |
| 406F 030D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M1 x2 |
| 406F 0311 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M7 |
| 406F 0312 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 |
| 406F 031D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M2 x2 |
| 406F 0321 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M6 |
| 406F 0322 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 |
| 406F 032D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M3 x2 |
| 406F 0331 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M5 |
| 406F 0332 | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 |
| 406F 033D | Error code generation/logging detected memory DIMM fault | Memory DIMM Location: U1.1-P1-C1-M4 x2 |
| 406F 03FF | Error code generation/logging detected memory on processor card fault | Memory failure on processor card that cannot be automatically isolated. Go to "MAP 1540: Minimum Configuration" on page 106, and run CEC drawer minimum configuration for further isolation. |
| 406F 3101 | Error code generation/logging detected RIO port 0 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 406F 3102 | Error code generation/logging detected RIO port 1 fault | 1. Processor card Location: U1.1-P1-C1 2. CEC drawer backplane Location: U1.1-P1 |
| 406F 3121 | Error code generation/logging detected RIO cable on port 0 fault | RIO cable on port 0 Location: U1.1-P1/Q3 |
| 406F 3122 | Error code generation/logging detected RIO cable on port 1 fault | RIO cable on port 1 Location: U1.1-P1/Q2 |
| 406F 31FF | Error code generation/logging detected RIO port fault | Processor card Location: U1.1-P1-C1 |
| 406F 3200 | Error code generation/logging detected primary I/O drawer fault | Go to "MAP 1540: Minimum Configuration" on page 106. |
| 406F 3201 | Error code generation/logging detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 406F 3280 | Error code generation/logging detected primary RIO adapter fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406F 3281 | Error code generation/logging detected primary RIO port 0 fault | 1. Check RIO cable Location: U0.1-P1.1/Q1 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406F 3282 | Error code generation/logging detected primary RIO port 1 fault | 1. Check RIO cable Location: U0.1-P1.1/Q2 2. Primary RIO adapter Location: U0.1-P1.1 |
| 406F 3283 | Error code generation/logging detected primary RIO ports fault | Primary RIO adapter Location: U0.1-P1.1 |
| 406F 3284 | Error code generation/logging detected PCI controller PHB0 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406F 3285 | Error code generation/logging detected PCI controller PHB1 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 406F 3286 | Error code generation/logging detected PCI controller PHB2 fault | 1. RIO adapter Location: U0.1-P1.1 2. Primary I/O backplane Location: U0.1-P1 |
| 4506 244C | Memory system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 244D | Memory system and scan interface basic assurance tests detected 2W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4506 244E | Memory system and scan interface basic assurance tests detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 244F | Memory system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 248B | Memory system and scan interface basic assurance tests detected primary I/O drawer operator panel fault | Operator Panel Location: U0.1-L1 |
| 4506 24A1 | Memory system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 24A2 | Memory system and scan interface basic assurance tests detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 24A3 | Memory system and scan interface basic assurance tests detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 24A4 | Memory system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 25BB | Memory system and scan interface basic assurance tests detected 1W processor fault | 1W Processor card Location: U1.1-P1-C1 |
| 4506 25BD | Memory system and scan interface basic assurance tests detected 2W processor fault | 2W Processor card Location: U1.1-P1-C1 |
| 4506 25BE | Memory system and scan interface basic assurance tests detected 4W processor fault | 4W Processor card Location: U1.1-P1-C1 |
| 4506 25BF | Memory system and scan interface basic assurance tests detected 6W processor fault | 6W Processor card Location: U1.1-P1-C1 |
| 4506 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4506 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4506 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4506 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|---|
| 4506 263D | Memory system and scan interface basic assurance tests detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4506 2687 | Memory system and scan interface basic assurance tests detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4506 271A | Memory system and scan interface basic assurance tests detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4506 271D | Memory system and scan interface basic assurance tests detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4506 283A | Memory system and scan interface basic assurance tests detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4506 285D | Memory system and scan interface basic assurance tests detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4506 288D | Memory system and scan interface basic assurance tests detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4506 2A00 | Memory system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4506 300A | Memory system and scan interface basic assurance tests detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4506 300B | Memory system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 4506 300C | Memory system and scan interface basic assurance tests detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4506 300D | Memory system and scan interface basic assurance tests detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4506 300E | Memory system and scan interface basic assurance tests detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4506 301F | Memory system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4506 303A | Memory system and scan interface basic assurance tests detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4506 51AA | Memory system and scan interface basic assurance tests detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4506 51AB | Memory system and scan interface basic assurance tests detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4506 51AC | Memory system and scan interface basic assurance tests detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4506 51AD | Memory system and scan interface basic assurance tests detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4507 244C | Memory system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4507 244D | Memory system and 6xx bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 244E | Memory system and 6xx bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 244F | Memory system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 248B | Memory system and 6xx bus processor runtime diagnostics detected primary I/O drawer operator panel fault | Operator panel Location: U0.1-L1 |
| 4507 24A1 | Memory system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 24A2 | Memory system and 6xx bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 24A3 | Memory system and 6xx bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 24A4 | Memory system and 6xx bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 25BB | Memory system and 6xx bus processor runtime diagnostics detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4507 25BD | Memory system and 6xx bus processor runtime diagnostics detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4507 25BE | Memory system and 6xx bus processor runtime diagnostics detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4507 25BF | Memory system and 6xx bus processor runtime diagnostics detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4507 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4507 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4507 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4507 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4507 263D | Memory system and 6xx bus processor runtime diagnostics detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4507 2687 | Memory system and 6xx bus processor runtime diagnostics detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4507 271A | Memory system and 6xx bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4507 271D | Memory system and 6xx bus processor runtime diagnostics detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4507 283A | Memory system and 6xx bus processor runtime diagnostics detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4507 285D | Memory system and 6xx bus processor runtime diagnostics detected fan controller card fault | Fan controller card Location: U0.1-X2 Location: U1.1-X2 |
| 4507 288D | Memory system and 6xx bus processor runtime diagnostics detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4507 2A00 | Memory system and 6xx bus processor runtime diagnostics detected 6W 4M 500 processor fault | Processor card Location: U1.1-P1-C1 |
| 4507 300A | Memory system and 6xx bus processor runtime diagnostics detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4507 300B | Memory system and 6xx bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4507 300C | Memory system and 6xx bus processor runtime diagnostics detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4507 300D | Memory system and 6xx bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4507 300E | Memory system and 6xx bus processor runtime diagnostics detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4507 301F | Memory system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4507 303A | Memory system and 6xx bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4507 51AA | Memory system and 6xx bus processor runtime diagnostics detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4507 51AB | Memory system and 6xx bus processor runtime diagnostics detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4507 51AC | Memory system and 6xx bus processor runtime diagnostics detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4507 51AD | Memory system and 6xx bus processor runtime diagnostics detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4508 244C | Memory system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 244D | Memory system and other bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 244E | Memory system and other bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 244F | Memory system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 248B | Memory system and other bus processor runtime diagnostics detected primary I/O drawer operator panel fault | Operator panel Location: U0.1-L1 |
| 4508 24A1 | Memory system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 24A2 | Memory system and other bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 24A3 | Memory system and other bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 24A4 | Memory system and other bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4508 25BB | Memory system and other bus processor runtime diagnostics detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4508 25BD | Memory system and other bus processor runtime diagnostics detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4508 25BE | Memory system and other bus processor runtime diagnostics detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4508 25BF | Memory system and other bus processor runtime diagnostics detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4508 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4508 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4508 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4508 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4508 263D | Memory system and other bus processor runtime diagnostics detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4508 2687 | Memory system and other bus processor runtime diagnostics detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4508 271A | Memory system and other bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4508 271D | Memory system and other bus processor runtime diagnostics detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4508 283A | Memory system and other bus processor runtime diagnostics detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4508 285D | Memory system and other bus processor runtime diagnostics detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4508 288D | Memory system and other bus processor runtime diagnostics detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4508 300A | Memory system and other bus processor runtime diagnostics detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4508 300B | Memory system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4508 300C | Memory system and other bus processor runtime diagnostics detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4508 300D | Memory system and other bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4508 300E | Memory system and other bus processor runtime diagnostics detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4508 301F | Memory system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4508 303A | Memory system and other bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4508 51AA | Memory system and other bus processor runtime diagnostics detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4508 51AB | Memory system and other bus processor runtime diagnostics detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4508 51AC | Memory system and other bus processor runtime diagnostics detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4508 51AD | Memory system and other bus processor runtime diagnostics detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4509 244C | Memory system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 244D | Memory system and memory test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 244E | Memory system and memory test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 244F | Memory system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 248B | Memory system and memory test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4509 24A1 | Memory system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 24A2 | Memory system and memory test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 24A3 | Memory system and memory test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 24A4 | Memory system and memory test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 25BB | Memory system and memory test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4509 25BD | Memory system and memory test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4509 25BE | Memory system and memory test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4509 25BF | Memory system and memory test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4509 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4509 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4509 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4509 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4509 263D | Memory system and memory test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4509 2687 | Memory system and memory test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4509 271A | Memory system and memory test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4509 271D | Memory system and memory test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4509 283A | Memory system and memory test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4509 285D | Memory system and memory test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4509 288D | Memory system and memory test detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4509 2A00 | Memory system and memory test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4509 300A | Memory system and memory test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4509 300B | Memory system and memory test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4509 300C | Memory system and memory test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4509 300D | Memory system and memory test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4509 300E | Memory system and memory test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4509 301F | Memory system and memory test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4509 303A | Memory system and memory test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4509 51AA | Memory system and memory test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4509 51AB | Memory system and memory test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4509 51AC | Memory system and memory test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4509 51AD | Memory system and memory test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 450A 244C | Memory system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 244D | Memory system and self test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 244E | Memory system and self test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 244F | Memory system and self test detected 1W MHz processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 248B | Memory system and self test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 450A 24A1 | Memory system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450A 24A2 | Memory system and self test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 24A3 | Memory system and self test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 24A4 | Memory system and self test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 25BB | Memory system and self test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 450A 25BD | Memory system and self test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 450A 25BE | Memory system and self test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 450A 25BF | Memory system and self test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 450A 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450A 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450A 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450A 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450A 263D | Memory system and self test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450A 2687 | Memory system and self test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 450A 271A | Memory system and self test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 450A 271D | Memory system and self test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 450A 283A | Memory system and self test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 450A 285D | Memory system and self test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 450A 288D | Memory system and self test detected memory riser fault | <ol style="list-style-type: none"> Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450A 2A00 | Memory system and self test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450A 300A | Memory system and self test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450A 300B | Memory system and self test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450A 300C | Memory system and self test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450A 300D | Memory system and self test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450A 300E | Memory system and self test detected 512MB (unstacked) DIMM fault | All memory DIMMs Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450A 301F | Memory system and self test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 450A 303A | Memory system and self test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450A 51AA | Memory system and self test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 450A 51AB | Memory system and self test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 450A 51AC | Memory system and self test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 450A 51AD | Memory system and self test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 450B 244C | Memory system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 244D | Memory system and wire test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 244E | Memory system and wire test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 244F | Memory system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 248B | Memory system and wire test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 450B 24A1 | Memory system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 24A2 | Memory system and wire test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 24A3 | Memory system and wire test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 24A4 | Memory system and wire test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450B 25BB | Memory system and wire test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 450B 25BD | Memory system and wire test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450B 25BE | Memory system and wire test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 450B 25BF | Memory system and wire test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 450B 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450B 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450B 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450B 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450B 263D | Memory system and wire test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450B 2687 | Memory system and wire test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 450B 271A | Memory system and wire test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 450B 271D | Memory system and wire test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 450B 283A | Memory system and wire test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 450B 285D | Memory system and wire test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 450B 288D | Memory system and wire test detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450B 2A00 | Memory system and wire test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 450B 300A | Memory system and wire test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 300B | Memory system and wire test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 300C | Memory system and wire test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 300D | Memory system and wire test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 300E | Memory system and wire test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 301F | Memory system and wire test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 303A | Memory system and wire test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450B 51AA | Memory system and wire test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 450B 51AB | Memory system and wire test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 450B 51AC | Memory system and wire test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450B 51AD | Memory system and wire test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 450C 244C | Memory system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 244D | Memory system and IPL detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 244E | Memory system and IPL detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 244F | Memory system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 248B | Memory system and IPL detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 450C 24A1 | Memory system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 24A2 | Memory system and IPL detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 24A3 | Memory system and IPL detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 24A4 | Memory system and IPL detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 25BB | Memory system and IPL detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 450C 25BD | Memory system and IPL detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 450C 25BE | Memory system and IPL detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 450C 25BF | Memory system and IPL detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 450C 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450C 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450C 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450C 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450C 263D | Memory system and IPL detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 450C 2687 | Memory system and IPL detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 450C 271A | Memory system and IPL detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 450C 271D | Memory system and IPL detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 450C 283A | Memory system and IPL detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 450C 285D | Memory system and IPL detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 450C 288D | Memory system and IPL detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450C 2A00 | Memory system and IPL detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450C 300A | Memory system and IPL detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450C 300B | Memory system and IPL detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450C 300C | Memory system and IPL detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 450C 300D | Memory system and IPL detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450C 300E | Memory system and IPL detected 512MB (unstacked) DIMM fault | All memory DIMMs Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450C 301F | Memory system and IPL detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450C 303A | Memory system and IPL detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450C 51AA | Memory system and IPL detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 450C 51AB | Memory system and IPL detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 450C 51AC | Memory system and IPL detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 450C 51AD | Memory system and IPL detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 450D 244C | Memory system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 244D | Memory system and attention handler detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 244E | Memory system and attention handler detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 244F | Memory system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450D 248B | Memory system and attention handler detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 450D 24A1 | Memory system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 24A2 | Memory system and attention handler detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 24A3 | Memory system and attention handler detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 24A4 | Memory system and attention handler detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 25BB | Memory system and attention handler detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 450D 25BD | Memory system and attention handler detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 450D 25BE | Memory system and attention handler detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 450D 25BF | Memory system and attention handler detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 450D 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450D 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450D 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450D 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450D 263D | Memory system and attention handler detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450D 2687 | Memory system and attention handler detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 450D 271A | Memory system and attention handler detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 450D 271D | Memory system and attention handler detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 450D 283A | Memory system and attention handler detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 450D 285D | Memory system and attention handler detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 450D 288D | Memory system and attention handler detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450D 2A00 | Memory system and attention handler detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450D 300A | Memory system and attention handler detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450D 300B | Memory system and attention handler detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450D 300C | Memory system and attention handler detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450D 300D | Memory system and attention handler detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450D 300E | Memory system and attention handler detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450D 301F | Memory system and attention handler detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450D 303A | Memory system and attention handler detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450D 51AA | Memory system and attention handler detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 450D 51AB | Memory system and attention handler detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 450D 51AC | Memory system and attention handler detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 450D 51AD | Memory system and attention handler detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 450E 244C | Memory system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 244D | Memory system and scan control routines detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 244E | Memory system and scan control routines detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 244F | Memory system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 248B | Memory system and scan control routines detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 450E 24A1 | Memory system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 24A2 | Memory system and scan control routines detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 24A3 | Memory system and scan control routines detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 24A4 | Memory system and scan control routines detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 25BB | Memory system and scan control routines detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450E 25BD | Memory system and scan control routines detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 450E 25BE | Memory system and scan control routines detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 450E 25BF | Memory system and scan control routines detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 450E 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450E 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450E 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450E 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450E 263D | Memory system and scan control routines detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450E 2687 | Memory system and scan control routines detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 450E 271A | Memory system and scan control routines detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 450E 271D | Memory system and scan control routines detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 450E 283A | Memory system and scan control routines detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 450E 285D | Memory system and scan control routines detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 450E 288D | Memory system and scan control routines detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450E 2A00 | Memory system and scan control routines detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450E 300A | Memory system and scan control routines detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450E 300B | Memory system and scan control routines detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450E 300C | Memory system and scan control routines detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450E 300D | Memory system and scan control routines detected 512MB (Stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450E 300E | Memory System and scan control routines detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450E 301F | Memory System and scan control routines detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450E 303A | Memory System and scan control routines detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450E 51AA | Memory system and scan control routines detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 450E 51AB | Memory system and scan control routines detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 450E 51AC | Memory system and scan control routines detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 450E 51AD | Memory system and scan control routines detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 450F 244C | Memory system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 244D | Memory system and error code generation/logging detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 244E | Memory system and error code generation/logging detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 244F | Memory system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 248B | Memory system and error code generation/logging detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 450F 24A1 | Memory system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 24A2 | Memory system and error code generation/logging detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 24A3 | Memory system and error code generation/logging detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450F 24A4 | Memory system and error code generation/logging detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 25BB | Memory system and error code generation/logging detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 450F 25BD | Memory system and error code generation/logging detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 450F 25BE | Memory system and error code generation/logging detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 450F 25BF | Memory system and error code generation/logging detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 450F 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450F 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450F 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450F 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 450F 263D | Memory system and error code generation/logging detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450F 2687 | Memory system and error code generation/logging detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 450F 271A | Memory system and error code generation/logging detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 450F 271D | Memory system and error code generation/logging detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 450F 283A | Memory system and error code generation/logging detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 450F 285D | Memory system and error code generation/logging detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 450F 288D | Memory system and error code generation/logging detected memory riser fault | <ol style="list-style-type: none"> Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 450F 2A00 | Memory system and error code generation/logging detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 450F 300A | Memory system and error code generation/logging detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450F 300B | Memory system and error code generation/logging detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450F 300C | Memory system and error code generation/logging detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450F 300D | Memory system and error code generation/logging detected 512MB (Stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450F 300E | Memory System and error code generation/logging detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450F 301F | Memory System and error code generation/logging detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 450F 303A | Memory System and error code generation/logging detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 450F 51AA | Memory system and error code generation/logging detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 450F 51AB | Memory system and error code generation/logging detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 450F 51AC | Memory system and error code generation/logging detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 450F 51AD | Memory system and error code generation/logging detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4606 244C | I/O system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 244D | I/O system and scan interface basic assurance tests detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 244E | I/O system and scan interface basic assurance tests detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 244F | I/O system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 248B | I/O system and scan interface basic assurance tests detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4606 24A1 | I/O system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 24A2 | I/O system and scan interface basic assurance tests detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 24A3 | I/O system and scan interface basic assurance tests detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4606 24A4 | I/O system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 25BB | I/O system and scan interface basic assurance tests detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4606 25BD | I/O system and scan interface basic assurance tests detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4606 25BE | I/O system and scan interface basic assurance tests detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4606 25BF | I/O system and scan interface basic assurance tests detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4606 263D | I/O system and scan interface basic assurance tests detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4606 2687 | I/O system and scan interface basic assurance tests detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4606 271A | I/O system and scan interface basic assurance tests detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4606 271D | I/O system and scan interface basic assurance tests detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4606 283A | I/O system and scan interface basic assurance tests detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4606 285D | I/O system and scan interface basic assurance tests detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4606 288D | I/O system and scan interface basic assurance tests detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4606 2A00 | I/O system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4606 300A | I/O system and scan interface basic assurance tests detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4606 300B | I/O system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4606 300C | I/O system and scan interface basic assurance tests detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4606 300D | I/O system and scan interface basic assurance tests detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4606 300E | I/O system and scan interface basic assurance tests detected 512 MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4606 301F | I/O system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4606 303A | I/O system and scan interface basic assurance tests detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4606 51AA | I/O system and scan interface basic assurance tests detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4606 51AB | I/O system and scan interface basic assurance tests detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4606 51AC | I/O system and scan interface basic assurance tests detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4606 51AD | I/O system and scan interface basic assurance tests detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4607 244C | I/O system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 244D | I/O system and 6xx bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 244E | I/O system and 6xx bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 244F | I/O system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 248B | I/O system and 6xx bus processor runtime diagnostics detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4607 24A1 | I/O system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 24A2 | I/O system and 6xx bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 24A3 | I/O system and 6xx bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4607 24A4 | I/O system and 6xx bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 25BB | I/O system and 6xx bus processor runtime diagnostics detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4607 25BD | I/O system and 6xx bus processor runtime diagnostics detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4607 25BE | I/O system and 6xx bus processor runtime diagnostics detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4607 25BF | I/O system and 6xx bus processor runtime diagnostics detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4607 263D | I/O system and 6xx bus processor runtime diagnostics detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4607 2687 | I/O system and 6xx bus processor runtime diagnostics detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4607 271A | I/O system and 6xx bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4607 271D | I/O system and 6xx bus processor runtime diagnostics detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4607 283A | I/O system and 6xx bus processor runtime diagnostics detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4607 285D | I/O system and 6xx bus processor runtime diagnostics detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4607 288D | I/O system and 6xx bus processor runtime diagnostics detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4607 2A00 | I/O system and 6xx bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4607 300A | I/O system and 6xx bus processor runtime diagnostics detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4607 300B | I/O system and 6xx bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4607 300C | I/O system and 6xx bus processor runtime diagnostics detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4607 300D | I/O system and 6xx bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4607 300E | I/O system and 6xx bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.m U1.1-P1-M2.m U1.1-P1-C1-Mn |
| 4607 301F | I/O system and 6xx bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4607 303A | I/O system and 6xx bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4607 51AA | I/O system and 6xx bus processor runtime diagnostics detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4607 51AB | I/O system and 6xx bus processor runtime diagnostics detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4607 51AC | I/O system and 6xx bus processor runtime diagnostics detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4607 51AD | I/O system and 6xx bus processor runtime diagnostics I/O system and 6xx bus processor runtime diagnostics detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4608 244C | I/O system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 244D | I/O system and other bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 244E | I/O system and other bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 244F | I/O system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 248B | I/O system and other bus processor runtime diagnostics detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4608 24A1 | I/O system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 24A2 | I/O system and other bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 24A3 | I/O system and other bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4608 24A4 | I/O system and other bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 25BB | I/O system and other bus processor runtime diagnostics detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4608 25BD | I/O system and other bus processor runtime diagnostics detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4608 25BE | I/O system and other bus processor runtime diagnostics detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4608 25BF | I/O system and other bus processor runtime diagnostics detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4608 263D | I/O system and other bus processor runtime diagnostics detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4608 2687 | I/O system and other bus processor runtime diagnostics detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4608 271A | I/O system and other bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4608 271D | I/O system and other bus processor runtime diagnostics detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4608 283A | I/O system and other bus processor runtime diagnostics detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4608 285D | I/O system and other bus processor runtime diagnostics detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4608 288D | I/O system and other bus processor runtime diagnostics detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4608 2A00 | I/O system and other bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4608 300A | I/O system and other bus processor runtime diagnostics detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4608 300B | I/O system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4608 300C | I/O system and other bus processor runtime diagnostics detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4608 300D | I/O system and other bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4608 300E | I/O system and other bus processor runtime diagnostics detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4608 301F | I/O system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4608 303A | I/O system and other bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4608 51AA | I/O system and other bus processor runtime diagnostics detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4608 51AB | I/O system and other bus processor runtime diagnostics detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4608 51AC | I/O system and other bus processor runtime diagnostics detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4608 51AD | I/O system and other bus processor runtime diagnostics detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4609 244C | I/O system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 244D | I/O system and memory test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 244E | I/O system and memory test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 244F | I/O system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 248B | I/O system and memory test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4609 24A1 | I/O system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 24A2 | I/O system and memory test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 24A3 | I/O system and memory test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 24A4 | I/O system and memory test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 25BB | I/O system and memory test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4609 25BD | I/O system and memory test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4609 25BE | I/O system and memory test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4609 25BF | I/O system and memory test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4609 263D | I/O system and memory test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4609 2687 | I/O system and memory test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4609 271A | I/O system and memory test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4609 271D | I/O system and memory test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4609 283A | I/O system and memory test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4609 285D | I/O system and memory test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4609 288D | I/O system and memory test detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4609 2A00 | I/O system and memory test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4609 300A | I/O system and memory test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4609 300B | I/O system and memory test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4609 300C | I/O system and memory test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4609 300D | I/O system and memory test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4609 300E | I/O system and memory test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4609 301F | I/O system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4609 303A | I/O system and other bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4609 51AA | I/O system and memory test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4609 51AB | I/O system and memory test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4609 51AC | I/O system and memory test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4609 51AD | I/O system and memory test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 460A 244C | I/O system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 244D | I/O system and self test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 460A 244E | I/O system and self test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 244F | I/O system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 248B | I/O system and self test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 460A 24A1 | I/O system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 24A2 | I/O system and self test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 24A3 | I/O system and self test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 24A4 | I/O system and self test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 25BB | I/O system and self test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 460A 25BD | I/O system and self test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 460A 25BE | I/O system and self test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 460A 25BF | I/O system and self test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 460A 263D | I/O system and self test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460A 2687 | I/O system and self test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 460A 271A | I/O system and self test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 460A 271D | I/O system and self test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 460A 283A | I/O system and self test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 460A 285D | I/O system and self test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 460A 288D | I/O system and self test detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460A 2A00 | I/O system and self test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460A 300A | I/O system and self test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460A 300B | I/O system and self test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460A 300C | I/O system and self test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460A 300D | I/O system and self test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460A 300E | I/O system and self test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460A 301F | I/O system and self test detected 512MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 460A 303A | I/O system and self test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460A 51AA | I/O system and self test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 460A 51AB | I/O system and self test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 460A 51AC | I/O system and self test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 460A 51AD | I/O system and self test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 460B 244C | I/O system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 244D | I/O system and wire test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 244E | I/O system and wire test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 244F | I/O system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 248B | I/O system and wire test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 460B 24A1 | I/O system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 24A2 | I/O system and wire test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 24A3 | I/O system and wire test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 24A4 | I/O system and wire test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 25BB | I/O system and wire test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 460B 25BD | I/O system and wire test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 460B 25BE | I/O system and wire test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 460B 25BF | I/O system and wire test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 460B 263D | I/O system and wire test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460B 2687 | I/O system and wire test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 460B 271A | I/O system and wire test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 460B 271D | I/O system and wire test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 460B 283A | I/O system and wire test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 460B 285D | I/O system and wire test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 460B 288D | I/O system and wire test detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460B 2A00 | I/O system and wire test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460B 300A | I/O system and wire test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460B 300B | I/O system and wire test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 460B 300C | I/O system and wire test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460B 300D | I/O system and wire test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460B 300E | I/O system and wire test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460B 301F | I/O system and wire test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460B 303A | I/O system and wire test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460B 51AA | I/O system and wire test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 460B 51AB | I/O system and wire test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 460B 51AC | I/O system and wire test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 460B 51AD | I/O system and wire test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 460C 244C | I/O system and IPL detected 1W 2M processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 244D | I/O system and IPL detected 2W 4M processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 460C 244E | I/O system and IPL detected 4W 4M processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 244F | I/O system and IPL detected 1W 2M processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 248B | I/O system and IPL detected primary I/O drawer operator panel fault | Operator panel Location: U0.1-L1 |
| 460C 24A1 | I/O system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 24A2 | I/O system and IPL detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 24A3 | I/O system and IPL detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 24A4 | I/O system and IPL detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 25BB | I/O system and IPL detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 460C 25BD | I/O system and IPL detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 460C 25BE | I/O system and IPL detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 460C 25BF | I/O system and IPL test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 460C 263D | I/O system and IPL detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460C 2687 | I/O system and IPL detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 460C 271A | I/O system and IPL detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 460C 271D | I/O system and IPL detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 460C 283A | I/O system and IPL test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 460C 285D | I/O system and IPL test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 460C 288D | I/O system and IPL detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460C 2A00 | I/O system and IPL detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460C 300A | I/O system and IPL detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460C 300B | I/O system and IPL detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460C 300C | I/O system and IPL detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460C 300D | I/O system and IPL detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460C 300E | I/O system and IPL detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460C 301F | I/O system and IPL detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 460C 303A | I/O system and IPL detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460C 51AA | I/O system and IPL detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 460C 51AB | I/O system and IPL detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 460C 51AC | I/O system and IPL detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 460C 51AD | I/O system and IPL detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 460D 244C | I/O system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 244D | I/O system and attention handler detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 244E | I/O system and attention handler detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 244F | I/O system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 248B | I/O system and attention handler detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 460D 24A1 | I/O system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 24A2 | I/O system and attention handler detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 24A3 | I/O system and attention handler detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 24A4 | I/O system and attention handler detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 25BB | I/O system and attention handler detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 460D 25BD | I/O system and attention handler detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| 460D 25BE | I/O system and attention handler detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 460D 25BF | I/O system and attention handler detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 460D 263D | I/O system and attention handler detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460D 2687 | I/O system and attention handler detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 460D 271A | I/O system and attention handler detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 460D 271D | I/O system and attention handler detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 460D 283A | I/O system and attention handler detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 460D 285D | I/O system and attention handler detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 460D 288D | I/O system and attention handler detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460D 2A00 | I/O system and attention handler detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460D 300A | I/O system and attention handler detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460D 300B | I/O system and attention handler detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 460D 300C | I/O system and attention handler detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460D 300D | I/O system and attention handler detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460D 300E | I/O system and attention handler detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460D 301F | I/O system and attention handler detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460D 303A | I/O system and attention handler detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460D 51AA | I/O system and attention handler detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 460D 51AB | I/O system and attention handler detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 460D 51AC | I/O system and attention handler detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 460D 51AD | I/O system and attention handler detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 460E 244C | I/O system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 244D | I/O system and scan control routines detected 2W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 460E 244E | I/O system and scan control routines detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 244F | I/O system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 248B | I/O system and scan control routines detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 460E 24A1 | I/O system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 24A2 | I/O system and scan control routines detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 24A3 | I/O system and scan control routines detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 24A4 | I/O system and scan control routines detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 25BB | I/O system and scan control routines detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 460E 25BD | I/O system and scan control routines detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 460E 25BE | I/O system and scan control routines detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 460E 25BF | I/O system and scan control routines detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 460E 263D | I/O system and scan control routines detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460E 2687 | I/O system and scan control routines detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 460E 271A | I/O system and scan control routines detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 460E 271D | I/O system and scan control routines detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 460E 283A | I/O system and scan control routines detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 460E 285D | I/O system and scan control routines detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 460E 288D | I/O system and scan control routines detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460E 2A00 | I/O system and scan control routines detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460E 300A | I/O system and scan control routines detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460E 300B | I/O system and scan control routines detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460E 300C | I/O system and scan control routines detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460E 300D | I/O system and scan control routines detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460E 300E | I/O system and scan control routines detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460E 301F | I/O system and scan control routines detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 460E 303A | I/O system and scan control routines detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460E 51AA | I/O system and scan control routines detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 460E 51AB | I/O system and scan control routines detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 460E 51AC | I/O system and scan control routines detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 460E 51AD | I/O system and scan control routines detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 460F 244C | I/O system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 244D | I/O system and error code generation/logging detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 244E | I/O system and error code generation/logging detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 244F | I/O system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 248B | I/O system and error code generation/logging detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 460F 24A1 | I/O system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 24A2 | I/O system and error code generation/logging detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 24A3 | I/O system and error code generation/logging detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 460F 24A4 | I/O system and error code generation/logging detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 25BB | I/O system and error code generation/logging detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 460F 25BD | I/O system and error code generation/logging detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 460F 25BE | I/O system and error code generation/logging detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 460F 25BF | I/O system and error code generation/logging detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 460F 263D | I/O system and error code generation/logging detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460F 2687 | I/O system and error code generation/logging detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 460F 271A | I/O system and error code generation/logging detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 460F 271D | I/O system and error code generation/logging detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 460F 283A | I/O system and error code generation/logging detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 460F 285D | I/O system and error code generation/logging detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 460F 288D | I/O system and error code generation/logging detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 460F 2A00 | I/O system and error code generation/logging detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 460F 300A | I/O system and error code generation/logging detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460F 300B | I/O system and error code generation/logging detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460F 300C | I/O system and error code generation/logging detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460F 300D | I/O system and error code generation/logging detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460F 300E | I/O system and error code generation/logging detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460F 301F | I/O system and error code generation/logging detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 460F 303A | I/O system and error code generation/logging detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 460F 51AA | I/O system and error code generation/logging detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 460F 51AB | I/O system and error code generation/logging detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 460F 51AC | I/O system and error code generation/logging detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 460F 51AD | I/O system and error code generation/logging detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B26 244C | Processor system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 244D | Processor system and scan interface basic assurance tests detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 244E | Processor system and scan interface basic assurance tests detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 244F | Processor system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 248B | Processor system and scan interface basic assurance tests detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B26 24A1 | Processor system and scan interface basic assurance tests detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 24A2 | Processor system and scan interface basic assurance tests detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 24A3 | Processor system and scan interface basic assurance tests detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4B26 24A4 | Processor system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 25BB | Processor system and scan interface basic assurance tests detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B26 25BD | Processor system and scan interface basic assurance tests detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B26 25BE | Processor system and scan interface basic assurance tests detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B26 25BF | Processor system and scan interface basic assurance tests detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B26 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B26 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B26 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B26 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B26 263D | Processor system and scan interface basic assurance tests detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B26 2687 | Processor system and scan interface basic assurance tests detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B26 271A | Processor system and scan interface basic assurance tests detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B26 271D | Processor system and scan interface basic assurance tests detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B26 283A | Processor system and scan interface basic assurance tests detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B26 285D | Processor system and scan interface basic assurance tests detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| 4B26 288D | Processor system and scan interface basic assurance tests detected memory riser fault | <ol style="list-style-type: none"> Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B26 2A00 | Processor system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B26 300A | Processor system and scan interface basic assurance tests detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B26 300B | Processor system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B26 300C | Processor system and scan interface basic assurance tests detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B26 300D | Processor system and scan interface basic assurance tests detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B26 300E | Processor system and scan interface basic assurance tests detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B26 301F | Processor system and scan interface basic assurance tests detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B26 303A | Processor system and scan interface basic assurance tests detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B26 51AA | Processor system and scan interface basic assurance tests detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B26 51AB | Processor system and scan interface basic assurance tests detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B26 51AC | Processor system and scan interface basic assurance tests detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 U0.2-V1 U0.2-V2 |
| 4B26 51AD | Processor system and scan interface basic assurance tests detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 U0.2-V1 U0.2-V2 |
| 4B27 244C | Processor system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 244D | Processor system and 6xx bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 244E | Processor system and 6xx bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 244F | Processor system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 248B | Processor system and 6xx bus processor runtime diagnostics detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B27 24A1 | Processor system and 6xx bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B27 24A2 | Processor system and 6xx bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 24A3 | Processor system and 6xx bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 24A4 | Processor system and scan interface basic assurance tests detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 25BB | Processor system and 6xx bus processor runtime diagnostics detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B27 25BD | Processor system and 6xx bus processor runtime diagnostics detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B27 25BE | Processor system and 6xx bus processor runtime diagnostics detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B27 25BF | Processor system and 6xx bus processor runtime diagnostics detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B27 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B27 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B27 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B27 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B27 263D | Processor system and 6xx bus processor runtime diagnostics detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B27 2687 | Processor system and 6xx bus processor runtime diagnostics detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B27 271A | Processor system and 6xx bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B27 271D | Processor system and 6xx bus processor runtime diagnostics detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4B27 283A | Processor system and 6xx bus processor runtime diagnostics detected CEC backplane fault | <ol style="list-style-type: none"> Processor card Location: U1.1-P1-C1 CEC backplane Location: U1.1-P1 |
| 4B27 285D | Processor system and 6xx bus processor runtime diagnostics detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4B27 288D | Processor system and 6xx bus processor runtime diagnostics detected memory riser fault | <ol style="list-style-type: none"> Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B27 2A00 | Processor system and 6xx bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B27 300A | Processor system and 6xx bus processor runtime diagnostics detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B27 300B | Processor system and 6xx bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B27 300C | Processor system and 6xx bus processor runtime diagnostics detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B27 300D | Processor system and 6xx bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B27 300E | Processor system and 6xx bus processor runtime diagnostics detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B27 301F | Processor system and 6xx bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B27 303A | Processor system and 6xx bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B27 51AA | Processor system and 6xx bus processor runtime diagnostics detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B27 51AB | Processor system and 6xx bus processor runtime diagnostics detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B27 51AC | Processor system and 6xx bus processor runtime diagnostics detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B27 51AD | Processor system and 6xx bus processor runtime diagnostics detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B28 244C | Processor system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 244D | Processor system and other bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 244E | Processor system and other bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 244F | Processor system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 248B | Processor system and other bus processor runtime diagnostics detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B28 24A1 | Processor system and other bus processor runtime diagnostics detected 1W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B28 24A2 | Processor system and other bus processor runtime diagnostics detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 24A3 | Processor system and other bus processor runtime diagnostics detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 24A4 | Processor system and other bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 25BB | Processor system and other bus processor runtime diagnostics detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B28 25BD | Processor system and other bus processor runtime diagnostics detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B28 25BE | Processor system and other bus processor runtime diagnostics detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B28 25BF | Processor system and other bus processor runtime diagnostics detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B28 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B28 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B28 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B28 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B28 263D | Processor system and other bus processor runtime diagnostics detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B28 2687 | Processor system and other bus processor runtime diagnostics detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B28 271A | Processor system and other bus processor runtime diagnostics detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B28 271D | Processor system and other bus processor runtime diagnostics detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 4B28 283A | Processor system and other bus processor runtime diagnostics detected CEC backplane fault | <ol style="list-style-type: none"> 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B28 285D | Processor system and other bus processor runtime diagnostics detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4B28 288D | Processor system and other bus processor runtime diagnostics detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B28 2A00 | Processor system and other bus processor runtime diagnostics detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B28 300A | Processor system and other bus processor runtime diagnostics detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B28 300B | Processor system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B28 300C | Processor system and other bus processor runtime diagnostics detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B28 300D | Processor system and other bus processor runtime diagnostics detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B28 300E | Processor system and other bus processor runtime diagnostics detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4B28 301F | Processor system and other bus processor runtime diagnostics detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B28 303A | Processor system and other bus processor runtime diagnostics detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B28 51AA | Processor system and other bus processor runtime diagnostics detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B28 51AB | Processor system and other bus processor runtime diagnostics detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B28 51AC | Processor system and other bus processor runtime diagnostics detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B28 51AD | Processor system and other bus processor runtime diagnostics detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B29 244C | Processor system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 244D | Processor system and memory test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 244E | Processor system and memory test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 244F | Processor system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 248B | Processor system and memory test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B29 24A1 | Processor system and memory test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 24A2 | Processor system and memory test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 24A3 | Processor system and memory test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 24A4 | Processor system and memory test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B29 25BB | Processor system and memory test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B29 25BD | Processor system and memory test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B29 25BE | Processor system and memory test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B29 25BF | Processor system and memory test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B29 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B29 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B29 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B29 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B29 263D | Processor system and memory test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B29 2687 | Processor system and memory test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B29 271A | Processor system and memory test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B29 271D | Processor system and memory test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B29 283A | Processor system and memory test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B29 285D | Processor system and memory test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4B29 288D | Processor system and memory test detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B29 2A00 | Processor system and memory test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B29 300A | Processor system and memory test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B29 300B | Processor system and memory test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B29 300C | Processor system and memory test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B29 300D | Processor system and memory test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B29 300E | Processor system and memory test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B29 301F | Processor system and memory test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B29 303A | Processor system and memory test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B29 51AA | Processor system and memory test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B29 51AB | Processor system and memory test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B29 51AC | Processor system and memory test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B29 51AD | Processor system and memory test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2A 244C | Processor system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 244D | Processor system and self test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 244E | Processor system and self test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 244F | Processor system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 248B | Processor system and self test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B2A 24A1 | Processor system and self test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 24A2 | Processor system and self test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 24A3 | Processor system and self test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 24A4 | Processor system and self test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 25BB | Processor system and self test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2A 25BD | Processor system and self test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B2A 25BE | Processor system and self test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B2A 25BF | Processor system and self test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B2A 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2A 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2A 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2A 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2A 263D | Processor system and self test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2A 2687 | Processor system and self test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B2A 271A | Processor system and self test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B2A 271D | Processor system and self test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B2A 283A | Processor system and self test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B2A 285D | Processor system and self test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4B2A 288D | Processor system and self test detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Go to "Memory Configuration/Deconfiguration Menu" 376 to verify memory DIMMs state. 3. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2A 2A00 | Processor system and self test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2A 300A | Processor system and self test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2A 300B | Processor system and self test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2A 300C | Processor system and self test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2A 300D | Processor system and self test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2A 300E | Processor system and self test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2A 301F | Processor system and self test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2A 303A | Processor system and self test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2A 51AA | Processor system and self test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2A 51AB | Processor system and self test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2A 51AC | Processor system and self test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2A 51AD | Processor system and self test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2B 244C | Processor system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 244D | Processor system and wire test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 244E | Processor system and wire test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 244F | Processor system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 248B | Processor system and wire test detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B2B 24A1 | Processor system and wire test detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 24A2 | Processor system and wire test detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 24A3 | Processor system and wire test detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 24A4 | Processor system and wire test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2B 25BB | Processor system and wire test detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B2B 25BD | Processor system and wire test detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2B 25BE | Processor system and wire test detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B2B 25BF | Processor system and wire test detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B2B 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2B 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2B 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2B 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2B 263D | Processor system and wire test detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2B 2687 | Processor system and wire test detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B2B 271A | Processor system and wire test detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B2B 271D | Processor system and wire test detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B2B 283A | Processor system and wire test detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B2B 285D | Processor system and wire test detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4B2B 288D | Processor system and wire test detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2B 2A00 | Processor system and wire test detected 6W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4B2B 300A | Processor system and wire test detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 300B | Processor system and wire test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 300C | Processor system and wire test detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 300D | Processor system and wire test detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 300E | Processor system and wire test detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 301F | Processor system and wire test detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 303A | Processor system and wire test detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2B 51AA | Processor system and wire test detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2B 51AB | Processor system and wire test detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2B 51AC | Processor system and wire test detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2B 51AD | Processor system and wire test detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2C 244C | Processor system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 244D | Processor system and IPL detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 244E | Processor system and IPL detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 244F | Processor system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 248B | Processor system and IPL detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B2C 24A1 | Processor system and IPL detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 24A2 | Processor system and IPL detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 24A3 | Processor system and IPL detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 24A4 | Processor system and IPL detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 25BB | Processor system and IPL detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B2C 25BD | Processor system and IPL detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B2C 25BE | Processor system and IPL detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B2C 25BF | Processor system and IPL detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B2C 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2C 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2C 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2C 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2C 263D | Processor system and IPL detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|--|
| 4B2C 2687 | Processor system and IPL detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B2C 271A | Processor system and IPL detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B2C 271D | Processor system and IPL detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B2C 283A | Processor system and IPL detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B2C 285D | Processor system and IPL detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4B2C 288D | Processor system and IPL detected memory riser fault | 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2C 2A00 | Processor system and IPL detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2C 300A | Processor system and IPL detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2C 300B | Processor system and IPL detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2C 300C | Processor system and IPL detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2C 300D | Processor system and IPL detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2C 300E | Processor system and IPL detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2C 301F | Processor system and IPL detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2C 303A | Processor system and IPL detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2C 51AA | Processor system and IPL detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2C 51AB | Processor system and IPL detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2C 51AC | Processor system and IPL detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2C 51AD | Processor system and IPL detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2D 244C | Processor system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 244D | Processor system and attention handler detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 244E | Processor system and attention handler detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 244F | Processor system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2D 248B | Processor system and attention handler detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B2D 24A1 | Processor system and attention handler detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 24A2 | Processor system and attention handler detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 24A3 | Processor system and attention handler detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 24A4 | Processor system and attention handler detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 25BB | Processor system and attention handler detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B2D 25BD | Processor system and attention handler detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B2D 25BE | Processor system and attention handler detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B2D 25BF | Processor system and attention handler detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B2D 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2D 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2D 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2D 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2D 263D | Processor system and attention handler detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2D 2687 | Processor system and attention handler detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B2D 271A | Processor system and attention handler detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B2D 271D | Processor system and attention handler detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| 4B2D 283A | Processor system and attention handler detected CEC backplane fault | <ol style="list-style-type: none"> 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B2D 285D | Processor system and attention handler detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |
| 4B2D 288D | Processor system and attention handler detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2D 2A00 | Processor system and attention handler detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2D 300A | Processor system and attention handler detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2D 300B | Processor system and attention handler detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2D 300C | Processor system and attention handler detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2D 300D | Processor system and attention handler detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2D 300E | Processor system and attention handler detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2D 301F | Processor system and attention handler detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2D 303A | Processor system and attention handler detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2D 51AA | Processor system and attention handler detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2D 51AB | Processor system and attention handler detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2D 51AC | Processor system and attention handler detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2D 51AD | Processor system and attention handler detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2E 244C | Processor system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 244D | Processor system and scan control routines detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 244E | Processor system and scan control routines detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 244F | Processor system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 248B | Processor system and scan control routines detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B2E 24A1 | Processor system and scan control routines detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 24A2 | Processor system and scan control routines detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 24A3 | Processor system and scan control routines detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 24A4 | Processor system and scan control routines detected 6W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2E 25BB | Processor system and scan control routines detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B2E 25BD | Processor system and scan control routines detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B2E 25BE | Processor system and scan control routines detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B2E 25BF | Processor system and scan control routines detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B2E 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2E 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2E 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2E 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2E 263D | Processor system and scan control routines detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2E 2687 | Processor system and scan control routines detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B2E 271A | Processor system and scan control routines detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B2E 271D | Processor system and scan control routines detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B2E 283A | Processor system and scan control routines detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B2E 285D | Processor system and scan control routines detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4B2E 288D | Processor system and scan control routines detected memory riser fault | <ol style="list-style-type: none"> 1. Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. 2. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2E 2A00 | Processor system and scan control routines detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2E 300A | Processor system and scan control routines detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2E 300B | Processor system and scan control routines detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2E 300C | Processor system and scan control routines detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2E 300D | Processor system and scan control routines detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2E 300E | Processor system and scan control routines detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2E 301F | Processor system and scan control routines detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2E 303A | Processor system and scan control routines detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2E 51AA | Processor system and scan control routines detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2E 51AB | Processor system and scan control routines detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2E 51AC | Processor system and scan control routines detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2E 51AD | Processor system and scan control routines detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2F 244C | Processor system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 244D | Processor system and error code generation/logging detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 244E | Processor system and error code generation/logging detected 4W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 244F | Processor system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 248B | Processor system and error code generation/logging detected primary I/O drawer operator panel | Operator panel Location: U0.1-L1 |
| 4B2F 24A1 | Processor system and error code generation/logging detected 1W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 24A2 | Processor system and error code generation/logging detected 2W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 24A3 | Processor system and error code generation/logging detected 4W processor fault | Processor card Location: U1.1-P1-C1 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|---|--|
| 4B2F 24A4 | Processor system and error code generation/logging detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 25BB | Processor system and error code generation/logging detected 1W processor card fault | 1W Processor card Location: U1.1-P1-C1 |
| 4B2F 25BD | Processor system and error code generation/logging detected 2W processor card fault | 2W Processor card Location: U1.1-P1-C1 |
| 4B2F 25BE | Processor system and error code generation/logging detected 4W processor card fault | 4W Processor card Location: U1.1-P1-C1 |
| 4B2F 25BF | Processor system and error code generation/logging detected 6W processor card fault | 6W Processor card Location: U1.1-P1-C1 |
| 4B2F 25CB | 1W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2F 25EA | 4W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2F 25EB | 2W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2F 25F2 | 6W processor card fault | Replace the processor card Location: U1.1-P1-C1 |
| 4B2F 263D | Processor system and error code generation/logging detected dummy riser card fault | Dummy riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2F 2687 | Processor system and error code generation/logging detected RIO adapter fault | RIO adapter Location: U0.1-P1.1 |
| 4B2F 271A | Processor system and error code generation/logging detected primary I/O backplane fault | Primary I/O backplane Location: U0.1-P1 |
| 4B2F 271D | Processor system and error code generation/logging detected secondary I/O backplane fault | Secondary I/O backplane Location: U0.2-P1 |
| 4B2F 283A | Processor system and error code generation/logging detected CEC backplane fault | 1. Processor card Location: U1.1-P1-C1 2. CEC backplane Location: U1.1-P1 |
| 4B2F 285D | Processor system and error code generation/logging detected fan controller card fault | Fan controller card Locations: U0.1-X2 U1.1-X2 |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| 4B2F 288D | Processor system and error code generation/logging detected memory riser fault | <ol style="list-style-type: none"> Go to service processor memory configuration/deconfiguration menu to verify memory DIMMs state. See "Memory Configuration/Deconfiguration Menu" on page 376 for more information. Memory riser card Locations: U1.1-P1-M1 U1.1-P1-M2 |
| 4B2F 2A00 | Processor system and error code generation/logging detected 6W processor fault | Processor card Location: U1.1-P1-C1 |
| 4B2F 300A | Processor system and error code generation/logging detected 32MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2F 300B | Processor system and error code generation/logging detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2F 300C | Processor system and error code generation/logging detected 256MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2F 300D | Processor system and error code generation/logging detected 512MB (stacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2F 300E | Processor system and error code generation/logging detected 512MB (unstacked) DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2F 301F | Processor system and error code generation/logging detected 128MB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |

Table 6. Service Processor Error Codes. (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| 4B2F 303A | Processor system and error code generation/logging detected 1GB DIMM fault | Memory DIMM Locations: U1.1-P1-M1.n U1.1-P1-M2.n U1.1-P1-C1-Mn |
| 4B2F 51AA | Processor system and error code generation/logging detected 645W AC power supply fault | 645W AC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2F 51AB | Processor system and error code generation/logging detected 645W DC power supply fault | 645W DC power supply Locations: U1.1-V1 U1.1-V2 |
| 4B2F 51AC | Processor system and error code generation/logging detected 595W AC power supply fault | 595W AC power supply Locations: U0.1-V1 U0.1-V2 |
| 4B2F 51AD | Processor system and error code generation/logging detected 595W DC power supply fault | 595W DC power supply Locations: U0.1-V1 U0.1-V2 |

System Firmware Update Messages

Table 7. System Firmware Update Messages

| Error Code | Description | Action/ Possible Failing FRU |
|------------|----------------------------------|---------------------------------|
| A1FD 0000 | Recovery mode entered | Information message |
| A1FD 0001 | Service processor flash recovery | Insert Diskette #1 |
| A1FD 0002 | Service processor flash recovery | Insert Diskette #2 |
| A1FD 0003 | Service processor flash recovery | Insert Diskette #3 |
| A1FD 0004 | Service processor flash recovery | Insert Diskette #4 |

Common Firmware Error Codes

Attention: Follow the procedure defined in “Checkpoint and Error Code Index” on page 159. If you replace FRUs or perform an action and the problem is still not corrected, go to “MAP 1540: Minimum Configuration” on page 106 unless otherwise indicated in the tables.

If you replace FRUs and the problem is corrected, go to "MAP 410: Repair Checkout" in the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*.

Table 8. Common Firmware Error Codes

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| B006 1403 | Missing service processor resource | 1. Update system firmware 2. Primary I/O backplane Location: U0.1-P1 |
| B006 1404 | Service processor firmware fault | 1. Update system firmware 2. Primary I/O backplane Location: U0.1-P1 |
| B006 1405 | Service processor firmware fault | 1. Update system firmware 2. Primary I/O backplane Location: U0.1-P1 |
| B006 1406 | Service processor program error | 1. Update system firmware 2. Check for AIX updates 3. Primary I/O backplane Location: U0.1-P1 |
| B006 1407 | Service processor resource allocation problem | 1. Update system firmware 2. Check for AIX updates 3. Primary I/O backplane Location: U0.1-P1 |
| B006 1408 | Service processor program error | 1. Update system firmware 2. Check for AIX updates 3. Primary I/O backplane Location: U0.1-P1 |
| B006 1409 | Service processor program error | 1. Update system firmware 2. Primary I/O backplane Location: U0.1-P1 |
| B10F 1000 | Service processor DRAM failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1002 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1005 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1007 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1008 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 100E | Service processor boot flash corrupted | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 100F | Service processor base flash corrupted | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1300 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--|---|
| B10F 1370 | Service processor flash update failure | 1. Retry flash update 2. Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1380 | Service processor program failure | 1. Update system firmware 2. Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1381 | Service processor flash error | 1. Update system firmware 2. Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1384 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1387 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1400 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1401 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1670 | Service processor flash update failure | 1. Retry flash update 2. Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1672 | Service processor firmware update invalid | Call service support |
| B10F 1675 | Service processor failure | Primary I/O drawer backplane Location: U0.1-P1 |
| B10F 1681 | Service processor firmware update invalid | Call service support |
| B10F 1682 | Service processor firmware update invalid | Call service support |
| B10F 1683 | Service processor firmware update invalid | Call service support |
| B1xx 0013 | A firmware update has failed because the update image is invalid. The update was aborted before any changes were made to the currently installed firmware. | Install a valid firmware image for the specific type and model. |
| B1xx 4600 | Service processor failure | Primary I/O backplane Location: U0.1-P1 |
| B1xx 4601 | System processor failure | Go to "MAP 1540: Minimum Configuration" on page 106. |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|-------------------|--------------------------------------|---|
| B1xx 4602 | RIO failure | <ol style="list-style-type: none"> 1. Check RIO cables and RIO adapters seating 2. RIO adapter Location: U0.1-P1.1 3. Processor card Location: U1.1-P1-C1 4. CEC drawer backplane Location: U1.1-P1 |
| B1xx 4603 | Service processor firmware corrupted | <ol style="list-style-type: none"> 1. Reload system firmware 2. Primary I/O backplane Location: U0.1-P1 |
| B1xx 4606 | Firmware failure | <ol style="list-style-type: none"> 1. Check for system firmware updates 2. Operator panel Location: U0.1-L1 3. Primary I/O backplane Location: U0.1-P1 |
| B1xx 4608 | Service processor early termination | <ol style="list-style-type: none"> 1. Reset the system by disconnecting and reconnecting system power 2. Reload system firmware 3. Primary I/O backplane Location: U0.1-P1 |
| B1xx 460A | TOD clock has been reset | <ol style="list-style-type: none"> 1. Set TOD clock 2. Primary I/O backplane Location: U0.1-P1 |
| B1xx 460B | TOD battery failure | TOD battery Location: U0.1-P1-V3 |
| B1xx 4611 | Service processor failure | <ol style="list-style-type: none"> 1. Processor card Location: U1.1-P1-C1 2. Primary I/O backplane Location: U0.1-P1 |
| B1xx 4620 | Modem configuration failure | <ol style="list-style-type: none"> 1. Check modem configuration files 2. Check for system firmware update 3. Modem 4. Primary I/O backplane Location: U0.1-P1 |
| B1xx 4621 | Modem disconnect failure | <ol style="list-style-type: none"> 1. Check modem configuration files 2. Check for system firmware update 3. Modem 4. Primary I/O backplane Location: U0.1-P1 |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| B1xx 4622 | Service processor failure | <ol style="list-style-type: none"> Operator panel Location: U0.1-L1 Check for system firmware update Primary I/O backplane Location: U0.1-P1 |
| B1xx 4633 | System power control network failure | <ol style="list-style-type: none"> Check for system firmware update Primary I/O backplane Location: U0.1-P1 |
| B1xx 4634 | SPCN loop fault | <ol style="list-style-type: none"> Check SPCN cabling Go to "MAP 1540: Minimum Configuration" on page 106. |
| B1xx 4644 | Processor VPD fault | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| B1xx 4645 | Non-processor VPD fault | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| B1xx 4646 | General VPD fault | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| B1xx 4647 | The machine type and model reported by the CEC hardware do not match the machine type and model stored in the VPD module on the operator panel. | Replace the operator panel, location: U0.1-L1. Do not swap the VPD module from the old operator panel onto the new operator panel; leave the new, unprogrammed VPD module on the new operator panel. Call service support for instructions on reprogramming the machine type, model, and system serial number in the VPD module. |
| B1xx 4648 | CEC backplane VPD failure | Ignore all location codes. Go to MAP 1540 and run CEC minimum configuration. |
| B1xx 4649 | Power supply VPD failure | CEC power supply Location: U1.1-V1 |
| B1xx 4650 | A system processor failure has been detected by the service processor. All system processors have been reset in an attempt to recover operations. | <p>Information only. If the problem persists, check the error logs for other fault indications.</p> <p>If no other fault indications are found, go to "MAP 1540: Minimum Configuration" on page 106.</p> |
| B1xx 4651 | CPU VPD fault | Processor card Location: U1.1-P1-C1 |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|----------------------------|---|
| B1xx 4660 | Memory subsystem failure | Go to "MAP 1540: Minimum Configuration" on page 106. |
| B1xx 4661 | Memory card VPD failure | Go to "MAP 1540: Minimum Configuration" on page 106. |
| B1xx 4662 | Memory DIMM VPD failure | Go to "MAP 1540: Minimum Configuration" on page 106. |
| B1xx 4670 | Processor drawer cooling | <ol style="list-style-type: none"> 1. Check ambient temperature 2. Check air supply to fans 3. Check fans for proper installation and operation 4. Check for any unsupported cards (that may be too hot) 5. CEC backplane Location: U1.1-P1 |
| B1xx 4671 | Primary I/O drawer cooling | <ol style="list-style-type: none"> 1. Check ambient temperature 2. Check air supply to fans 3. Check fans for proper installation and operation 4. Check for any unsupported cards (that may be too hot) 5. Operator panel Location: U0.1-L1 6. I/O backplane Location: U1.1-P1 |
| B1xx 4672 | I/O cooling, drawer #2 | <ol style="list-style-type: none"> 1. Check ambient temperature 2. Check air supply to fans 3. Check fans for proper installation and operation 4. Check for any unsupported cards (that may be too hot) 5. Operator panel Location: U0.2-L1 6. I/O backplane Location: U1.2-P1 |
| B1xx 4681 | JTAG scan interface | <ol style="list-style-type: none"> 1. JTAG cabling 2. Primary I/O backplane Location: U0.1-P1 3. Processor card Location: U1.1-P1-C1 4. CEC backplane Location: U1.1-P1 |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| B1xx 4690 | Operating system surveillance time out (AIX to service processor interface failure) | <ol style="list-style-type: none"> <li data-bbox="936 274 1302 591">1. This error code indicates that the operating system terminated early (which usually implies an operating system crash). This error code may appear in the service processor error log by itself. However, in the AIX error log, there should be another error which points to the cause of the operating system crash. Use the other error as the starting point for your service action. <li data-bbox="936 604 1302 1269">2. The other possibility is that the operating system was not found during a prior boot attempt. To determine if this occurred, do the following: Look at the AIX error log entry containing B1xx4690. This will be a "SCAN_ERROR_CHRP" error with an identifier of BFEC0425. In the detail data, find the string "B1xx4690" (If present, it will be at byte 60 of the detail data.) Then go forward 8 bytes after the "B1" to byte 68 and look at bytes 68 and 69. If the values of bytes 68 and 69 are A2B0, this indicates that the firmware was unable to find a bootable device in the boot list that is set in the SMS menus. If the system is up, the boot list problem has been corrected and the B1xx 4690 can be treated as an informational message with no actions required. <li data-bbox="936 1281 1168 1305">3. Call service support |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| B1xx 4691 | System firmware surveillance time out (System firmware to service processor interface failure) | <ol style="list-style-type: none"> 1. Check for system firmware update Location: U0.1-P1/Y1 2. Go to the service processor main menu and select System Information Menu, then select Read Progress Indicators From Last System Boot. Begin your repair action with the error code or checkpoint immediately preceding B1xx 4691. If a location code displays with the error code or checkpoint, replace the part at that location. If no location code is specified, and you have an 8-character error code, go to the "Checkpoint and Error Code Index" on page 159. If no location code is specified, and you have a 4-character checkpoint, go to "Firmware Checkpoints" on page 141 3. If the problem is not resolved, call service support. |
| B1xx 4692 | Operator panel task interface failure | <ol style="list-style-type: none"> 1. Check for system firmware update Location: U0.1-P1/Y1 2. Call service support. |
| B1xx 4693 | Service processor firmware error | <ol style="list-style-type: none"> 1. Check for system firmware updates. 2. The type and model field in the VPD module may be set incorrectly. The type and model field can be viewed using the service processor function "Read VPD Image from Last System Boot", which is option 1 in the "System Information Menu" on page 374. If the type and model field is not set correctly, call service support. 3. Call service support. |
| B1xx 4694 | System processor firmware failure | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Primary I/O backplane Location: U0.1-P1 |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|---|
| B1xx 4695 | System power control network to service processor interface failure | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Primary I/O backplane Location: U0.1-P1 |
| B1xx 4696 | System firmware interface failure | <ol style="list-style-type: none"> 1. Check for system firmware update. 2. Call service support. |
| B1xx 4698 | Firmware problem | <ol style="list-style-type: none"> 1. Check for system firmware update. 2. Call service support. |
| B1xx 4699 | Service processor firmware | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Call service support. |
| B1xx 469A | System firmware interface | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Call service support. |
| B1xx 469B | Firmware to I/O interface | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Primary I/O backplane Location: U0.1-P1 |
| B1xx 469C | Firmware to I/O interface | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Primary I/O backplane Location: U0.1-P1 |
| B1xx 469E | Service processor firmware failure | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Go to "MAP 1540: Minimum Configuration" on page 106, CEC minimum config 3. Primary I/O backplane Location: U0.1-P1 |
| B1xx 469F | Service processor failure | <ol style="list-style-type: none"> 1. Check for system firmware update 2. Go to "MAP 1540: Minimum Configuration" on page 106, CEC minimum config 3. Primary I/O backplane Location: U0.1-P1 |
| B1xx 8FF0 | Informational message | No action required |
| B1FD 0013 | A firmware update has failed because the update image is invalid. The update was aborted before any changes were made to the currently installed firmware. | Reset the service processor (by activating the pinhole reset switch or by disconnecting, then reconnecting power). Install a valid firmware update image for the specific system type and model. |

Table 8. Common Firmware Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|---|
| B1FD 0015 | Too many firmware update diskettes inserted (or wrong or faulty update image) | <ol style="list-style-type: none"> 1. Assure the firmware update image is correct for the specific system type and model 2. Replace the update diskettes with a new set of firmware update diskettes. |
| B1FD 0016 | Diskette read error | <ol style="list-style-type: none"> 1. The firmware diskette may be faulty. Try another diskette. 2. Replace the diskette drive. 3. Replace the primary I/O backplane. Location: U0.1-P1 |
| B1FD 001A | Service processor recovery mode update fault | Reset service processor (by activating pinhole reset switch or by disconnecting, then reconnecting power) |
| B1FD 001E | Service processor recovery mode update fault | Wrong firmware update diskette (Insert correct diskette) |
| B1FD 001F | Bad firmware update diskette | Replace diskette |

Scan Log Dump Progress Codes

Table 9. Scan Log Dump Progress Codes

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---------------------------|---|
| D130 xxxx | Scan log dump in progress | Informational message only. As the dump progresses, the xxxx characters in the display will change. When the scan log dump is complete, the system may reboot, depending on the reboot policy settings. |

Problem Determination Generated Error Codes

Table 10. Problem Determination Generated Error Codes

| Error Code | Description | Action/ Possible Failing FRU |
|------------|---|--|
| M0BT 0000 | The system hung during speaker POST. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1540: Minimum Configuration" on page 106. |
| M0BT 0001 | The system hung during "Starting Software...". This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1540: Minimum Configuration" on page 106. |
| M0KB D000 | The system hung during keyboard POST. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Keyboard |
| M0KB D001 | The system did not respond to a keyboard entry. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Type 101 keyboard. |
| M0KB D002 | The system did not respond to a keyboard entry. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Type 102 keyboard. |
| M0KB D003 | The system did not respond to a keyboard entry. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Kanji-type keyboard. |

Table 10. Problem Determination Generated Error Codes (continued)

| Error Code | Description | Action/ Possible Failing FRU |
|------------|--|--|
| M0ME M002 | The system hung during memory POST. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1540: Minimum Configuration" on page 106. |
| M0NE T000 | The system hung during network POST. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1540: Minimum Configuration" on page 106. |
| M0PS 0000 | Power failure. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1520: Power" on page 85. |
| M0SC SI00 | Unable to load diagnostics. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1540: Minimum Configuration" on page 106. |
| M0SC SI01 | Unable to load diagnostics. This error code is generated by the customer performing "Problem Determination" in the <i>RS/6000 Enterprise Server Model H80 @server pSeries 660 Models 6H0 and 6H1 User's Guide</i> . | Go to "MAP 1540: Minimum Configuration" on page 106. |

Chapter 6. Loading the System Diagnostics In Service Mode

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).

For more information about using standalone or online diagnostics, see “Using the Standalone and Online Diagnostics” in *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*, order number SA38-0509.

Attention: If this system unit is attached to another system, be sure you isolate this system unit before stopping the operating system or running diagnostic programs. Some system-cabling changes (such as installing wrap plugs or removing a device from the configuration) may require action by the operator of the attached system before making the cabling changes on this system.

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** command.

3. Wait until the Power LED stops flashing and remains off, then press the power button to turn on the system.
4. Immediately insert the diagnostic CD-ROM into the CD-ROM drive.
5. When or after the **keyboard** indicator appears during startup, press the numeric 5 key on the keyboard.
6. Enter any requested passwords.

Online diagnostics can be loaded by booting from a hard file in the custom boot list by pressing the numeric 6 key on the keyboard.

To boot from the devices listed in the service mode 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** 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 numeric 6 key on the keyboard.

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 action 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:

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

Pressing the numeric 5 key on the keyboard causes the system to load **standalone diagnostics** if a diagnostic CD is present in the CD-ROM drive.

Pressing the numeric 6 key on the keyboard loads **online diagnostics** from the hard file in the customized service mode boot list. No diagnostic CD should be in the CD-ROM drive because **online diagnostics** are typically run from a hard disk. Like the default boot list, the service mode boot list can contain five entries. The numeric 6 key works like the numeric 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. Using the Service Processor

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 when 0K is displayed on the primary I/O drawer operator panel or when the service processor has detected a server problem (such as a surveillance failure).

For a summary of the service processor functions and the methods used to invoke them, see the following table.

| 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 System EPROMs | Y ² | 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.

If the server is powered off, the service processor menus can be accessed locally or remotely.

Accessing the Service Processor Menus Locally

Service processor menus can be accessed locally by connecting an ASCII terminal to serial port 1 (S1) or serial port 2 (S2). Access to the service processor menus is not available on serial port 3 (S3) or serial port 4 (S4). Because the presence of the ASCII terminal cannot be confirmed by the service processor, you must press a key (any key) on the ASCII keyboard to confirm its presence after 0K appears in the primary drawer operator panel display.

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 0> or 1>, indicates the serial port to which the terminal is connected.

- 0> indicates serial port 1 (S1)
- 1> indicates serial port 2 (S2)

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 384), the service processor menus can be accessed remotely as follows:

1. With the system powered off, call in from a remote terminal.
2. The service processor detects ring-indicate and prompts you for a password (if set).
When verified, the service processor menus display remotely.

Saving and Restoring Service Processor Settings

All the settings you make (except language) from the service processor menus can be backed up either for recovering from a fault that may corrupt these settings, or for replicating these settings to other servers that include a service processor.

The AIX service aid, Save or Restore Hardware Management Policies, can be used to save your settings after initial setup or whenever the settings must be changed for system operation purposes.

It is strongly recommended that you use this AIX service aid for backing up service processor settings to protect the usefulness of the service processor and the availability of the server. Refer to “Save or Restore Hardware Management Policies,” in the “Introducing Tasks and Service Aids” section of the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems*, SA38-0509.

Menu Inactivity

The service processor exits menu mode after ten minutes of inactivity, and displays a message indicating that it has done so. Pressing any key on the ASCII terminal causes the main menu to be displayed.

General User Menu

The menu options presented to the general user are a subset of the options available to the privileged user. The user must know the general-access password, if set, to access this menu.

```
GENERAL USER MENU

1. Power-on System
2. Power-off System
3. Read VPD Image from Last System Boot
4. Read Progress Indicators from Last System Boot
5. Read Service Processor Error Logs
6. Read System POST Errors
99. Exit from Menus

1>
```

- **Power-on System**
Allows the user to start the system using the current ASCII terminal as the active console.
- **Power-off System**
Allows the user to power off the system using the current ASCII terminal as the active console.
- **Read VPD Image from Last System Boot**
Displays manufacturer vital product data, such as serial numbers, part numbers, and so on, that were stored during the system boot prior to the one in progress now.
- **Read Progress Indicators from Last System Boot**
Displays a number of the boot progress indicators, which may include service processor checkpoints, IPL checkpoints, and/or AIX configuration codes, from the previous system boot. This information can be useful in diagnosing system faults. The progress indicator codes are listed from top (latest) to bottom (oldest). This information is not stored in non-volatile storage. If the system is powered off using the power-on button on the operator panel, this information is retained. If the ac power (dc power in a dc-powered system) is disconnected from the system, this information will be lost. For an example, refer to “LCD Progress Indicator Log” on page 402.
- **Read Service Processor Error Logs**

Displays the service processor error logs. For an example, refer to “Service Processor Error Log” on page 401.

- **Read System POST Errors**

This option should only be used by service personnel to display additional error log information.

- **Exit from Menus**

Selecting this option will exit the service processor menus. You can re-enter the menus by pressing any key on the console.

Privileged User Menus

The following menus are available to privileged users only. The user must know the privileged-access password, if set, to access these menus.

Main Menu

At the top of the Main Menu is a listing containing:

- Your system’s current firmware version
- The firmware copyright notice
- The system name given to your server during setup

You need the firmware version for reference when you either update or repair the functions of your service processor.

The system name, an optional field, is the name that your server reports in problem messages. This name helps your support team (for example, your system administrator, network administrator, or service representative) to more quickly identify the location, configuration, and history of your server. 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: CM000313
Copyright 2000 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 366 for more information.
- **System Power Control Menu**
See “System Power Control Menu” on page 370 for more information.
- **System Information Menu**
See “System Information Menu” on page 374 for more information.
- **Language Selection Menu**
See “Language Selection Menu” on page 382 for more information.
- **Call-In/Call-Out Setup Menu**
See “Call-In/Call-Out Setup Menu” on page 383 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
6. Reset Service Processor
7. Reprogram Flash EPROM Menu
8. Serial Port Snoop 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 service processor menus or from System Management Services (SMS) utilities (see Chapter 8, “Using System Management Services” on page 407). 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 displays |
| Set | None | Users with the password see the service processor MAIN MENU. Users without password cannot log in. |
| Set | Set | Users see menus associated with the entered password |

Note: If you *forget* the password, you must remove the battery for at least 30 seconds to disable the password.

- **Change Privileged-Access Password**

Set or change the privileged-access password. It provides the user with access to all service processor functions. This password is usually used by the system administrator or root user.

- **Change General-Access Password**

Set or change the general-access password. It provides limited access to service processor menus, and is usually available to all users who are allowed to power on the server, especially remotely.

Note: The general-access password can only be set or changed after the privileged-access password is set.

- **Enable/Disable Console Mirroring**

Console mirroring is supported on serial port 1 (S1) and serial port 2 (S2). When console mirroring is enabled, the service processor sends information to both serial ports. The serial port from which console mirroring is enabled is referred to as the *active port*. The *mirror port* is determined when keyboard input is detected from the other port. From this point on, the service processor only sends information to the active port and the mirror port. This capability can be enabled by local or remote users, providing local users the capability to monitor remote sessions. Console mirroring can be enabled for the current session only. For more information, see “Console Mirroring” on page 400.

- **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.

```
OS Surveillance Setup Menu

1. Surveillance:
   Currently Enabled

2. Surveillance Time Interval:
   5 minutes

3. Surveillance Delay:
   10 minutes

98. Return to Previous Menu

1>
```

- **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 397 for more information about surveillance.

- **Reset Service Processor**

If this option is selected, entering Y causes the service processor to reboot.

- **Reprogram Flash EPROM Menu**

This option updates the system EPROMs. After entering Y to indicate that you want to continue, you are prompted to enter the update diskettes. Follow the instructions on the screen. When the update is complete, the service processor reboots.

All system EPROMs that can be reprogrammed are updated at the same time. They are as follows:

- System power control network programming
- Service processor programming
- System firmware
- Run-time abstraction services

- **Serial Port Snoop Setup Menu**

This menu can be used to set up serial port snooping, in which the user can configure serial port 1 as a "catch-all" reset device.

From the service processor main menu, select option 1, Service Processor Setup Menu, then select option 8 (Serial Port Snoop Setup Menu).

```
SERIAL PORT SNOOP SETUP MENU

1. System reset string:
   Currently Unassigned

2. Snoop Serial Port:
   Currently Unassigned

98. Return to Previous Menu

1>
```

Use the system reset string option to enter the system reset string, which resets the machine when it is detected on the main console on serial port 1.

Use the snoop serial port option to select the serial port to snoop.

Note: Only serial port 1 is supported.

After serial port snooping is correctly configured, at any point after the system unit is booted to AIX, whenever the reset string is typed on the main console, the system unit reboots.

Pressing Enter after the reset string is not required, so make sure that the string is not common or trivial. A mixed-case string is recommended.

System Power Control Menu

This menu is 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. Ring-Indicate Power-On Menu

3. Reboot/Restart Policy Setup Menu

4. Power-On System

5. Power-Off System

6. Enable/Disable Fast System Boot
   Currently Enabled

7. 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 can also be set through the System Management Services (SMS) menus. It 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 390.

- **Ring-Indicate Power-On Menu**

```
RING-INDICATE POWER-ON MENU

1. Ring-indicate power-on :
   Currently Enabled

2. Number of rings:
   Currently 3

30. Refresh Modem Settings

98. Return to Previous Menu
```

Ring-indicate is enabled by default on both serial port 1 (S1) and serial port 2 (S2). When ring-indicate power-on is enabled, call-in is disabled.

If ring-indicate power-on is enabled and call-in is already enabled, you will be asked to confirm your choice. Refer to the message displayed on your screen.

If the ring-indicate power-on setting is changed, you must select option 30 (Refresh Modem Settings) to update the modem settings. If option 30 (Refresh Modem Setting) is selected, and the modem(s) have not been configured, you will be asked to configure the modems first. See “Call-In/Call-Out Setup Menu” on page 383 for information on configuring modems.

Option 2 is used to set the number of rings.

Note: In order for the ring-indicate power-on settings to take effect and ring-indicate power-on to be enabled, the service processor menus must be exited completely. Enter 99 at the Main Menu screen to completely exit the service processor menus.

- **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 re-initialized. 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 in 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, then it can be set to respond to a major fault by restarting or by not restarting. See your operating system documentation for details on setting up operating system automatic restarts. The default value is 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 391.

- **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 option can be valuable if the number of these events becomes excessive, signalling a bigger problem.

- **Power-On System**

Allows immediate power-on of the system. For other power-on methods, see “Powering On the System” on page 421.

- **Power-Off System**

Allows the user to power-off the system.

- **Enable/Disable Fast System Boot**

Allows the user to select the speed of the system boot.

Attention: Selecting the fast IPL results in several diagnostic tests being skipped and a shorter memory test being run.

- **Boot Mode Menu**

The Boot Mode Menu allows you to select a boot mode.

```
Boot Mode Menu

1. Boot to SMS Menu:
   Currently Disabled

2. Service Mode Boot from Saved List:
   Currently Disabled

3. Service Mode Boot from Default List:
   Currently Disabled

4. Boot to Open Firmware Prompt:
   Currently Disabled

98. Return to Previous Menu

1>
```

To select a 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:

- **Boot to SMS Menu**

When this selection is enabled, the system boots to the System Management Services (SMS) menu.

- **Service Mode Boot from Saved List**

This selection causes the system to perform a service mode boot using the service mode boot list saved in NVRAM. If the system boots AIX from the disk drive and AIX diagnostics are loaded on the disk drive, AIX boots in service mode to the diagnostics menu.

Using this option to boot the system is the preferred way to run online diagnostics.

- **Service Mode Boot from Default List**

This selection is similar to “Service Mode Boot from Saved List”, except the system boots using the default boot list that is stored in the system firmware. This is normally used to try to boot customer diagnostics from the CD-ROM drive.

Using this option to boot the system is the preferred way to run standalone diagnostics.

- **Boot to Open Firmware**

When this selection is enabled, the system boots to the open firmware prompt.

This option should only be used by service personnel to obtain additional debug information.

System Information Menu

This menu provides access to system configuration information, error logs, system resources, and processor configuration.

```
SYSTEM INFORMATION MENU

1. Read VPD Image from Last System Boot
2. Read Progress Indicators from Last System Boot
3. Read Service Processor Error Logs
4. Read System POST Errors
5. Read NVRAM
6. Read Service Processor Configuration
7. Processor Configuration/Deconfiguration Menu
8. Memory Configuration/Deconfiguration Menu
9. Power Control Network Utilities Menu
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, part numbers, and so on, that were stored during the system boot prior to the one in progress now.

- **Read Progress Indicators from Last System Boot**

Displays a number of the boot progress indicators, which may include service processor checkpoints, IPL checkpoints, and/or AIX configuration codes, from the previous system boot. This information can be useful in diagnosing system faults.

The progress indicator codes are listed from top (latest) to bottom (oldest).

This information is not stored in non-volatile storage. If the system is powered off using the power-on button on the operator panel, this information is retained. If the ac power (dc power in a dc-powered system) is disconnected from the system, this information will be lost. For an example, refer to "LCD Progress Indicator Log" on page 402.

- **Read Service Processor Error Logs**

Displays the service processor error log. Refer to "Service Processor Error Log" on page 401 for an example of this error log.

- **Read System POST Errors**

This option should only be used by service personnel to display additional error log information.

- **Read NVRAM**

Displays non-volatile random access memory (NVRAM) content.

- **Read Service Processor Configuration**

Displays current service processor configuration.

- **Processor Configuration/Deconfiguration Menu**

This 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

77. Enable/Disable CPU Repeat Gard: Currently Enabled

  1. 0 3.0 (00) Configured by system
  2. 2 3.1 (31) Deconfigured by system
  3. 4 3.2 (00) Configured by system
  4. 6 3.3 (00) Configured by system
  98. Return to Previous Menu

1>
```

Note: This table is built from vital product data collected during the last boot sequence. The first time the system is powered up, or after the system's non-volatile RAM (NVRAM) has been erased, this table may be empty. The table is rebuilt during the next boot into AIX.

The fields of the previous table represent the following:

- Column 1** (1.) Menu selection index.
- Column 2** (0) Logical processor device number assigned by AIX. You can display these logical device numbers by issuing the following command on the AIX command line:
`lsdev -C | grep proc`
- Column 3** (3.0) Processor address list used by the service processor and should be ignored.
- Column 4** (00) Error status of the processors.

The error status of each processor is indicated by AB, where B indicates the number of errors and A indicates the type of error according to the following table:

1. Bring-up failure
2. Run-time non-recoverable failure
3. Run-time recoverable failure

A status of 00 indicates that the CPU has not had any errors logged against it by the service processor.

To enable or disable CPU Repeat Gard, use menu option 77. CPU Repeat Gard is enabled by default.

If CPU Repeat Gard is disabled, processors that are in the deconfigured by system state will be reconfigured. These reconfigured processors are then tested during the boot process, and if they pass, they remain online. If they fail the boot testing, they are deconfigured, even though CPU Repeat Gard is disabled.

The failure history of each CPU is retained. If a processor with a history of failures is brought back online by disabling Repeat Gard, it remains online if it passes testing during the boot process. However, if Repeat Gard is enabled, the processor is taken offline again because of its history of failures.

Note: The processor numbering scheme used by the service processor is different from the numbering scheme used by AIX. Consult the AIX documentation before configuring or deconfiguring a processor to ensure that the correct processor is selected.

The AIX Documentation library is available at the following Web address: <http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. AIX documentation is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

- **Memory Configuration/Deconfiguration Menu**

These menus allow the user to change the system memory configuration. If it is necessary to take one of the memory DIMMs offline, this menu allows you to deconfigure a DIMM, and then reconfigure the DIMM at a later time.

When this option is selected, a menu displays, showing the memory riser cards in the system. Type the number of the memory riser card on which the DIMM is plugged that you want to configure or deconfigure. An example of this menu is shown below:

```
MEMORY CONFIGURATION/DECONFIGURATION MENU

77. Enable/Disable Memory Repeat Gard: Currently Enabled

    1. Memory riser card 1
    2. Memory riser card 2
    98. Return to Previous Menu
```

Note: If there is only one processor in the system, system memory may reside on that processor assembly. In that case, you are given the option to select the processor card from the list.

After you select a processor card or a memory riser card, a menu allowing the selection of a memory DIMM is displayed. The following is an example of this menu:

```
MEMORY CONFIGURATION/DECONFIGURATION MENU

77. Enable/Disable Memory Repeat Gard: Currently Enabled

  1. 11.17(00) Configured by system  2. 11.19(00) Configured by system
15. 11.16(00) Configured by system 16. 11.18(00) Configured by system

  3. 11.21(00) Configured by system  4. 11.23(00) Configured by system
13. 11.20(00) Configured by system 14. 11.24(00) Configured by system

98. Return to Previous Menu

Memory DIMMs are managed as a group.
Deconfiguring a DIMM will make the whole group unavailable.

0>
```

Note: This table is built from vital product data collected during the last boot sequence. The first time the system is powered up, or after the system's non-volatile RAM (NVRAM) has been erased, this table may be empty. The table is rebuilt during the next boot into AIX.

The system DIMMs are presented by group. If a memory riser card is present, quad A is shown first, followed by quads B, C, and D, if present. If memory is on a processor card, pair A is shown first, followed by pairs B, C, and D, if present. The menu selection index/DIMM number and the DIMM address correspond to the numbers shown in the diagrams "Memory Riser Card 1 Memory DIMM Locations for Service Processor Menus" on page 379, "Memory Riser Card 2 Memory DIMM Locations for Service Processor Menus" on page 379 and "Processor Card Memory DIMM Locations for Service Processor Menus" on page 380.

The fields in the previous table represent the following:

- Column 1** (1.) Menu selection index/DIMM number
- Column 2** (11.xx) Riser card 1
(10.xx) Riser card 2
(3.xx) Memory on processor card
- Column 3** (00) Error status

The error status of the each memory DIMM is indicated by AB, where B indicates the number of errors and A indicates the type of error according to the following table:

1. Bring-up failure
2. Run-time non-recoverable failure
3. Run-time recoverable failure

4. Group integrity failure

An error status of 00 indicates that the memory DIMM has not had any errors logged against it by the service processor.

To change the memory configuration, select the number of the memory DIMM. The memory DIMM state will change from configured to deconfigured or from deconfigured to configured. Memory DIMMs are managed as a group; deconfiguring a DIMM makes the whole group of four DIMMs unavailable.

In the example menu shown above, each line shows two DIMMs and indicates whether they are configured.

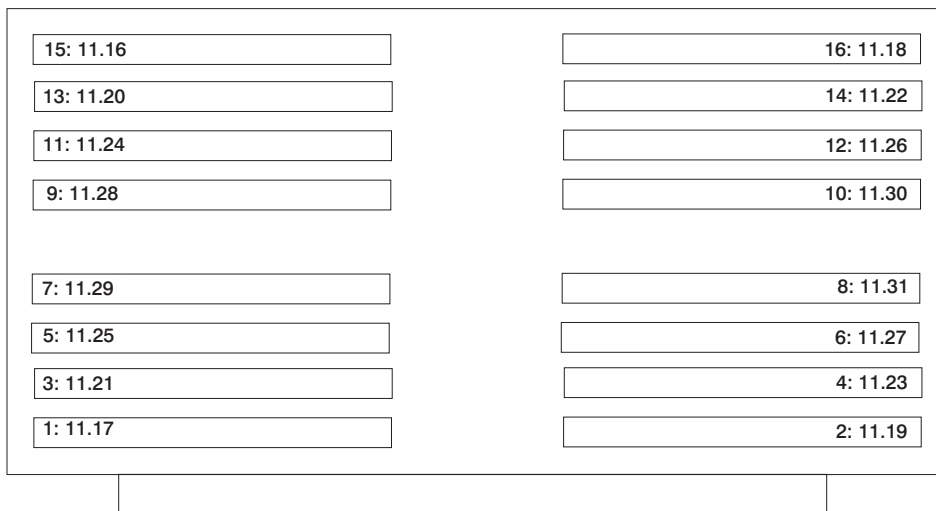
To enable or disable Memory Repeat Gard, use menu option 77 of the Processor Configuration/Deconfiguration Menu.

If Memory Repeat Gard is disabled, DIMMs that are in the deconfigured by system state will be reconfigured. These reconfigured DIMMs are then tested during the boot process, and if they pass, they remain online. If they fail the boot testing, they are deconfigured even though Memory Repeat Gard is disabled.

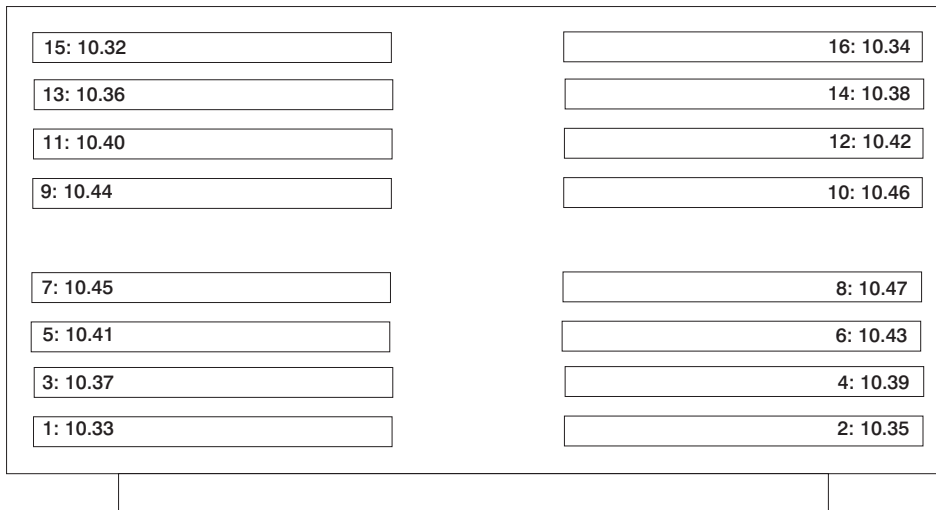
The failure history of each DIMM is retained. If a DIMM with a history of failures is brought back online by disabling Repeat Gard, it remains online if it passes testing during the boot process. However, if Repeat Gard is enabled, the DIMM is taken offline again because of its history of failures.

The physical location of a DIMM is determined by *xx.yy*, where *xx* is the riser card location (11 for riser card 1, 10 for riser card 2, and 3 for DIMMs on the processor card) followed by the DIMM location on the riser card, according to the following two illustrations.

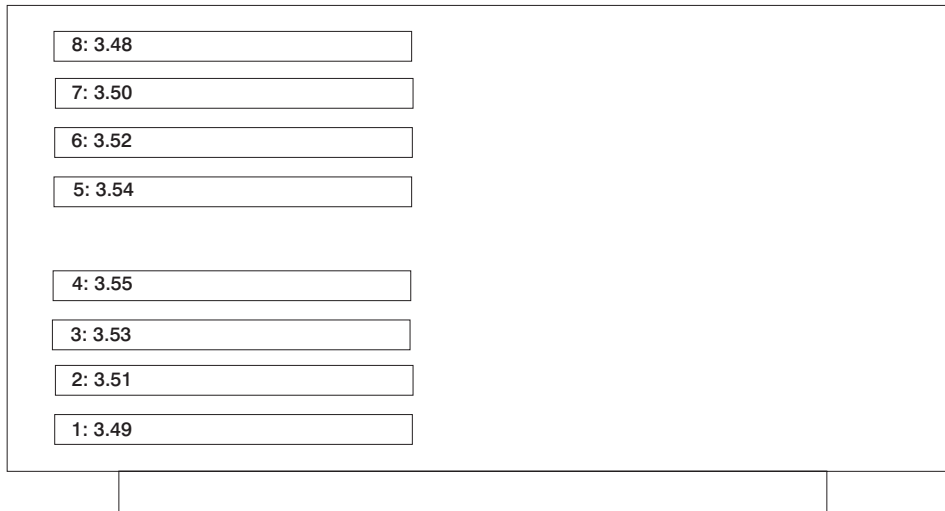
Memory Riser Card 1 Memory DIMM Locations for Service Processor Menus



Memory Riser Card 2 Memory DIMM Locations for Service Processor Menus



Processor Card Memory DIMM Locations for Service Processor Menus



- **Power Control Network Utilities Menu**

This menu allows the user to do a lamp test on the operator panels and display, or change the I/O type.

```
POWER CONTROL NETWORK UTILITIES MENU

1. Lamp Test for all Operator Panels
2. Display I/O Type
3. Change I/O Type
98. Return to Previous Menu

1>
```

- **Lamp Test for all Operator Panels**

Selecting this option tests the operator panel indicators as follows:

| Operator Panel Location | Lamp Test Results |
|-------------------------|--|
| Primary I/O drawer | Indicators blink on and off for approximately 30 seconds. |
| Secondary I/O drawers | Indicators come on and stay on for approximately 30 seconds. |

- **Display I/O Type**

This option displays the I/O type and other data, on the operator panels of the secondary I/O drawers (blinks in one-second intervals). The I/O type is always shown as two digits in the upper-right corner of the display. All secondary I/O types are 84. Nothing displays on the primary I/O drawer operator panel. After 20-30 seconds, the Power Control Network Utilities Menu redisplay on the console.

- **Change I/O Type**

Use this option to change the I/O type of the primary I/O drawer or secondary I/O drawer after a service action or configuration change if the I/O type is incorrect. If this option is chosen, you are asked to make two entries.

1. For the I/O drawer address (drawer number), type:
 - 1 for primary I/O drawer.
 - 2 for the secondary I/O drawer.
2. For the I/O type, type:
 - 85 for the primary I/O drawer.
 - 84 for the secondary I/O drawer.

If you enter an invalid value, a failure message displays on the console. The Power Control Network Utilities Menu then redisplay on the console.

Language Selection Menu

The service processor menus and messages are available in various languages. This menu allows a language to be selected 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 to correctly display languages other than English.

Call-In/Call-Out Setup Menu

This 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**, see “Modem Configuration Menu” on page 384.
- **Serial Port Selection Menu**, see “Serial Port Selection Menu” on page 385.
- **Serial Port Speed Setup Menu**, see “Serial Port Speed Setup Menu” on page 385.
- **Telephone Number Setup Menu**, see “Telephone Number Setup Menu” on page 386.
- **Call-Out Policy Setup Menu**, see “Call-Out Policy Setup Menu” on page 387.
- **Customer Account Setup Menu**, see “Customer Account Setup Menu” on page 388.
- **Call-Out Test Menu** tests the configuration after the modem is installed and configured. In order for this test to execute successfully, at least one of the following numbers must be assigned:
 - Service center telephone number
 - Customer administration center telephone number
 - Digital pager telephone number

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 of the serial ports with modems, make your selections one port at a time.

Note: Modem configuration is only supported on serial port 1 (S1) and serial port 2 (S2).

```
Modem Configuration Menu

Port 1 Modem Configuration File Name:
Port 2 Modem Configuration File Name:

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:
5. none                9. modem_z_sp
6. modem_f_sp         10. modem_m1_sp
7. modem_f0_sp        11. modem_m0_sp
8. modem_f1_sp        12. modem_m1_sp

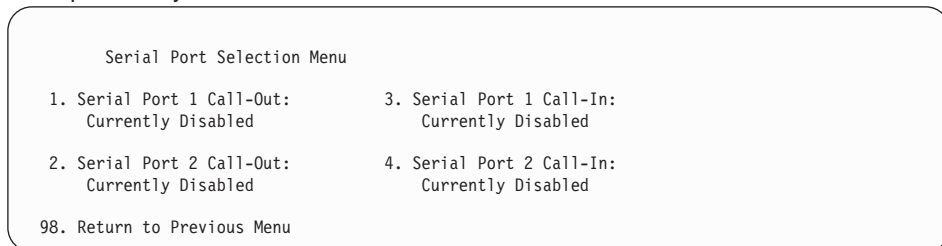
30. Save configuration to NVRAM and Configure modem
98. Return to Previous Menu

0>
```

For information on choosing a modem configuration file, see “Sample Modem Configuration Files” on page 493, and “Transfer of a Modem Session” on page 498.

Serial Port Selection Menu

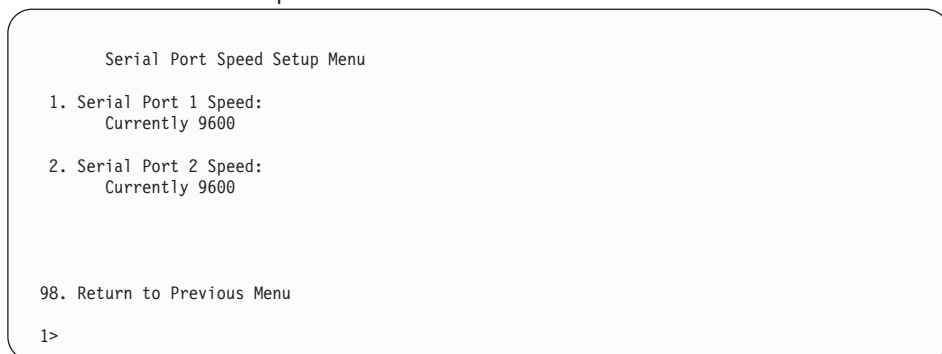
This menu allows you to enable or disable the call-in and call-out functions of each serial port in any combination.



Call-in and ring-indicate power-on cannot be enabled at the same time. If ring-indicate power-on is already enabled and you try to enable call-in, a message prompts you for confirmation. Refer to the message displayed on the screen.

Serial Port Speed Setup Menu

This menu allows you to set serial port speed to enhance terminal performance or to accommodate modem capabilities.



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

Use this menu to set or change the telephone numbers for reporting a system failure.

```
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 service center telephone number to enter. 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. For test purposes, use a test number, which you can change later. See the note on page 398 for information about using certain modems for paging.

Note: At least one of the preceding three telephone numbers must be assigned in order for the call-out test to execute successfully.
- **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, use a test number, which you can change later.
- **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** can 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 administrative 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 administrative center
3. Pager

- **Remote timeout** and **remote latency** are functions of your service provider's catcher computer. Either 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 fail 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. Otherwise, leave this field unassigned.
- **Customer RETAIN Login User ID** 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.

Service Processor Procedures in Service Mode

When the system is in service mode, the following service-processor parameters are suspended:

- Unattended start mode
- Reboot/restart policy
- Call-out
- Surveillance

When service mode is exited, the service processor parameters revert to the customer settings.

Service Processor Functions

This section discusses some of the service processor functions in greater detail. The service processor supports the functions listed in the following table.

| | | |
|-----------------------|-----------------------------------|--|
| 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
- Service processor menus

Privileged users can power on the system by selecting the **System Control Power Menu** option from the main menu and then selecting the **Power-on System** option from the system power control menu. General users should select **Power-on System** on the general user menu.

- Remote power-on via ring-indicate signal

The server automatically powers on when it detects a "ring-indicate" signal from a modem attached to serial port 1 (S1) or serial port 2 (S2).

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. The system powers on without answering the call.

- Unattended start mode - refer to **Enable/Disable Unattended Start Mode** on page 370.

The service processor can be enabled to recover from the loss of ac power (dc power in a dc-powered system) (see **Enable/Disable Unattended Power-On Mode** in the **System Control Power Menu**). When ac power (dc power in a dc-powered system) is restored, the system returns to the power state at the time ac loss (dc loss in a dc-powered system) occurred. For example, if the system was powered on when ac loss (dc loss in a dc-powered system) occurred, it reboots/restarts when power is restored. If the system was powered-off when ac loss (dc loss in a dc-powered system) occurred, it remains off when power is restored.

It is recommended that the CEC and I/O drawers both receive their ac power (dc power in a dc-powered system) 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 unit 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. Refer to the AIX **shutdown -t** command for details on setting the timer.

Note: If an ac power (dc power in a dc-powered system) loss is in progress when the timed power-on attempt occurs, the server is not able to power on when ac power (dc power in a dc-powered system) is restored.

- Follow-up to a failed boot attempt

The service processor initiates a power-on sequence if a failed boot attempt is detected (due to a hardware or software failure).

- Fast/slow boot (IPL) settings

Using the service processor menus, you can select the IPL type, mode, and speed of your system boot.

Attention: Selecting fast IPL results in several diagnostic tests being skipped and a shorter memory test being run.

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 re-initialized. Restart must follow a successful reboot.

Boot (IPL) Speed

When the server enters reboot recovery, slow IPL is automatically started, which gives the POST an opportunity to locate and report any problems that may otherwise be undetected.

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 re-initiate the boot process (reboot) if enabled to do so. The service processor can re-attempt this process according to the number of retries that has been set in the Reboot/Restart Policy Setup Menu.

Failure During Normal System Operation

When the boot process completes and control transfers to the operating system (OS), the service processor can monitor operating system activity (see the **Set Surveillance Parameters** option in the Service Processor Setup Menu). If OS activity stops due to a hardware- or software-induced failure, the service processor can initiate a reboot/restart process based on the settings in the Service Processor Reboot/Restart Policy Setup Menu and the OS automatic restart settings (see the operating system documentation).

If you are using the AIX operating system, the menu item under SMIT for setting the restart policy is Automatically Reboot After Crash (True/False). The default is false. When the setting is true, and if the service processor parameter "Use OS-Defined Restart Policy" is yes (the default), the service processor takes over for AIX to reboot/restart after a hardware or surveillance failure.

Service Processor Reboot/Restart Policy Controls

The operating system's automatic restart policy (see operating system documentation) indicates the operating system response to a system crash. The service processor can be instructed to refer to that policy by the Use OS-Defined Restart Policy setup menu.

If the operating system has no automatic restart policy, or if it is disabled, then the service processor restart policy can be controlled from the service processor menus. Use the Enable Supplemental Restart Policy selection.

Use OS-Defined restart policy - The default setting is yes. This causes the service processor to refer to the OS automatic restart policy setting and take action (the same action the operating system would take if it could have responded to the problem causing the restart).

When this setting is no, or if the operating system did not set a policy, the service processor refers to enable supplemental restart policy for its action.

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.

The following table describes the relationship 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 | 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

System Firmware Updates

This section provides information and instructions for updating the system firmware. You may need to perform these steps if you are installing an option or if your support representative has instructed you to update your firmware.

Always check the pSeries & RS/6000 Support Web site for the latest firmware images and update instructions. The Web address is: <http://www.rs6000.ibm.com/support/micro>

Downloading the firmware update image and update instructions from the Web is preferred.

If the system is running, but access to the Web is not available, see “System Firmware Update Using a Locally Available Image” on page 394.

If the system cannot be powered on, but the service processor menus are available, see “Updating System Firmware From the Service Processor Menus” on page 395.

If the service processor programming has been corrupted, the service processor will automatically enter recovery mode when power is applied to the system. Recovery mode is described later in this section.

To check the level of firmware that is currently on the system, see “Determining the Level of Firmware on the System” on page 394.

General Information on System Firmware Updates

All the types of system firmware that can be reprogrammed are updated at the same time. They are:

- System power control network programming
- Service processor programming
- IPL programming
- Run-time abstraction services

It is strongly recommended that you create a set of firmware update diskettes from the Web site as soon as possible after a system is installed. As noted below, the diskette images can be downloaded to any personal computer, pSeries, or RS/6000 system with Internet access. This method is the only way to acquire a set of firmware update diskettes; they cannot be created by using the service processor menus or by using AIX.

Retain and store the latest firmware diskettes each time the firmware gets updated in the event that the firmware becomes corrupted and must be reloaded.

Download the detailed instructions, as well as the latest flash images, from this Web site. Before doing a system firmware update, check the Web site for the latest code and images. Do not attempt a firmware update if you are unsure of the image you have, or of the procedure required for the update.

The images are available on the Web site in either DOS format or AIX (backup) format:

- If downloading to a PC, download the DOS image and follow the instructions. The diskettes that are created will be in AIX (backup) format.
- If downloading to a pSeries or RS/6000 system, follow the instructions to create an image on a disk drive or on diskettes.

Determining the Level of Firmware on the System

Note: This information may be superseded by the information that is available on the Web site listed below. Always check the Web site for the latest images and instructions for checking the firmware level. The Web address is:
<http://www.rs6000.ibm.com/support/micro>

The firmware level is denoted by XXYYMMDD, where XX = model designation, YY = year, MM = month, and DD = day of the release.

The firmware level can be determined by either of the following methods:

- On the AIX command line, by typing:

```
lscfg -vp|grep -F .CM
```

A line that begins with ROM level (alterable).. displays the firmware level that is currently on the system.

- Looking at the top of the service processor main menu.

System Firmware Update Using a Locally Available Image

To update the system firmware using a locally available image, perform the following steps:

1. Log in as root user.
2. If the directory **/tmp/fwupdate** does not exist, create it by issuing the following command:

```
mkdir /tmp/fwupdate
```

3. The firmware update file must be written into the **/tmp/fwupdate** directory on the system. This can be done by using the **ftp** command to get the image from an ftp server or NFS-mounting the directory on the host server, for example.

The firmware update file can also be transferred to the target system by backing up the image onto diskette from another server and restoring it into the **/tmp/fwupdate** directory.

After the firmware update file has been written into the **/tmp/fwupdate** directory, verify its existence by entering the following command:

```
ls /tmp/fwupdate/CM*.img
```

The update file will have the format CMyymmdd.img. The CM indicates that this is an update image for a system: yy is the year, mm is the month, and dd is the day of the update file.

4. After the update file has been written to the **/tmp/fwupdate** directory, enter the following commands:

```
cd /usr/lpp/diagnostics/bin  
  
./update_flash -f /tmp/fwupdate/CMymmdd.img
```

Attention: Do not overlook the periods (.) in the commands shown above. AIX commands are case-sensitive. Type them exactly as shown.

You will be asked for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system will apply the new firmware, reboot, and return to the AIX prompt. This may take up to ten minutes depending on the configuration of the system.

Attention: On some systems, the message `Wait for rebooting before stopping` may display on the system console. Do not turn off the system until the system has fully rebooted to the AIX login prompt. If a shutdown is necessary at that time, log in as root user and issue the **shutdown** command.

While the update is in progress, you will see `Rebooting...` on the display for several minutes.

The firmware update is complete.

Updating System Firmware From the Service Processor Menus

This procedure requires a set of firmware update diskettes in backup format.

The service processor menus are available while the system is powered off. As a privileged user, from the service processor main menu, select **Service Processor Setup**, then select **Reprogram Flash EPROM Menu**. The update process requests update diskettes as needed.

Updating System Firmware from the AIX Service Aids

Note: This service aid is supported only in online diagnostics.

Refer to the detailed instructions that are provided on the Web site with the latest image.

Updating System Firmware from the AIX Command Line

Refer to the detailed instructions that are provided on the Web site with the latest image.

Note: The update process can take up to sixty minutes, and the system reboots itself during the update process.

Recovery Mode

If the service processor detects that its programming has been corrupted when it is powering up to standby mode, it will enter recovery mode. In recovery mode, it will ask for the firmware update diskettes by putting eight-digit codes on the operator panel.

The eight-digit codes are as follows:

| Code | Action |
|-----------|---|
| A1FD 0000 | System firmware has been corrupted and must be reflashed. |
| A1FD 0001 | Insert update diskette 1. |
| A1FD 0002 | Insert update diskette 2. |
| A1FD 0003 | Insert update diskette 3. |
| A1FD 000n | Insert update diskette n. |

Notes:

1. If the wrong diskette is inserted at any time, or if the diskette is left in the drive after it has been read, B1FD 001F is displayed, indicating that the wrong diskette is in the drive.
2. If B1FD 001A is displayed at any time during the process, the service processor must be reset by activating the pinhole reset switch on the primary drawer operator panel.

After the update process is complete, the service processor resets itself and goes through a complete reboot.

Configuring and Deconfiguring Processors or Memory

All failures that crash the system with a machine check or check stop, even if intermittent, are reported as a diagnostic callout for service repair. To prevent the recurrence of intermittent problems and improve the availability of the system until a scheduled maintenance window, processors and memory DIMMs with a failure history are marked "bad" to prevent their being configured on subsequent boots.

A processor or memory DIMM is marked "bad" under the following circumstances:

- A processor or memory DIMM fails built-in self-test (BIST) or power-on self-test (POST) during boot (as determined by the service processor).
- A processor or memory DIMM causes a machine check or check stop during run time, and the failure can be isolated specifically to that processor or memory DIMM (as determined by the processor run-time diagnostics in the service processor).
- A processor or memory DIMM reaches a threshold of recovered failures that results in a predictive callout (as determined by the processor run-time diagnostics in the service processor).

During boot time, the service processor does not configure processors or memory DIMMs that are marked "bad."

If a processor or memory DIMM is deconfigured, the processor or memory DIMM remains offline for subsequent reboots until it is replaced or Repeat Gard is disabled. The Repeat Gard function also allows users to manually deconfigure a processor or memory DIMM, or re-enable a previously deconfigured processor or memory DIMM. For information on configuring or deconfiguring a processor, see the Processor Configuration/Deconfiguration Menu on page 375. For information on configuring or

deconfiguring a memory DIMM, see the Memory Configuration/Deconfiguration Menu on page 376. Both of these are submenus under the System Information Menu.

You can enable or disable CPU Repeat Gard or Memory Repeat Gard using the Processor Configuration/Deconfiguration Menu, which is a submenu under the System Information Menu.

Run-Time CPU Deconfiguration (CPU Gard)

L1 instruction cache recoverable errors, L1 data cache correctable errors, and L2 cache correctable errors are monitored by the processor run time diagnostics (PRD) code running in the service processor. When a predefined error threshold is met, an error log entry with warning severity and threshold exceeded status is returned to AIX. At the same time, PRD marks the CPU for deconfiguration at the next boot. AIX will attempt to migrate all resources associated with that processor to another processor and then stop the defective processor.

Service Processor System Monitoring - Surveillance

Surveillance is a function in which the service processor monitors the system, and the system monitors the service processor. This monitoring is accomplished by periodic samplings called *heartbeats*.

Surveillance is available during two phases:

- System firmware bring-up (automatic)
- Operating system run time (optional)

System Firmware Surveillance

System firmware surveillance is automatically enabled during system power-on. It cannot be disabled by the user, and the surveillance interval and surveillance delay cannot be changed by the user.

If the service processor detects no heartbeats during system IPL (for a set time period), it cycles the system power to attempt a reboot. The maximum number of retries is set from the service processor menus. If the fail condition persists, the service processor leaves the machine powered on, logs an error, and displays menus to the user. If call-out is enabled, the service processor calls to report the failure and displays the operating system surveillance failure code on the operator panel.

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.

You can also use the service processor menus and the AIX diagnostic service aids to enable or disable operating system surveillance.

For operating system surveillance to work correctly, you must set the following parameters:

- Surveillance enable/disable
- Surveillance interval

The maximum time the service processor waits between heartbeats from the operating system before reporting a surveillance failure.

- Surveillance delay

The maximum time the service processor waits for the first heartbeat from the operating system, after the operating system has been started, before reporting a surveillance failure.

Surveillance does not take effect until the next time the operating system is started after the parameters have been set.

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 within the surveillance delay period, 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 391.

If surveillance is selected from the service processor menus that 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. Connect a modem to serial port 1 (S1) or serial port 2 (S2).
2. Set up the following using the service processor menus or the 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 is supported on serial port 1 (S1) and serial port 2 (S2). When console mirroring is enabled, the service processor sends information to both serial ports. The serial port from which console mirroring is enabled is referred to as the *active port*. The *mirror port* is determined when keyboard input is detected from the other port. From this point on, the service processor only sends information to the active port and the mirror port. This capability can be enabled by local or remote users, providing local users the capability to monitor remote sessions. Console mirroring can be enabled for the current session only.

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.

Console mirroring can be started in the following scenarios:

- Remote session first, then local session added:
 1. Remote session is 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 Log

The service processor error log, an example of which follows, contains information about error conditions detected by the service processor.

```
                                Error Log

1. 11/30/99   19:41:56 Service Processor Firmware Failure
   B1004999

Enter error number for more details.
Press Return to continue, or 'x' to return to menu.
Press "C" to clear error log, any other key to continue. >
```

Note: The time stamp in this error log is coordinated universal time (UTC), which is also referred to as Greenwich mean time (GMT). The AIX error log has additional information and time stamps with local time.

Entering an error number provides nine words of system reference code (SRC) data; an example screen follows:

```
Detail:   6005

SRC
-----
word11:B1004999   word12:0110005D   word13:00000000
word14:00000000   word15:00001111   word16:00000 000
word17:B1004AAA   word18:0114005D   word19:A4F1E909

B1004999

Press Return to continue, or 'x' to return to menu.
```

If Return is pressed, the contents of NVRAM will be dumped 320 bytes at a time, starting at address 0000.

LCD Progress Indicator Log

The following is an example of the LCD progress indicator log. It shows the types of entries that the log might contain, and is for example purposes only.

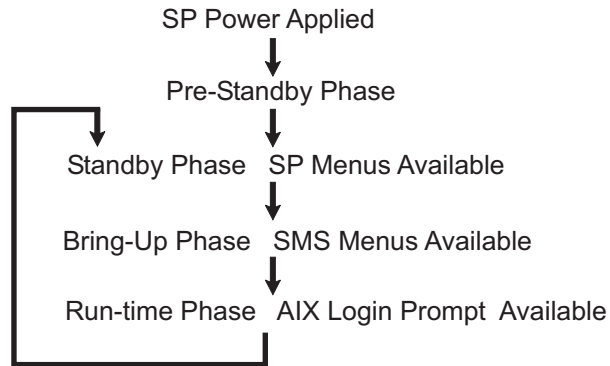
The progress indicator codes are listed from top (latest) to bottom (oldest).

```

LCD Progress Indicator Log
B0FF
0539..17
0538..17
0539..17
0538..17
0539..17
0581
0538..17
0539..12
0538..12
0539..
0821..01-K1-00
0539..
0728..01-R1-00-00
0539..
0664..40-60-00-1,0
0539..
0777..U0.2-P1-I14/E1
0539..
0742..U0.2-P1-I12/E1
0539..
0776..U0.2-P1-I10/T1
E139
E1FB
E139
E183
Press Return to continue, or 'x' to return to menu. >
EAA1..U0.1-P1-I14
E172..U0.1-P1
E172..U0.1-P1-I14
E172..U0.1-P1
94BB
9109
9380
9108
9107
9106
9105
9118
9104
9103
9102
90FD
```

Service Processor Operational Phases

This section provides a high-level flow of the phases of the service processor.



Pre-Standby Phase

This phase is entered when the server is first connected to a power source. This phase is exited when the power-on self-test (POST) and configuration tasks are completed.

The pre-standby phase components are:

- Service processor initialization - the service processor performs any necessary hardware and firmware initializations.
- Service processor POST - the service processor conducts power-on self-tests on its work and code areas.
- Service processor unattended start mode checks - To assist fault recovery. If unattended start mode is set, the service processor automatically reboots the server. The service processor does not wait for user input or a power-on command, but moves through the phase and into the bring-up phase. Access the system management services (SMS) menus or the service processor menus to reset the unattended start mode.

Standby Phase

The standby phase can be reached in either of the following ways:

- With the server off and power connected (the normal path), recognized by 0K in the LCD display.
- OR
- With the server on after an operating system fault, recognized by an 8-digit code in the LCD display.

In the standby phase, the service processor takes care of some automatic duties and its menus are available. The service processor remains in the standby phase until a power-on request is detected.

The standby phase components are as follows:

- Modem Configuration
The service processor configures the modem (if installed) so that incoming calls can be received, or outgoing calls can be placed.
- Dial In
Monitor incoming phone line to answer calls, prompt for a password, verify the password, and remotely display the standby menu. The remote session can be mirrored on the local ASCII console if the server is so equipped and the user enables this function.
- Menus
The service processor menus are password-protected. Before you can access them, you need either the general user password or the privileged user password.

Bring-Up Phase

This phase is entered upon power-on, and exited upon loading of the operating system.

The bring-up phase components are as follows:

- Retry request check
The service processor checks to see if the previous boot attempt failed. If the specified number of failures is detected, the service processor displays an error code and places an outgoing call to notify an external party if the user has enabled this option.
- Dial out
The service processor can dial a preprogrammed telephone number in the event of a boot failure. The service processor issues an error report with the last-reported boot status and any other available error information.
- Update operator panel
The service processor displays operator panel data on the ASCII terminal if a remote connection is active.
- Environmental monitoring
The service processor provides expanded error recording and reporting.
- System firmware surveillance (heartbeat monitoring)
The service processor monitors and times the interval between system firmware heartbeats.
- Responding to system processor commands
The service processor responds to any command issued by the system processor.

Run-Time Phase

This phase includes the tasks that the service processor performs during steady-state execution of the operating system.

- Environmental monitoring

The service processor monitors voltages, temperatures, and fan speeds.

- Responding to system processor commands

The service processor responds to any command issued by the system processor.

- Run-time surveillance (heartbeat monitoring)

If the device driver is installed and surveillance enabled, the service processor monitors the system heartbeat. If the heartbeat times out, the service processor places an outgoing call. This is different from the bring-up phase scenario, where the specified number of reboot attempts is made before placing an outgoing call.

Chapter 8. Using System Management Services

Use the System Management Services menus to view information about your system and to perform tasks such as setting a password, changing the boot list, and setting the network parameters.

The text-based open firmware command line (the OK prompt), which is available from the System Management Services Utilities menu, allows you to configure certain adapters.

To start the System Management Services, do the following:

1. Turn on or restart the system.
2. Watch for the banner screen to appear on the console display. The banner screen will be lines of text in the form of repeated logos.
3. After the banner screen is displayed, the POST indicator words memory, keyboard, network, scsi and speaker appear across the bottom of the screen.
Press the numeric 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 6.

Note: The System Management Services can also be started using the Service Processor Boot Mode Menu. See "Boot Mode Menu" on page 373.

After the System Management Services starts, the following Utilities 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

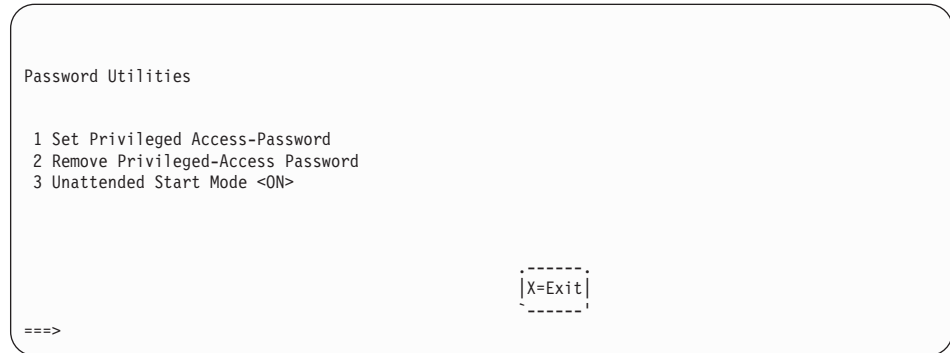
                                     |X=Exit|
                                     -----

====>
```

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 the setting of a password.

You can set the password 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**.

Note: If you *forget* your password, you must shut down the system and remove the battery for at least 30 seconds.

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-P1.1/Q1
Entry 2. 99/07/01 03:18:36 20300026  U1.1-P1.1/Q1
-----

|C=Clear Error Log|                |X=Exit Log|

```

Note: The time stamp in this error log is Coordinated Universal Time (UCT), which is also referred to as Greenwich Mean Time (GMT). The AIX error log has more information available and time stamps with your local time.

Remote Initial Program Load Setup

This option allows you to enable and set up the remote startup 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 129.132.004.020.

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 [255.255.255.0]

[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.

Attention: If the client system and the server are on the same subnet, set the gateway IP address to [0.0.0.0].

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:

| Adapter Parameters | | |
|---------------------|------------------|------------------|
| Device | Slot | Hardware Address |
| 1. Gigabit Ethernet | 4: P1-I4/E1 | 0004ac7c0135 |
| 2. token-ring | 5: P1-I5/T1 | 0020357a9105 |
| 3. ethernet | Integrated:P1/E1 | 0060949d7ac5 |
| 4. ethernet | 2: P1-I2/E1 | 0004ac5e692b |
| 5. token-ring | 3: P1-I3/T1 | 0004ac634e38 |

[X=Exit]

(PRESS ENTER AFTER MAKING A 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:

| |
|---------------------|
| 1. Data Rate [Auto] |
| 2. Full Duplex [No] |

Ping

Select **Ping** from the Network Parameters menu to test a connection to a remote system unit. After selecting the ping option, you must first choose an adapter to communicate with the remote system.

Adapter Parameters

| Device | Slot | Hardware Address |
|---------------------|------------------|------------------|
| 1. Gigabit Ethernet | 4: P1-I4/E1 | 0004ac7c0135 |
| 2. token-ring | 5: P1-I5/T1 | 0020357a9105 |
| 3. ethernet | Integrated:P1/E1 | 0060949d7ac5 |
| 4. ethernet | 2: P1-I2/E1 | 0004ac5e692b |
| 5. token-ring | 3: P1-I3/T1 | 0004ac634e38 |

[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

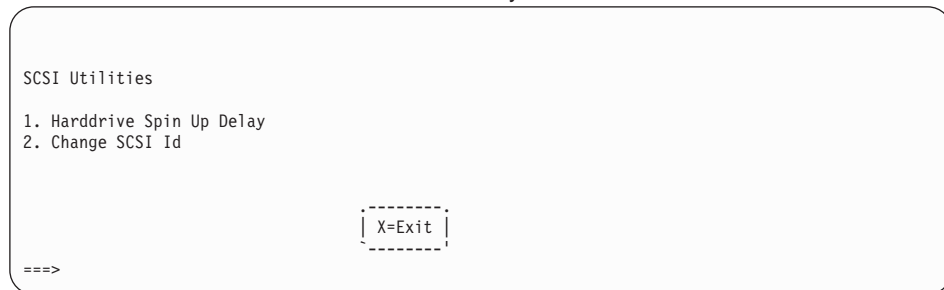
| | |
|-----------------------|---------------|
| 1. Client IP Address | [9.3.146.162] |
| 2. Server IP Address | [9.3.146.171] |
| 3. Gateway IP Address | [0.0.0.0] |
| 4. Subnet Mask | [0.0.0.0] |

[E=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.



Using the Harddrive Spin Up Delay option allows you to change the spin up delay time for SCSI hard disk drives attached to your system. Spin up delay values can be entered manually, or you can use a default setting (two seconds). All values are measured in seconds.

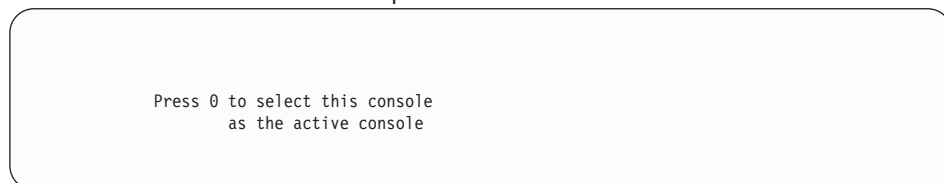
Attention: Setting the value lower than the default can prevent successful booting because the system power handling capabilities might be exceeded. If the system no longer boots after setting this value, access this utility again and increase the value. It is also possible that adding disk drives can cause similar symptoms. Changing this value changes the surge current requirements on the system. As you increase the value, the surge current requirements on the system are decreased.

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.

Selecting this option causes a screen similar to the one that follows to display on each console that can be used as a firmware console. Follow the instructions on the screen to select a particular console.

Note: The firmware console is independent from the AIX console.



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 might 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. The AIX Documentation library is available at the following Web address: <http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. AIX documentation is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

Software Default

If this option is supported by the operating system, you can select the default operating system to start the system. This option might not be supported by all operating systems.

Select Install Device

Produces a list of devices, such as the CD-ROM, from which the operating system may be installed. Select a device, and the system searches that device for an operating system to install.

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 up to five devices. The following is an example of this screen.

```
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. SCSI CD-ROM ( loc=P1/Z1-A1 )
3. SCSI 9100 MB Harddisk ( loc=P1/Z1-A5 )
4. Ethernet ( loc=P1-I4/E1 )
5. None

                                     |X=Exit|

==>
```

Restore Default Settings

Restores the boot list to the following default sequence:

- Primary diskette drive
- CD-ROM drive
- Tape (if installed)
- Hard disk drive
- 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         4         Ethernet ( loc=P1-I4/E1 )
3         -         Token-Ring ( loc=P1-I5/T1 )
4         2         SCSI CD-ROM ( loc=P1/Z1-A1 )
5         3         SCSI 9100 MB Harddisk ( loc=P1/Z1-A5 )

                                     [X=Exit]

===>
```

OK Prompt

Provides access to the open firmware command prompt.

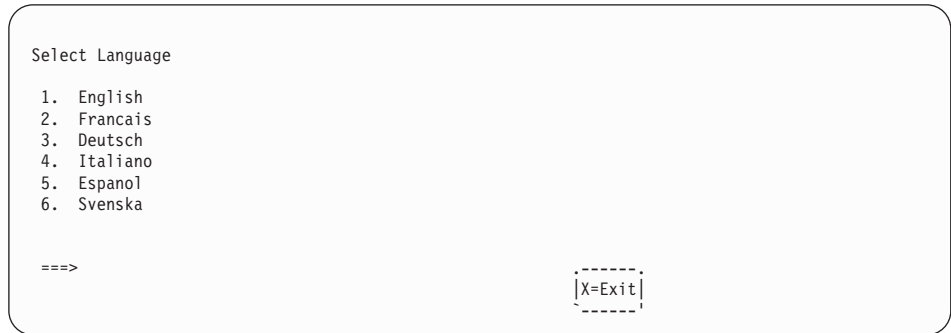
This option should only be used by service personnel to obtain additional debug information.

Multiboot Startup <OFF>

Toggles between off and on to select whether Multiboot menu starts automatically on startup.

Select Language

Select this option to change the language used by the 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.

This option should only be used by service personnel to obtain additional debug information.

Exiting System Management Services

After you have finished using the System Management Services, type **x** at the utilities menu to exit the System Management Services and boot your system.

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 communications 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.

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** 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 button procedure.

Attention: Using the primary I/O drawer operator-panel power button 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 rack door.
2. Press the power button on the primary I/O drawer operator panel.
The power LED on the primary I/O drawer operator panel starts blinking at a fast rate. B0FF appears in the primary operator panel display.
When the power-off sequence is complete, the system goes into standby mode, as evidenced by the following:
 - 0K displays in the primary operator panel display.
 - The primary I/O drawer operator-panel LED will start blinking at a slow rate.
 - The CEC drawer power LED will start blinking at a slow rate.
 - If a secondary I/O drawer is present, its power LED will go off.
3. Disconnect the ac power cords from the drawers.

Powering On the System

Perform the following steps to power on the CEC drawer and attached I/O drawers.

1. Open the rack door. Look for 0K in the primary operator panel display, which indicates that the system is in standby mode.
2. Press the power button on the primary I/O drawer operator panel.

The power LED on the primary I/O drawer operator panel starts blinking at a fast rate. 9xxx checkpoints appear in the operator panel display.

When the power-on sequence is complete:

- The power LED on the primary I/O drawer operator panel stops blinking and stays on.
- The power LED on the CEC drawer stops blinking and stays on.
- If a secondary I/O drawer is present, its power LED comes on and stays on.

Powering Off and Powering On the System Using the Service Processor

The system can be powered off and on using the System Power Control menu, which is a Service Processor menu that is available to the privileged user. See "System Power Control Menu" on page 370.

Hot-Pluggable FRUs

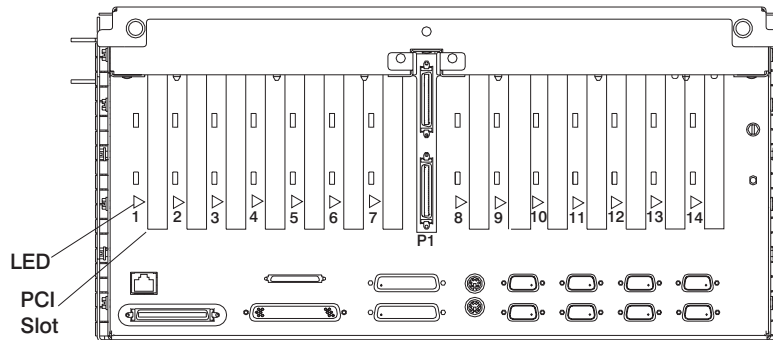
Note: You do not have to power off the system to remove a hot-pluggable FRU from the CEC drawer or from I/O drawers.

The following FRUs are hot-pluggable:

- Hot-pluggable PCI adapters of an I/O drawer
- Power supplies in an I/O drawer or CEC drawer (if the drawer has two power supplies and only one needs to be removed)
- Rear fans on the CEC drawers

I/O Drawer PCI Slot LED Definitions

The following table describes the possible states of the LEDs associated with the I/O drawer PCI slots. These LEDs are located at the rear of the I/O drawer. One LED is associated with each PCI slot.



| LED Indication | PCI Slot Status | Definition |
|---|-----------------|---|
| Off | Off | Slot power is off. It is safe to remove or replace an adapter. |
| On (not flashing) | On | Slot power is on. Do not remove or replace an adapter. |
| Flashing slowly (one flash per second) | Identify | Indicates slot has been identified by the software. Do not remove or replace an adapter at this time. |
| Flashing fast (six to eight flashes per second) | Action | Indicates slot is ready for removal or replacement of an adapter. |

PCI Adapters

With this system, you can install PCI adapters with the power on. These adapters are referred to as *hot-pluggable PCI adapters*. Some adapters are not hot-pluggable and power must be removed from the system for adapter installation.

Before you install the adapter, determine if the PCI adapter you are installing is hot-pluggable. See the *PCI Adapter Placement Reference*, order number SA38-0538.

If you are removing a PCI adapter that is:

- Not hot-pluggable, go to “Non-Hot-Pluggable PCI Adapter”.
- Hot-pluggable, go to “Hot-Pluggable PCI Adapter” on page 425.

Non-Hot-Pluggable PCI Adapter

Removal

To remove an adapter, perform the following steps:

1. Turn power off and unplug the system unit power cable from the electrical outlet.
If the system is operating under AIX, type the shutdown command to power off the system.
If you cannot use this method, you can power off the system by using the following operator-panel power button procedure.
Attention: Using the primary I/O drawer operator-panel power button to power off the system may cause unpredictable results in the data files, and the next IPL will take longer to complete.
 - a. Open the rack door.
 - b. Press the power button on the primary I/O drawer operator panel.The primary I/O drawer operator panel Power LED starts blinking at a fast rate. B0FF appears in the primary operator panel display.
When the power-off sequence is complete, the system will go into standby mode, as evidenced by:
 - 0K displays in the primary operator panel display.
 - The primary I/O drawer operator panel LED will start blinking at a slow rate.
 - The CEC drawer power LED will start blinking at a slow rate.
2. Place the I/O drawer in the rear service position, as follows:
 - a. If you have not already done so, open the front door of the rack unit.
 - b. Loosen the two thumbscrews that attach the front bezel to the drawer.
 - c. Grasp both sides of the front bezel and pull the bezel off the drawer.
 - d. If you have not already done so, open the rear door of the rack unit.
 - e. If present, remove the two retaining screws that secure the drawer to the rails.
 - f. Ensure that the cables do not restrain drawer movement.
 - g. Grasp the bar at the rear of the drawer, and pull the drawer to the rear until it is stopped by the two detents on the top of the drawer.

3. Remove the two thumbscrews, and remove the top cover from the drawer.
4. Determine the slot from which you are removing the adapter.
5. Disconnect any cables that are connected to the adapter being removed.
6. Turn the locking latch and lift the plastic stop for the adapter.
7. Carefully grasp the adapter by the edges and pull it straight out from the I/O board.
8. If you are installing another adapter in this slot, follow the instructions given under "Replacement" below.
9. If you are not installing another adapter in this slot, place a blank slot cover in the adapter slot and then lower the plastic stop over the adapter bracket. Rotate the locking latch clockwise until it clicks into the locked position.
10. Install all covers that you removed earlier and return the drawer to the normal operating position.

Replacement

To replace an adapter, perform the removal steps in the reverse order.

Hot-Pluggable PCI Adapter

Replacing a Hot-Pluggable PCI Adapter

Note: Use this procedure only when you are replacing an adapter with an identical adapter. If you are replacing an adapter with an adapter that is not identical to the adapter removed, go to “Removing a Hot-Pluggable PCI Adapter” on page 428 and “Installing a Hot-Pluggable PCI Adapter” on page 427.

To replace an adapter, perform the following steps:

1. Place the I/O drawer in the rear service position:
 - a. If you have not already done so, open the front door of the rack unit.
 - b. Loosen the two thumbscrews that attach the front bezel to the drawer.
 - c. Grasp both sides of the front bezel and pull the bezel off the drawer.
 - d. If you have not already done so, open the rear door of the rack unit.
 - e. If present, remove the two retaining screws that secure the drawer to the rails. Refer to “Rear Service Position” on page 459.
 - f. Ensure that the cables do not restrain drawer movement.
 - g. Grasp the bar at the rear of the drawer, and pull the drawer to the rear until it is stopped by the detents.
2. Remove the two thumbscrews, and remove the top cover from the drawer.
3. Determine the slot from which you are removing the adapter.
4. Ensure that any processes or applications that might use the adapter are stopped.

Note: Removing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot-plug procedures. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is available at the following Web address: <http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. This publication is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

5. Refer to “PCI Hot-Plug Manager Access” on page 430, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
6. Select **Unconfigure a Device** and press Enter.

Note: If the adapter or device has a problem that prevents it from replacement by hot swap, it must be replaced non hot swap by shutting down the system. Go to the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems Map 210 - 3*.

7. Press F4 to display the Device Names menu.
8. Select the adapter you are removing from the menu.
9. Answer YES to **Keep Definition**. Press Enter.
10. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfigure is indicated by the OK message displayed next to the **Command** field at the top of the screen.
11. Press F3 to return to the PCI Hot-Plug Manager menu.
12. Select **Replace/Remove a PCI Hot-Plug Adapter** and press Enter. The Replace/Remove a PCI Hot-Plug Adapter menu displays.
13. Move the cursor to select the adapter that you are removing and press Enter.
14. Press the Tab key until the entry field displays the replace operation and then Press the Enter key. Follow the instructions that display on the screen until you are instructed to remove the adapter.
15. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.
16. Turn the locking latch and lift the plastic stop for the adapter.
17. Carefully grasp the adapter by the edges and pull it straight out from the I/O board.
18. Replace the adapter in the adapter slot. Carefully grasp the adapter by the edges and align the adapter in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.
19. Lower the plastic stop over the adapter bracket and rotate the locking latch clockwise until it clicks into the locked position. Some full-length cards can be supported by rotating the blue adapter latch on the right end of the adapter counterclockwise.
20. Connect appropriate cables and devices to the adapter.
21. Continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.
22. Press the F3 key to return to the PCI Hot-Plug Manager menu.
23. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.
24. If you do not have other adapters to replace, continue with the next step.
OR
If you have other adapters to replace, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 12.
25. Press F10 to exit the Hot-Plug Manager.

If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.

26. Install the covers that you removed earlier and return the drawer to the normal operating position.

Installing a Hot-Pluggable PCI Adapter

To install an adapter, perform the following steps:

1. Place the I/O drawer in the rear service position:
 - a. If you have not already done so, open the front door of the rack unit.
 - b. Loosen the two thumbscrews that attach the front bezel to the drawer.
 - c. Grasp both sides of the front bezel and pull the bezel off the drawer.
 - d. If you have not already done so, open the rear door of the rack unit.
 - e. If present, remove the two retaining screws at the rear of the drawer. Refer to “Rear Service Position” on page 459.
 - f. Ensure that the cables do not restrain drawer movement.
 - g. Grasp the bar at the rear of the drawer, and pull the drawer to the rear until it is stopped by the detents.
2. Remove the two thumbscrews and remove the top cover from the drawer.
3. Refer to “PCI Hot-Plug Manager Access” on page 430 and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
4. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.
5. See the *PCI Adapter Placement Reference*, order number SA38-0538, for adapter placement information. Then select an empty PCI slot for the adapter.
6. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
7. Turn the locking latch, lift the plastic stop, and remove the blank cover.
8. Follow the instructions on the screen to install the adapter until the visual indicator (LED) for the specified PCI slot is set to the Action state. See “I/O Drawer PCI Slot LED Definitions” on page 422.
9. When you are instructed to install the adapter in the adapter slot, carefully grasp the adapter by the edges and align the adapter in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.
10. Lower the plastic stop over the adapter bracket and rotate the locking latch clockwise until it clicks into the locked position. Some full-length cards can be supported by rotating the blue adapter latch on the right end of the adapter counterclockwise.
11. Connect appropriate cables and devices to the adapter.
12. Continue to follow the screen instructions until you receive a message that the installation is successful. Successful installation is indicated by the OK message displayed next to the **Command** field at the top of the screen.
13. Press the F3 key to return to the PCI Hot-Plug Manager menu.

14. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful installation is indicated by the OK message displayed next to the **Command** field at the top of the screen.
15. If you do not have other adapters to install, continue with the next step.
OR
If you have other adapters to install, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 4 on page 427.
16. Press F10 to exit the Hot-Plug Manager.
If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
17. Install the covers that you removed earlier and return the drawer to the normal operating position.

Removing a Hot-Pluggable PCI Adapter

Note: If you are removing an adapter and replacing it with an adapter that is identical to the adapter removed, see “Replacing a Hot-Pluggable PCI Adapter” on page 425

To remove an adapter, perform the following steps:

1. Place the I/O drawer in the rear service position:
 - a. If you have not already done so, open the front door of the rack unit.
 - b. Loosen the two thumbscrews that attach the front bezel to the drawer.
 - c. Grasp both sides of the front bezel and pull the bezel off the drawer.
 - d. If you have not already done so, open the rear door of the rack unit.
 - e. If present, remove the two retaining screws that secure the drawer to the rails. Refer to “Rear Service Position” on page 459.
 - f. Ensure that the cables do not restrain drawer movement.
 - g. Grasp the bar at the rear of the drawer, and pull the drawer to the rear until it is stopped by the detents.
2. Remove the two thumbscrews and remove the top cover from the drawer.
3. Determine the slot from which you are removing the adapter.
4. Ensure that any processes or applications that might use the adapter are stopped.

Note: Removing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot-plug procedures. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is available at the following

Web address: <http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. This publication is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

5. Refer to “PCI Hot-Plug Manager Access” on page 430, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.
6. Select **Unconfigure a Device** and press Enter.
7. Press F4 to display the Device Names menu.
8. Select the adapter you are removing from the menu.
9. Use the Tab key to answer NO to **Keep Definition**. Press Enter.
10. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfigure is indicated by the OK message displayed next to the **Command** field at the top of the screen.
11. Press F3 to return to the PCI Hot-Plug Manager menu.
12. Select **Replace/Remove a PCI Hot-Plug Adapter** and press Enter. The Replace/Remove a PCI Hot-Plug Adapter menu displays.
13. Move the cursor to select the adapter that you are removing and press Enter. (The description entry displays as unknown).
14. Press the Tab key until the entry field displays the remove operation and then Press the Enter key. Follow the instructions that display on the screen until you are instructed to remove the adapter.
15. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.
16. Turn the locking latch and lift the plastic stop for the adapter.
17. Carefully grasp the adapter by the edges and pull it straight out from the I/O board.
18. If you are not installing another adapter in this slot, place a blank slot cover in the adapter slot and then lower the plastic stop over the adapter bracket. Rotate the locking latch clockwise until it clicks into the locked position.
19. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the OK message displayed next to the **Command** field at the top of the screen.
20. If you do not have other adapters to remove, continue with the next step.
OR
If you have other adapters to remove, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 12.
21. Press F10 to exit the Hot-Plug Manager.
22. If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.
23. Install the covers that you removed earlier and return the drawer to the normal operating position.

PCI Hot-Plug Manager Access

The installation instructions for hot-pluggable PCI adapters refer you to these procedures when it is appropriate to perform them.

Note: A PCI adapter is only hot-pluggable if the PCI adapter is supported for hot-plug applications. See the *PCI Adapter Placement Reference*, order number SA38-0538.

Accessing Hot-Plug Management Functions

Note: Removing or installing a Hot-Pluggable PCI adapter requires the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is available at the following Web address: <http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. This publication is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

To access the hot-plug menus, do the following:

1. Log in as root user.
2. At the command line, type `smitty`.
3. Select **Devices**.
4. Select **PCI Hot Plug Manager** and press Enter.
5. The PCI Hot-Plug Manager menu displays. Return to the procedure that directed you here. The following section describes the menu options.

PCI Hot-Plug Manager Menu

The following options are available from the PCI Hot Plug Manager menu:

Note: For information about the PCI slot LED states, see “I/O Drawer PCI Slot LED Definitions” on page 422.

List PCI Hot-Plug Slots

Provides a descriptive list of all slots that support PCI hot-plug capability. If the listing for a slot indicates it holds an “Unknown” device, select the **Install/Configure Devices Added after IPL** to configure the adapter in that slot.

Add a PCI Hot-Plug Adapter

Allows the user to add a new PCI hot-plug-capable adapter to the slot with the system turned on. You will be asked to identify the PCI slot that you have selected prior to the actual operation. The selected PCI slot will go into the Action state and finally into the On state.

Note: The system will indicate the slot holds an “Unknown” device until you perform the **Install/Configure Devices Added After IPL** option to configure the adapter.

Replace/Remove a PCI Hot-Plug Adapter

Allows the user to remove an existing adapter, or replace an existing adapter with an identical one. For this option to work, the adapter must be in the Defined state (see “Unconfigure a Device” option below).

You will be asked to identify the PCI slot prior to the actual operation. The selected PCI slot will go into the Action state.

Identify a PCI Hot-Plug Slot

Allows the user to identify a PCI slot. The selected PCI slot will go into the Identify state. See “I/O Drawer PCI Slot LED Definitions” on page 422.

Unconfigure a Device

Allows the user to put an existing PCI adapter into the Defined state if the device is no longer in use.

This step must be completed successfully before starting any removal or replacement operation. If this step fails, the customer must take action to release the device.

Configure a Defined Device

Allows a new PCI adapter to be configured into the system if software support is already available for the adapter. The selected PCI slot will go into the On state.

Install/Configure Devices Added After IPL

The system attempts to configure any new devices and tries to find and install any required software from a user-selected source.

The add, remove, and replace functions return information to the user indicating whether the operation was successful. If additional instructions are provided on the screen, complete the recommended actions. If the instructions do not resolve the problem, do the following:

- If the adapter is listed as Unknown, perform the **Install/Configure Devices Added After IPL** option to configure the adapter.

- If you receive a warning indicating that needed device packages are not installed, the system administrator must install the specified packages before you can configure or diagnose the adapter.
- If you receive a failure message indicating a hardware error, the problem might be either the adapter or the PCI slot. Isolate the problem by retrying the operation in a different PCI slot, or trying a different adapter in the slot. If you determine that you have failing hardware, call your service representative.

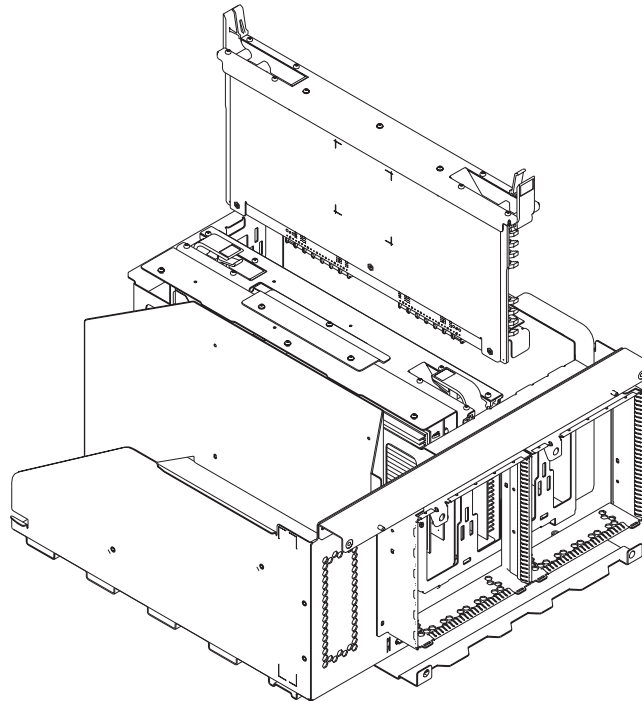
Memory Riser Cards and Memory DIMMs

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the CEC drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the back top cover.

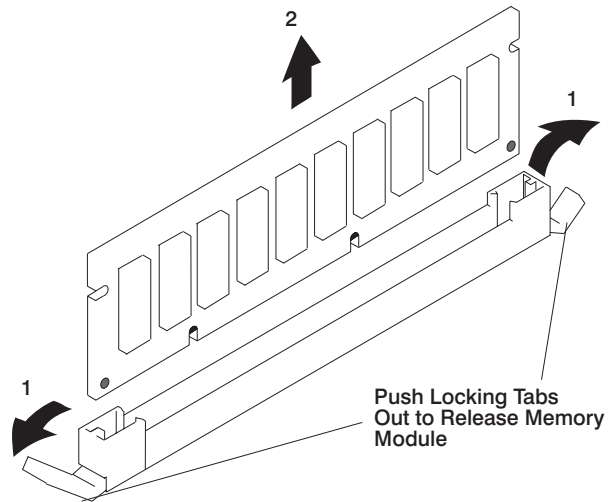
Note: If your system has a one-way processor installed, the memory DIMMs are located on the processor card. You must first remove the processor card to access the memory DIMMs. Refer to “One-Way Processor Card Memory DIMM Locations” on page 19 for memory DIMM locations.

4. Pull up on the release latches and carefully pull the card out of the slot.



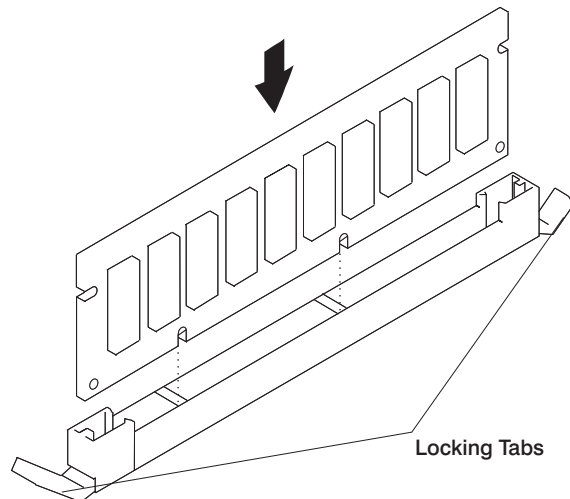
5. Locate the memory DIMM connectors and determine which memory DIMMs you want to remove. Refer to “Memory Riser Card and Memory DIMM Locations” on page 18 for memory module locations.

6. Remove the memory DIMM by pushing the tabs out on the memory connectors.



Replacement

1. With one hand, touch any metal surface of the chassis to minimize static electrical charges, and then pick up the memory DIMM.
2. Locate the memory DIMM connector on the memory card.
3. Insert the memory DIMM firmly into the connector.

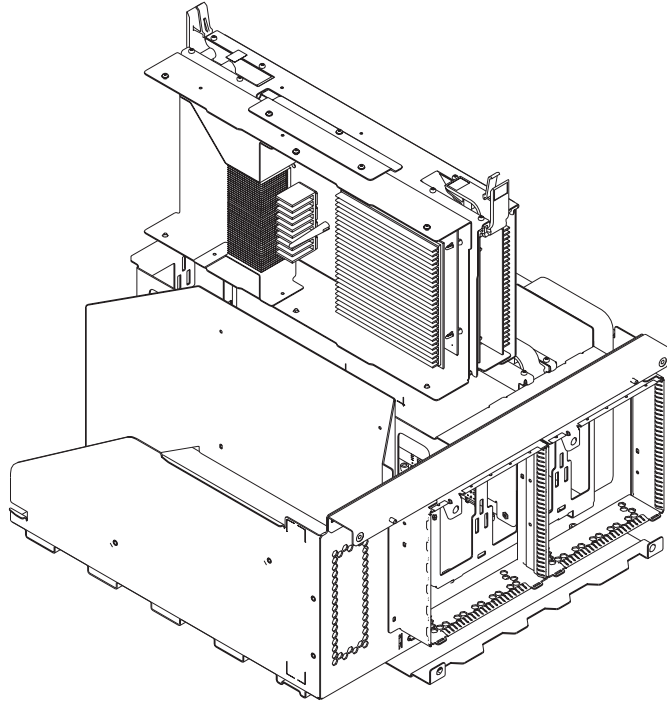


4. Secure the memory DIMM with the locking tabs located at each end of the connector.
5. Replace the memory card into the system unit.

Processor Card

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the CEC drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the back cover.
4. Pull up on the release latches and carefully pull the card out of the slot.



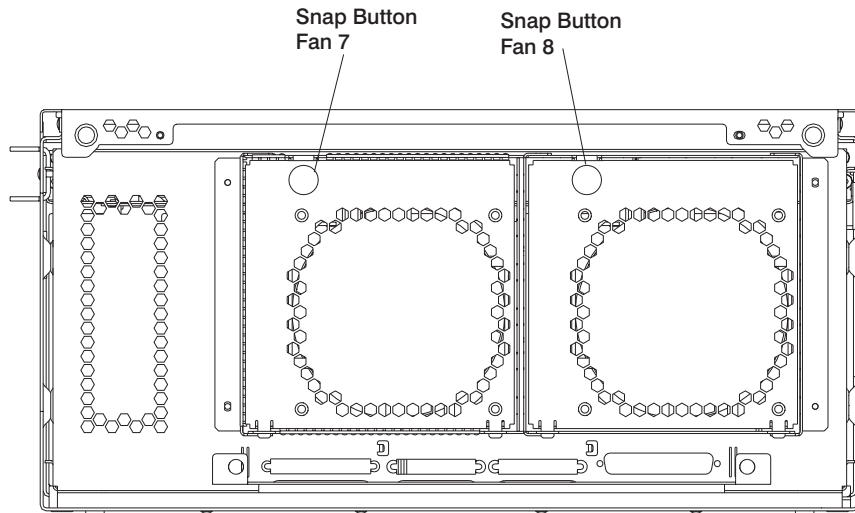
Replacement

Replace in reverse order.

CEC Fans

Removal

1. If you have not already done so, open the rear door of the rack unit.
2. Pull the snap button out on the fan you want to remove.



3. Remove the fan.

Replacement

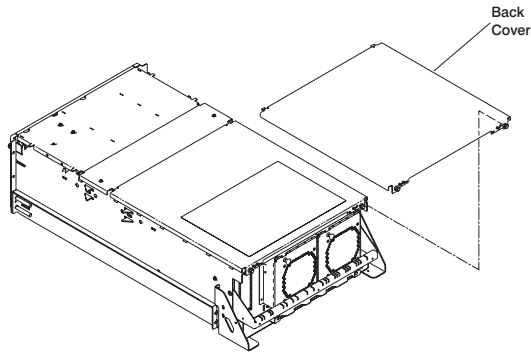
Replace in reverse order.

Attention: After hot-plugging a CEC fan, wait at least 5 minutes and then examine the system error logs to make sure CEC fan errors are not being logged.

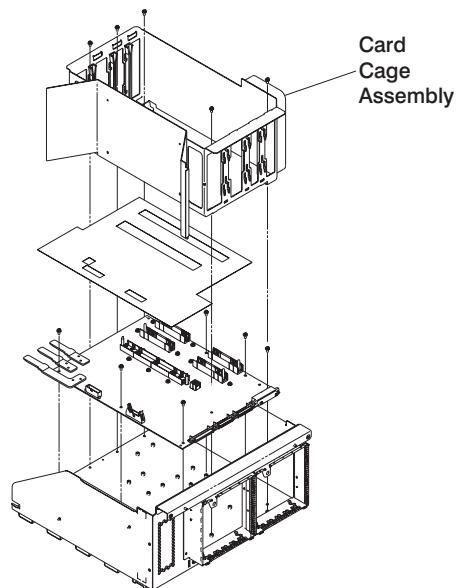
CEC Backplane

Removal

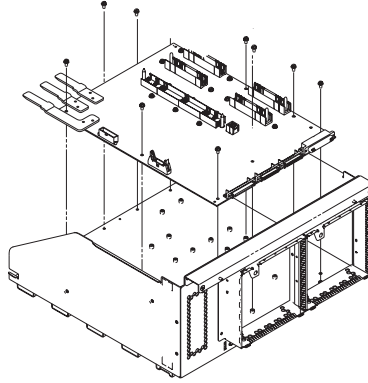
1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the CEC drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Disconnect and label all cables from the rear of the assembly.
4. Remove the two thumbscrews and remove the back cover.



5. Remove the memory riser cards. See “Memory Riser Cards and Memory DIMMs” on page 433.
6. Remove the processor card. See “Processor Card” on page 435.
7. Remove the screws from the card cage assembly and remove the assembly.



8. Remove the screws from the four backplane connectors (V/S COMM, RIO 1 & 2, and JTAG) at the rear of the backplane assembly.
9. Remove the screws from the backplane assembly and remove the backplane assembly.



Replacement

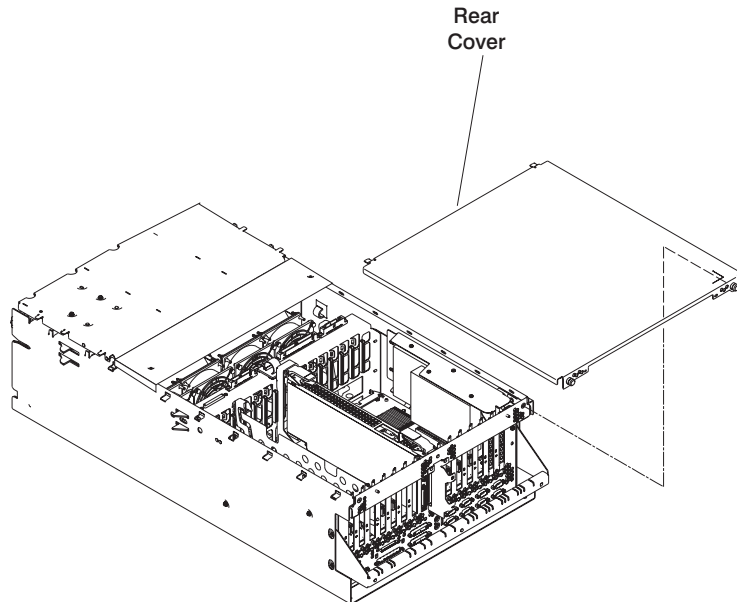
Replace in reverse order.

I/O Drawer Backplane Assembly

Removal

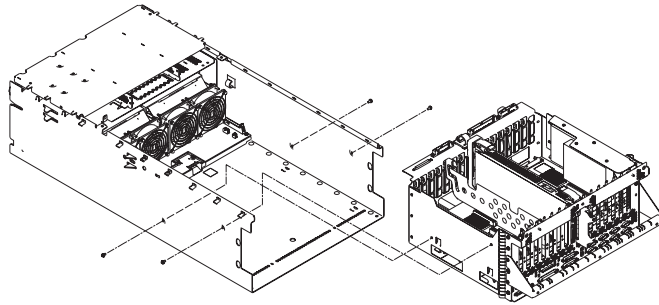
Attention: If a primary I/O backplane is replaced, be aware that the service processor is integrated into the primary I/O backplane logic. Replacing the primary I/O backplane replaces the service processor.

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the I/O drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the back cover.



4. Disconnect and label all cables from the rear of the assembly.
5. Remove boot disk drives if installed. (See “Internal Disk Drives” on page 450.)
6. Remove and label adapters. (See “PCI Adapters” on page 423.)
7. Remove two screws from each side of the assembly.
8. Disconnect and label all cables from the front of the assembly.

- Slide the I/O drawer backplane assembly to the rear and remove the assembly.



- Remove the RIO card assembly as described in “RIO Card Assembly” on page 441.

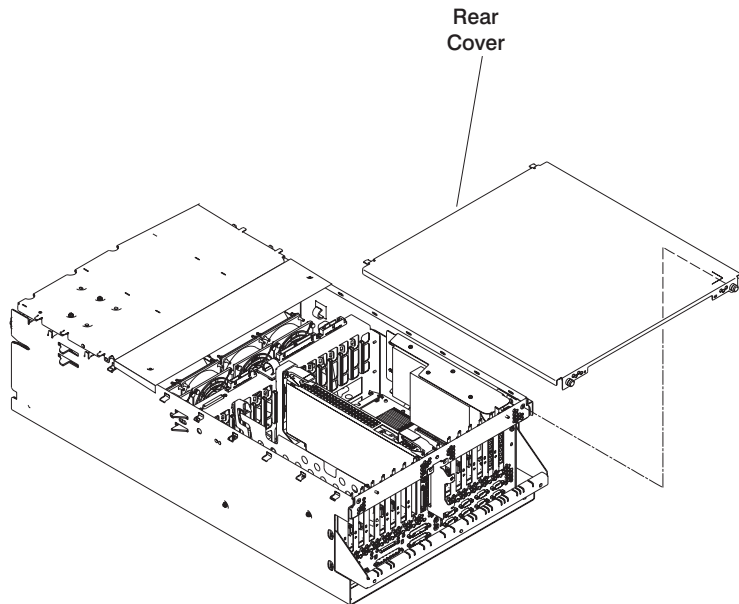
Replacement

- Replace in reverse order.
- Set the drawer type using the service processor menus.
 - From the SP Main Menu, select **System Information Menu** (option 3).
 - Select **Power Control Network Utilities Menu** (option 9).
 - Select **Change I/O Type** (option 3).
 - For the I/O drawer address (drawer number), type:
 - 1 for a primary drawer.
 - 2 for the secondary drawer.
 - For the I/O type, type:
 - 85 for the primary I/O drawer.
 - 84 for the secondary drawer.
- Check firmware level by checking the version on the title of the service processor main menu. If the firmware level is not at the correct level, proceed as follows:
 - Reprogram all system EPROMs using the Service Processor Setup Menu and selecting **Reprogram Flash EPROM Menu** option (7).
- The service processor settings have been set to default values. These settings must be restored to their original settings if they were not previously set to default values.
 - Manually reset all settings.
 - If the service processor settings had previously been saved, the settings may be restored using the procedure in “Saving and Restoring Service Processor Settings” on page 362.

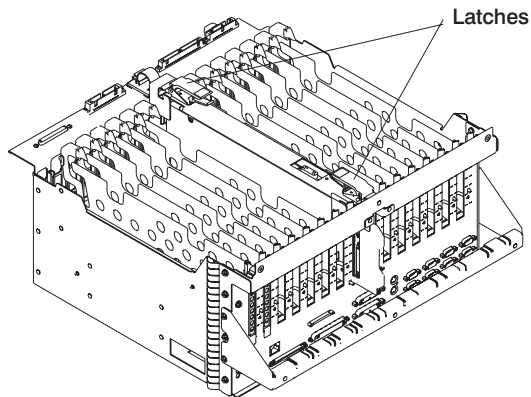
RIO Card Assembly

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the I/O drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the back cover.



4. Disconnect all cables from the card assembly.
5. Remove the screw and remove the retainer bracket from the rear release latch.
6. Pull up on the release latches and carefully pull the card out of the slot.



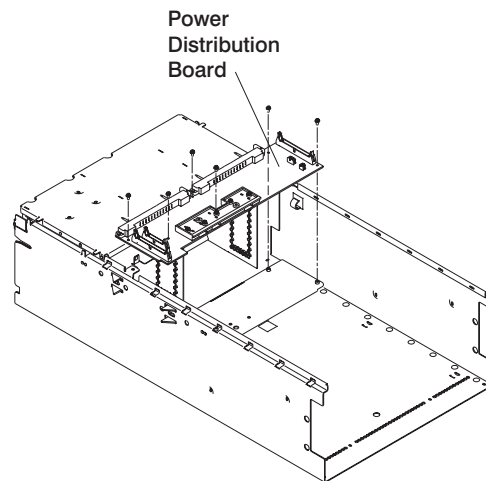
Replacement

Replace in reverse order.

CEC Drawer Power Distribution Board

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Remove the CEC backplane as described in “CEC Backplane” on page 437.
3. Place the CEC drawer in the front service position as described in “Front Service Position” on page 460.
4. Remove the power supplies as described in “Power Supplies and Power Supply Fan Assemblies” on page 446.
5. Loosen the two screws from the center cover and remove the cover.
6. Remove all the cables from the power distribution board.
7. Remove the screws from the power distribution board.



8. Remove the power distribution board.

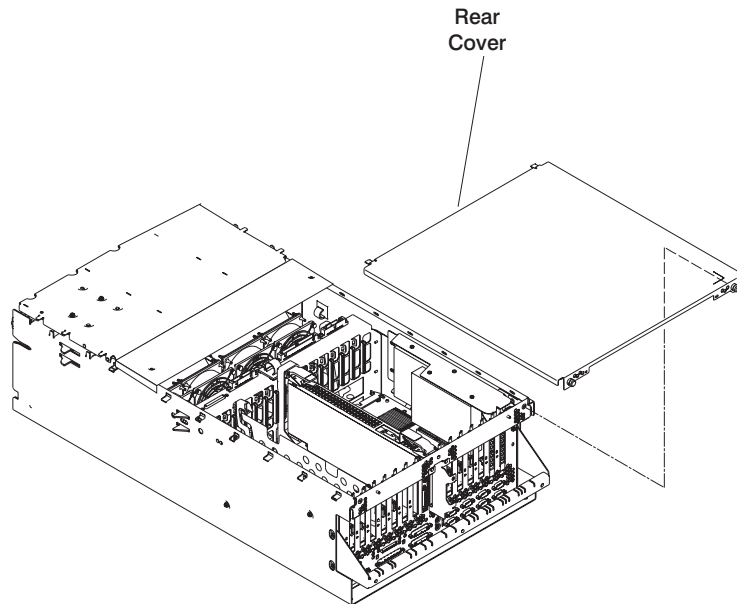
Replacement

Replace in reverse order.

I/O Drawer Power Distribution Board

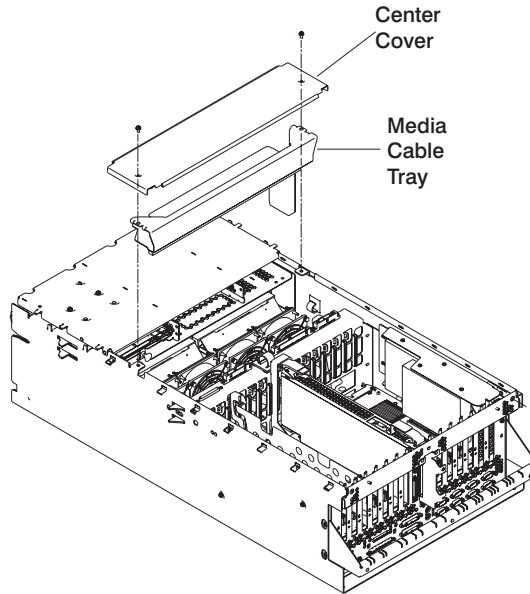
Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the I/O drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the rear cover.

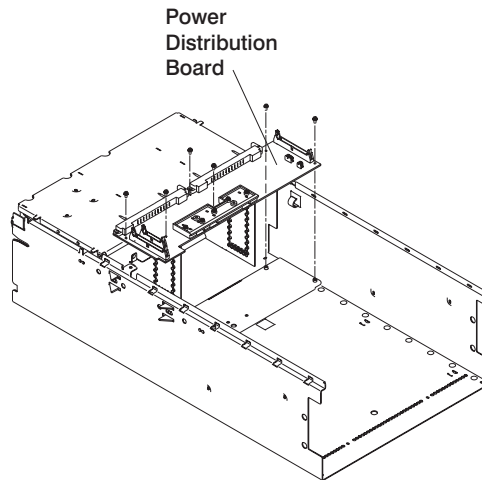


4. Remove any adapters or files installed in slots 12, 13, or 14.
5. Disconnect the four I/P cables from the I/O tray.
6. Remove the two screws from each side of the I/O drawer board assembly.
7. Disconnect the miscellaneous power cable from PCI board connector J21.
8. Slide the I/O drawer board assembly to the rear to disconnect the assembly from the power distribution board bus bar.
9. Place the I/O drawer in the front service position as described in “Front Service Position” on page 460.
10. Remove the power supplies as described in “Power Supplies and Power Supply Fan Assemblies” on page 446.

11. Loosen the two screws from the center cover and remove the cover.



12. Remove the media cable tray.
13. Remove the screws from the power distribution board.



14. Remove the power distribution board.

Replacement

Replace in reverse order.

Power Supplies and Power Supply Fan Assemblies

Notes:

1. Each drawer can have up to two power supplies. You can replace each power supply separately. The removal and replacement procedures are the same for each power supply.
2. This procedure applies to the CEC and I/O drawer power supplies.
3. Power supplies for the CEC and I/O drawers cannot be interchanged.
4. If a drawer has two power supplies, each is hot-pluggable. If only one needs to be removed, you do not have to power off the system.
5. Each power supply has a test switch. See “Power Supply Test Switch Procedure” on page 449.
6. If your drawer has only one power supply, the unused power supply position must be filled with a cooling unit, which must have a power supply fan assembly attached to it.
7. Do not hot-plug a power supply if the ambient room temperature is greater than 32°C (90°F), as it can cause loss of data or data corruption.
8. Be sure that the replacement power supply (or cooling unit) is ready to install. If the power supply (or cooling unit) is removed for longer than four minutes, a **shutdown** command is issued to the operating system.
9. Power supply 1 fan assembly (fans 1 and 2) is located on the rear of the primary power supply. Power supply 2 fan assembly (fans 3 and 4) is located on the rear of the secondary power supply. If only one fan in a fan assembly is bad, the fan assembly must be replaced. Power supply fan 5 is located in the primary power supply and if that fan fails, the power supply must be replaced. Power supply fan 6 is located in the secondary power supply and if that fan fails, the power supply must be replaced. Fan 9 is located in the cooling unit.

Attention: After hot-plugging a power supply, wait at least 5 minutes and then examine the system error logs to make sure power supply or power supply fan errors are not being logged.

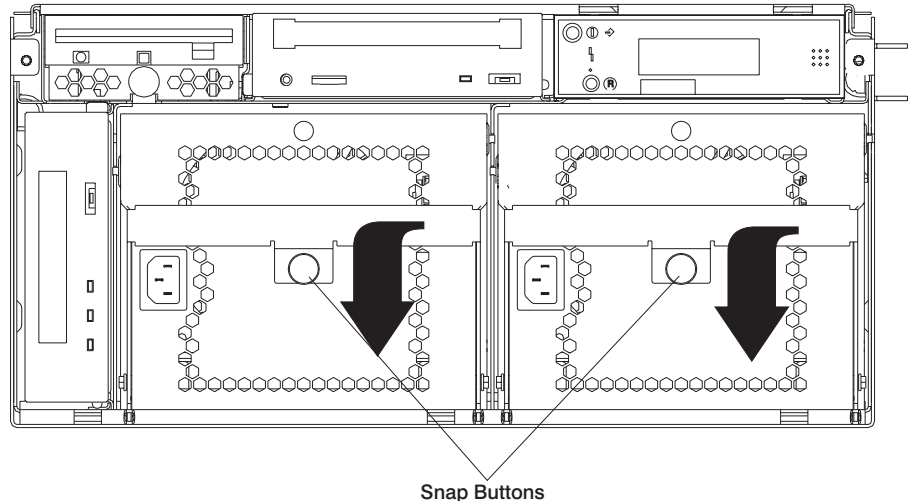
Removal

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.

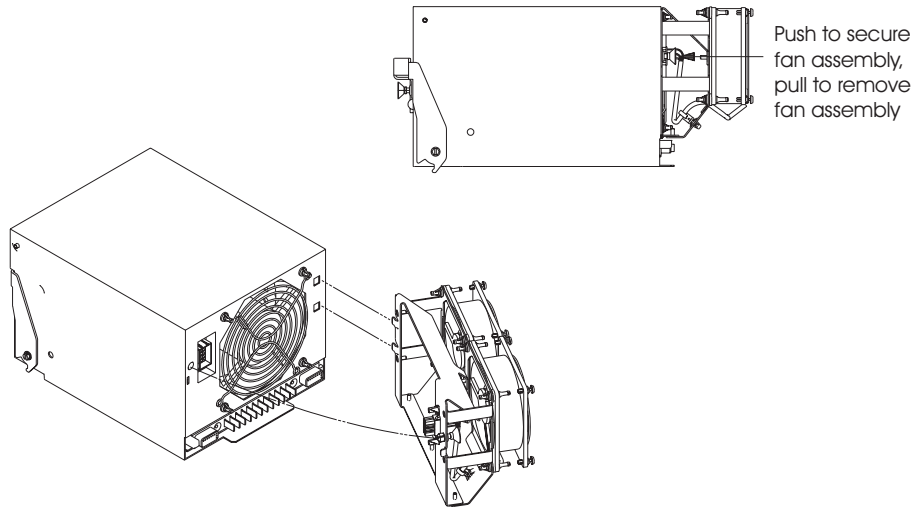
Attention: Be sure that the replacement power supply (or cooling unit) is ready to install. If the power supply (or cooling unit) is removed for longer than four minutes, a **shutdown** command is issued to the operating system.

1. If you have not already done so, open the front door of the rack unit.
2. Loosen the two thumbscrews that attach the front bezel to the drawer.
3. Grasp both sides of the front bezel and pull it off the drawer.
4. Unplug the power cord from the power supply you are removing.
5. Pull the snap button out on the power supply handle.
6. Grasp the handle of the power supply and pivot it downward.



7. Pull the power supply out of the drawer.
8. Remove the external fan assembly from the power supply and save it for replacement.

9. Pull out on the snap button and remove the fan assembly from the power supply.



Replacement

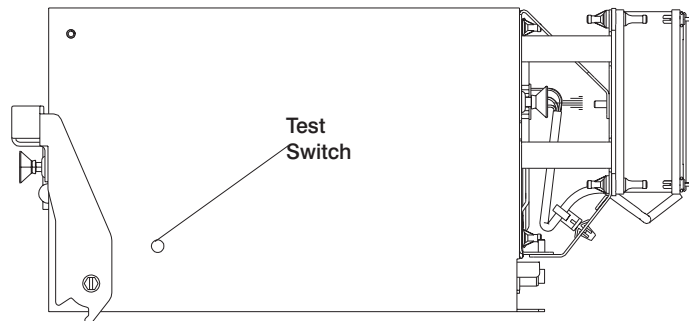
Note: The power supply handle must be in the down position for replacement.

Replace in the reverse order.

Power Supply Test Switch Procedure

Before you replace a power supply, use this procedure to determine if the power supply needs replacing.

1. Perform steps 1 through 7 in “Power Supplies and Power Supply Fan Assemblies” on page 446.
2. Connect the power cord to the power supply and look at the front of the power supply.
 - If the LED on the front of the power supply is not blinking, the power supply is defective. Continue with step 8 in “Power Supplies and Power Supply Fan Assemblies” on page 446.
 - If the LED on the front of the power supply is blinking, go to the next step.

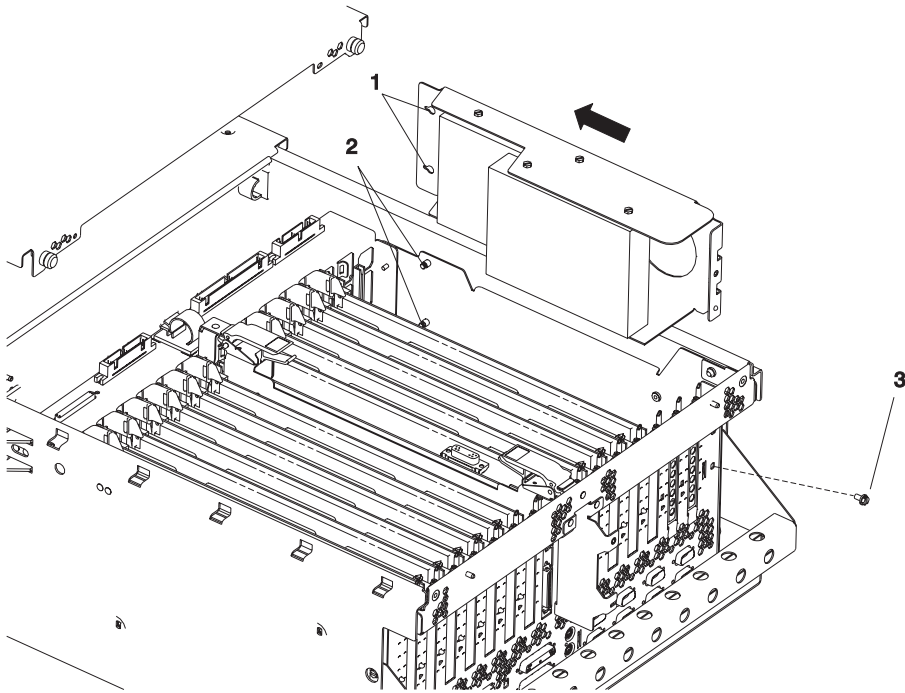


3. Use a pencil to press the test switch on the side of the power supply.
 - If the LED on the front of the power supply is on steady and the internal fan spins, the power supply is good and can be returned to the system.
 - If the LED on the front of the power supply is not on steady and the internal fan does not spin, the power supply is defective. Continue with step 8 in “Power Supplies and Power Supply Fan Assemblies” on page 446.

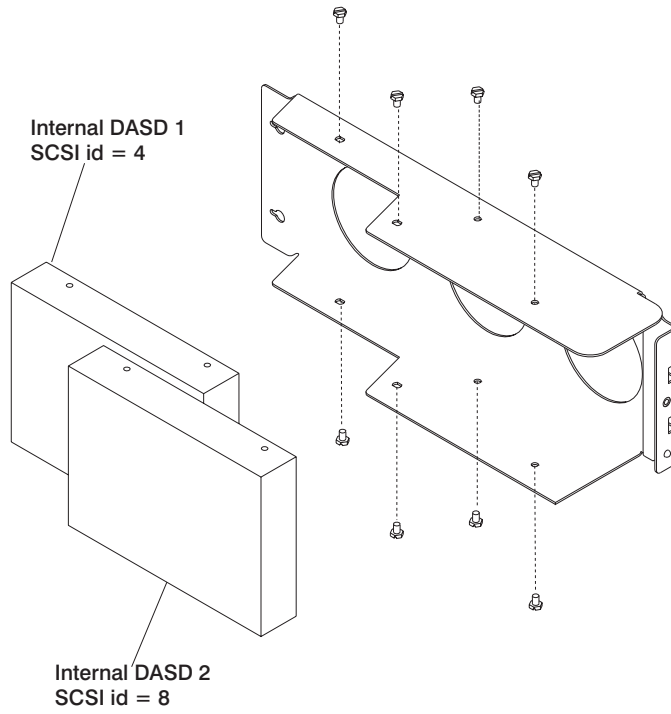
Internal Disk Drives

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the I/O drawer in the rear service position as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the back cover.
4. Remove the screw from the back of the disk drive carrier.
5. Slide the carrier forward and remove. The carrier has keyed slots that engage mounting posts on the chassis.



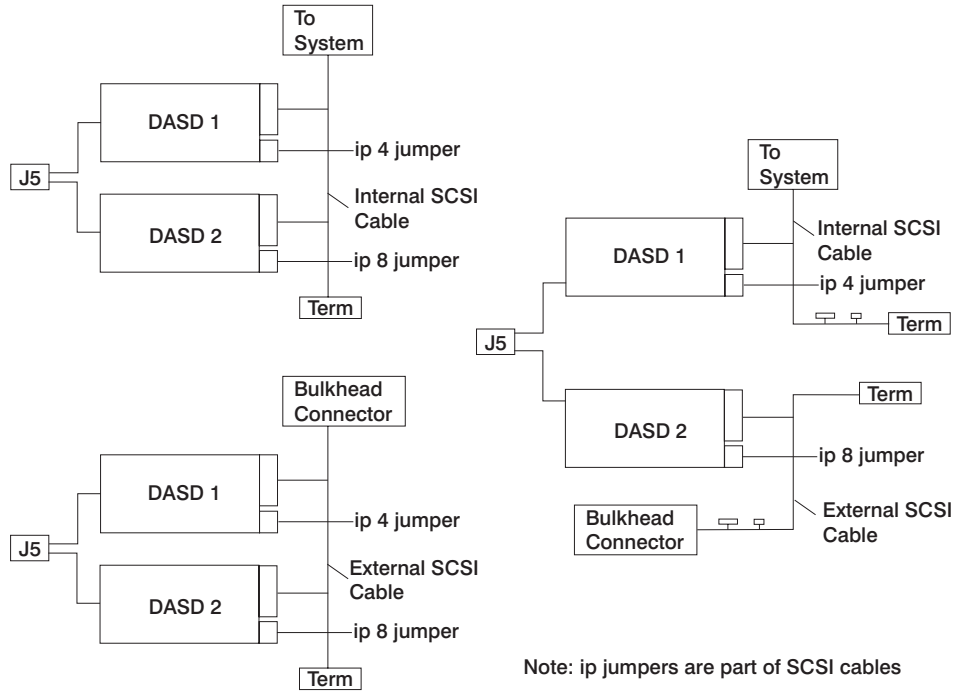
6. Make a note of how the disk drives are connected before disconnecting. Disconnect the internal cables from the drives.
7. If you are replacing a defective boot drive, remove the mounting screws from the carrier.



Replacement

Replace in reverse order. Refer to the following diagram for help with connecting the cables to the internal disk drives.

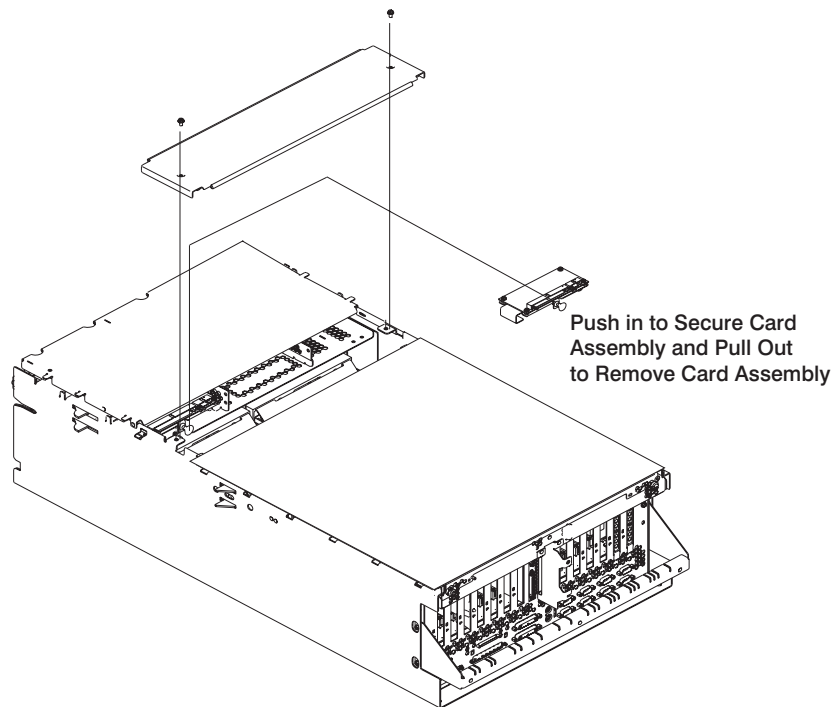
Alternate Internal Disk Drive Connections



Fan Controller Card

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the appropriate drawer in the front service position as described in “Front Service Position” on page 460.
3. Remove the two screws from the center cover and remove the cover.
4. Disconnect the cable from the fan controller card.
5. Pull out the snap button.
6. Remove the fan controller card.



Replacement

Replace in reverse order.

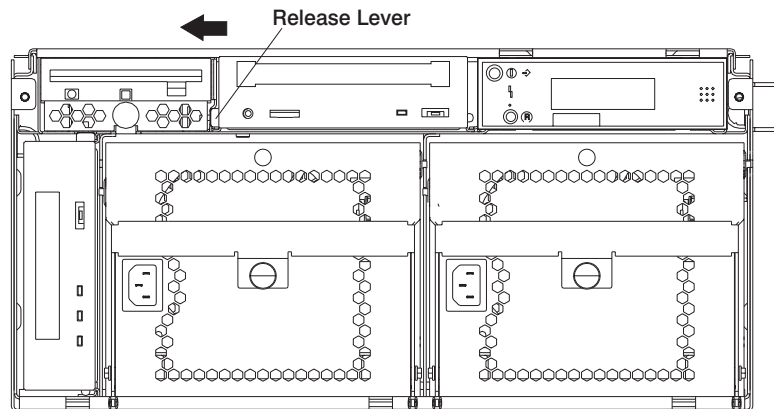
CD-ROM Drive

CAUTION:

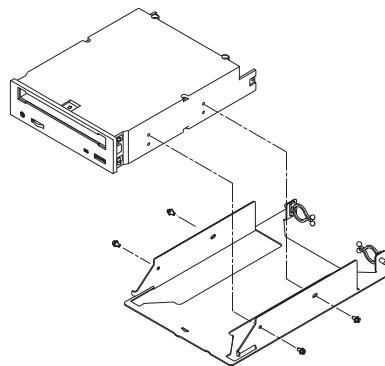
A class 1 laser is contained in the device. Do not attempt to operate the drive while it is disassembled. Do not attempt to open the covers of the drive as it is not serviceable and is replaced as a unit.

Removal

1. Turn off power as described in "Powering Off the System" on page 421.
2. If you have not already done so, open the front door of the rack unit.
3. Loosen the two thumbscrews that attach the front bezel to the I/O drawer.
4. Grasp both sides of the front bezel and pull it off the drawer.
5. Push the release lever to the left and pull the CD-ROM drive out.



6. Disconnect the cables from the CD-ROM drive.
7. Remove the screws that connect the carrier to the CD-ROM drive.



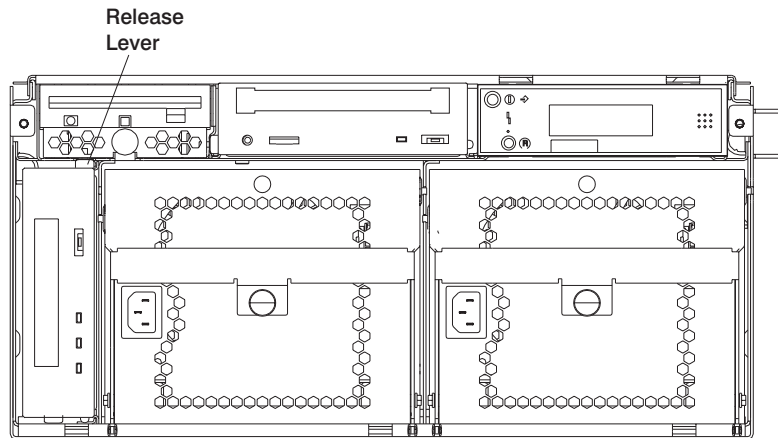
Replacement

Replace in reverse order.

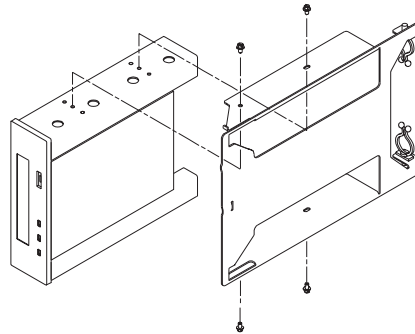
Tape Drive

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. If you have not already done so, open the front door of the rack unit.
3. Loosen the two thumbscrews that attach the front bezel to the I/O drawer.
4. Grasp both sides of the front bezel and pull it off the drawer.
5. Push up on the release lever and pull the tape drive out.



6. Disconnect the cables from the tape drive.
7. Remove the screws that connect the carrier to the tape drive.



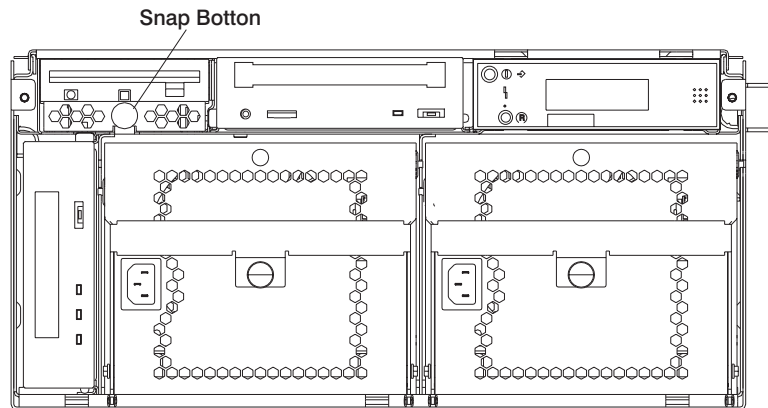
Replacement

Replace in reverse order.

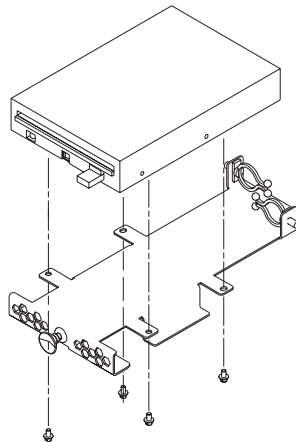
Diskette Drive

Removal

1. Turn off power as described in "Powering Off the System" on page 421.
2. If you have not already done so, open the front door of the rack unit.
3. Loosen the two thumbscrews that attach the front bezel to the I/O drawer.
4. Grasp both sides of the front bezel and pull it off the drawer.
5. Pull out on the snap button and pull the diskette drive out.



6. Disconnect the cables from the diskette drive.
7. Remove the screws that connect the carrier to the diskette drive.



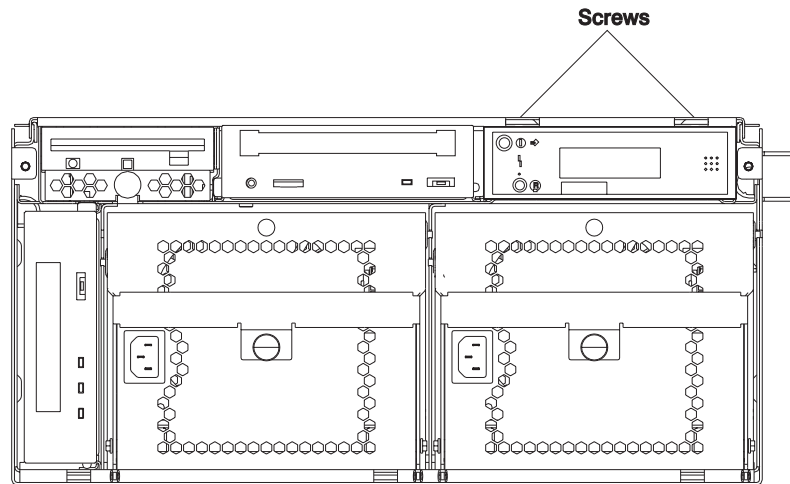
Replacement

Replace in reverse order.

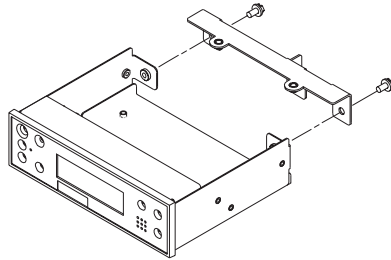
Operator Panel

Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the I/O drawer in the front service position as described in “Front Service Position” on page 460.
3. Loosen the two retaining screws that attach the front bezel to the drawer.
4. Grasp both sides of the front bezel and pull it off the drawer.
5. Place the drawer in the front service position as described in “Front Service Position” on page 460.
6. Remove the two screws from the top of the operator panel.

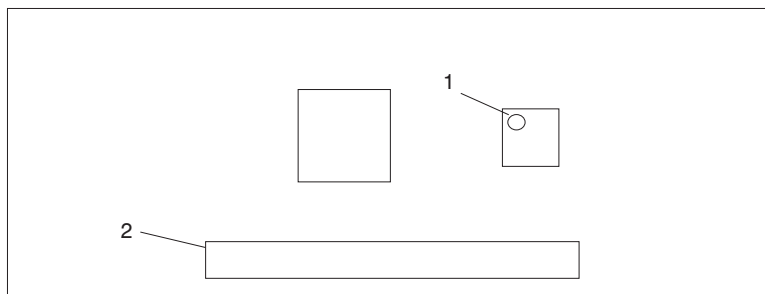


7. Pull the operator panel out.
8. Disconnect the cables from the operator panel.
9. Remove the operator panel from the mounting bracket.



Replacement

1. Remove the VPD module from the old operator panel and insert it in the new operator panel. Make sure you insert the module in the same position as it was in the old panel.

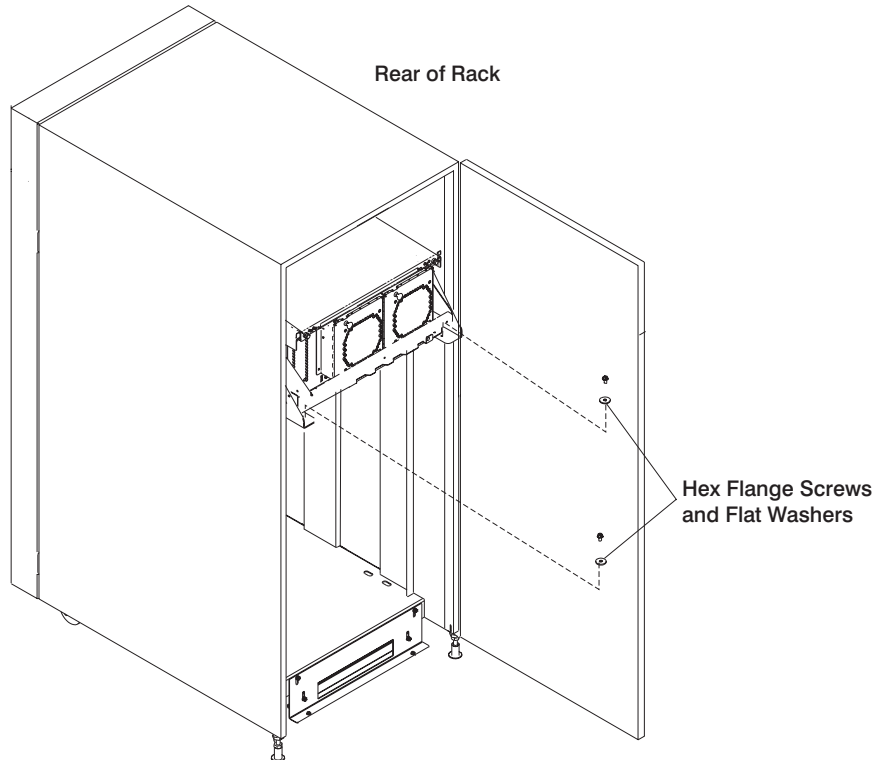


- 1** VPD Module
 - 2** Cable Connector
2. To replace, perform removal steps in reverse order.

Rear Service Position

To place a drawer in the rear service position, do the following:

1. If you have not already done so, open the front door of the rack unit.
2. Loosen the two thumbscrews that attach the front bezel to the drawer.
3. Grasp both sides of the front bezel and pull it off the drawer.
4. If you have not already done so, open the rear door of the rack unit.
5. If present, remove two screws securing the drawer to the rack.



6. Grasp the bar at the rear of the drawer, and pull the drawer to the rear until it is stopped by the two detents.

Front Service Position

To place a drawer in the front service position, do the following:

Attention: Do not pull the drawer out from the front. The drawer must be pushed to the front service position from the rear of the system.

1. If you have not already done so, open the front door of the rack unit.
2. Loosen the two thumbscrews that attach the front bezel to the drawer.
3. Grasp both sides of the front bezel and pull it off the drawer.
4. Remove the screws that attach the left and right retaining brackets and remove the brackets.
5. If you have not already done so, open the rear door of the rack unit.
6. If present, remove the two screws securing the drawer to the rack. Refer to "Rear Service Position" on page 459.
7. Push the drawer forward until it is stopped by the two detents.

Battery

CAUTION:

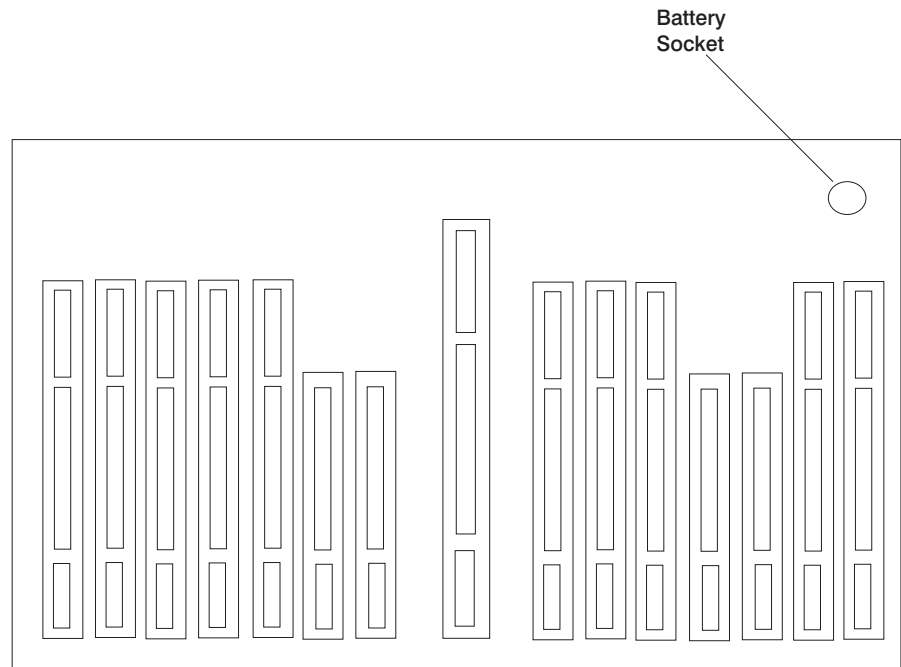
A lithium battery can cause fire, explosion, or a severe burn. Do not recharge, disassemble, heat above 100 degrees C (212 degrees F), solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace only with the part number specified for your system. Use of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

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

Dispose of the battery according to local regulations.

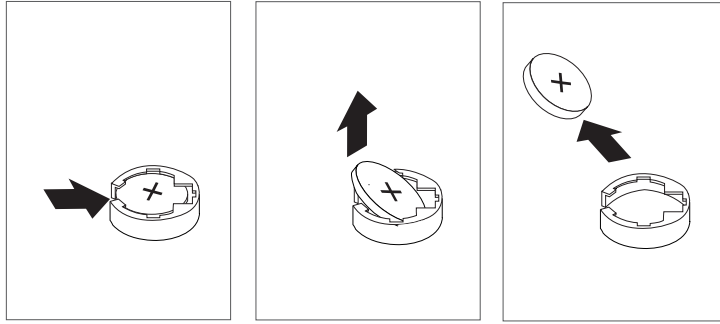
Removal

1. Turn off power as described in “Powering Off the System” on page 421.
2. Place the I/O drawer in the rear service position, as described in “Rear Service Position” on page 459.
3. Remove the two thumbscrews and remove the back top cover.
4. Locate the battery on the PCI board.



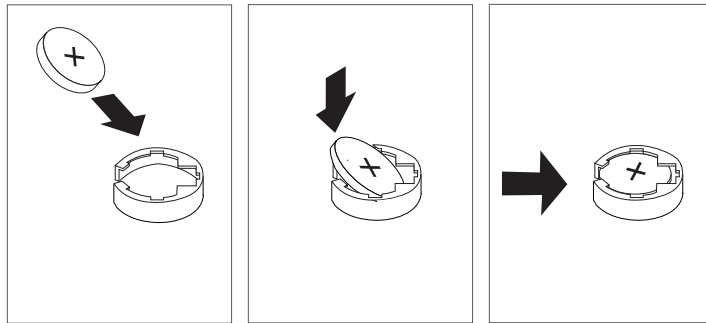
5. Remove any adapters or DASD in slots 13 and 14 to gain access to the battery.
6. Use one finger to gently slide the battery away from the notch in the battery socket. Then use your thumb and index finger to hold the battery as it pushes out of the

socket. (The spring mechanism behind the battery pushes it out.)



Replacement

Tilt the battery so that you can insert it into the battery socket. Slide the battery into the battery socket, then push it down into the socket.



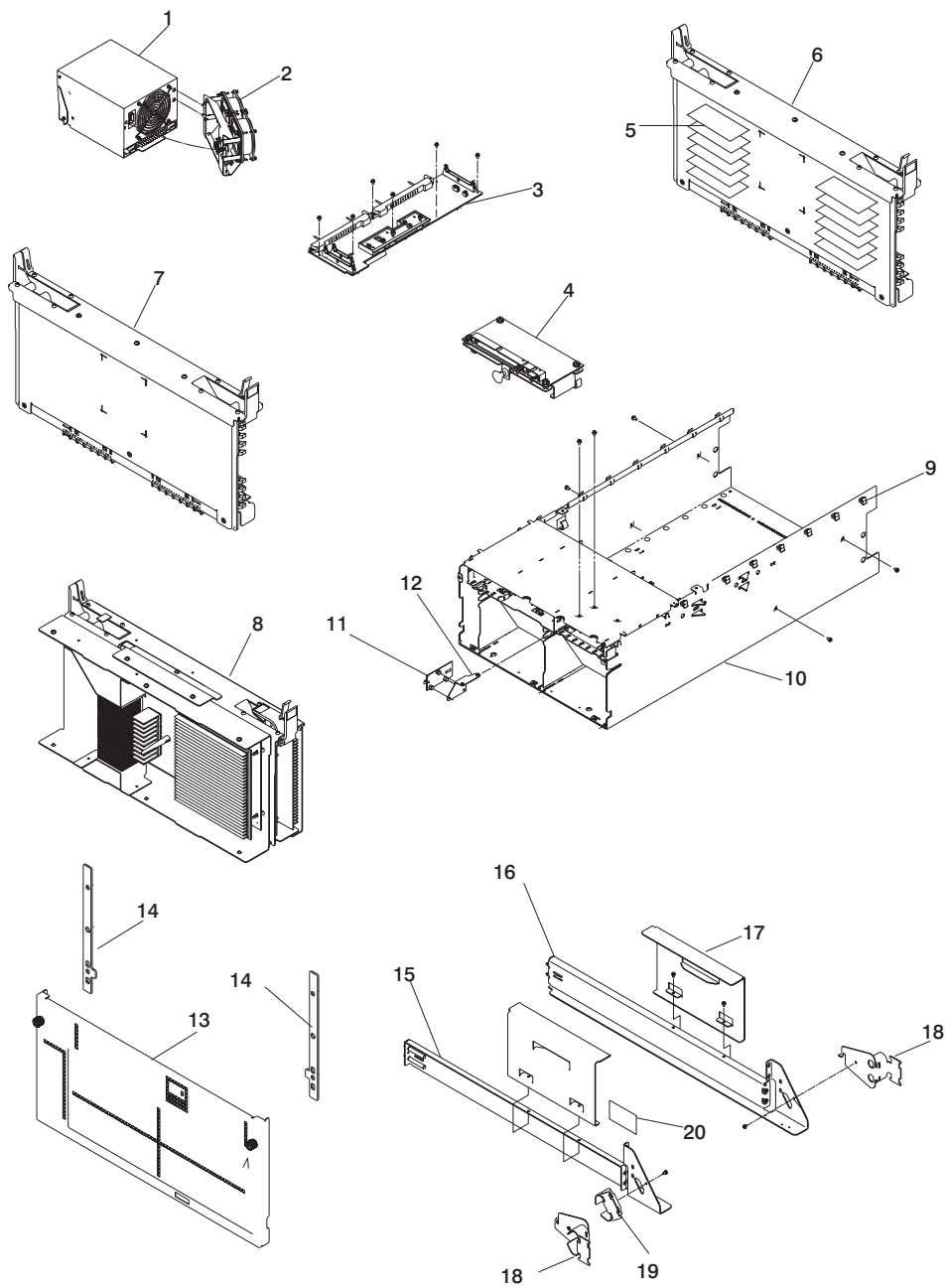
Notes:

1. Be sure to tell the customer to reset the time and date.
2. Ensure that the battery polarity is correct; place the battery in the socket with the positive side facing up.

Chapter 10. Parts Information

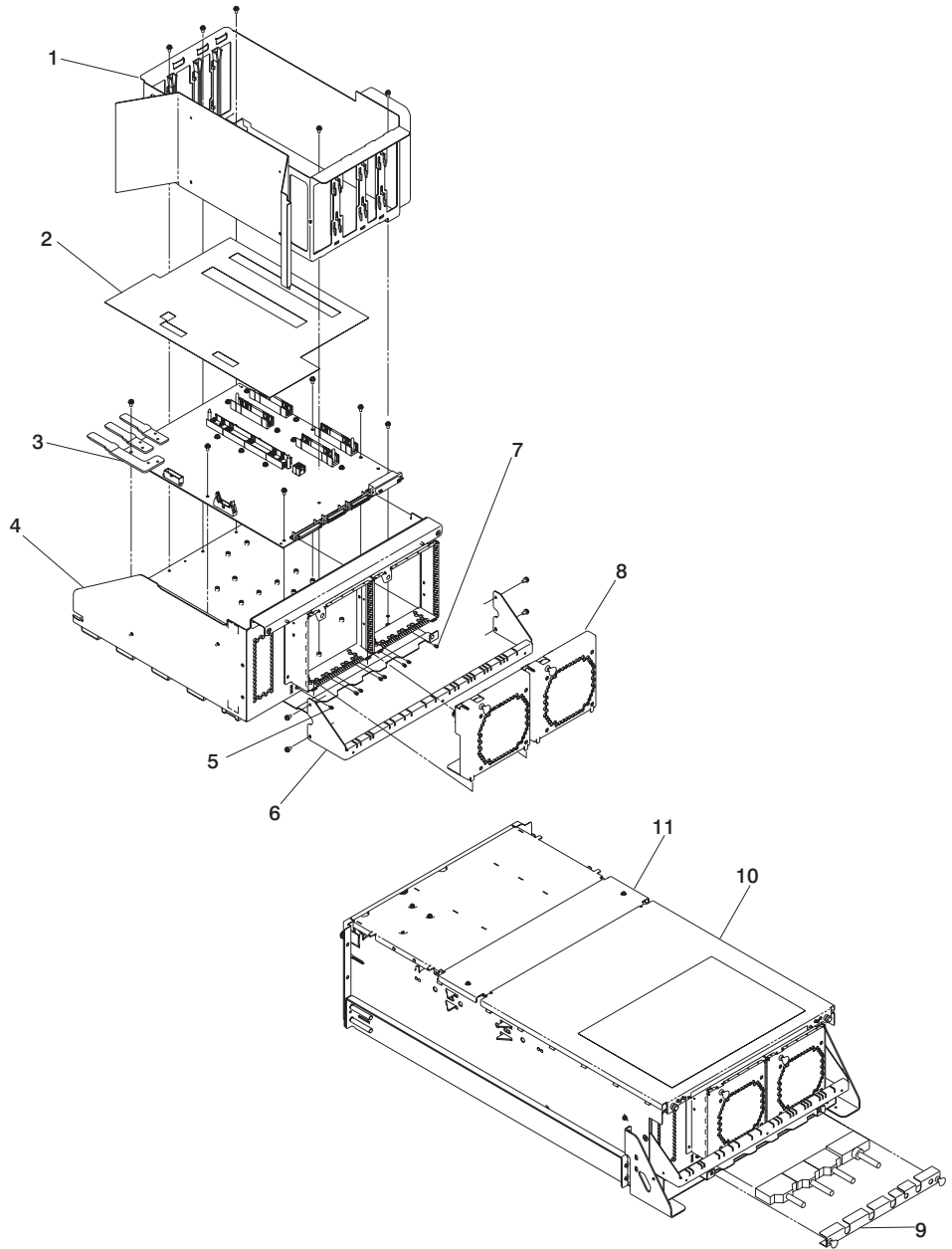
This chapter contains parts information for the system.

CEC Drawer



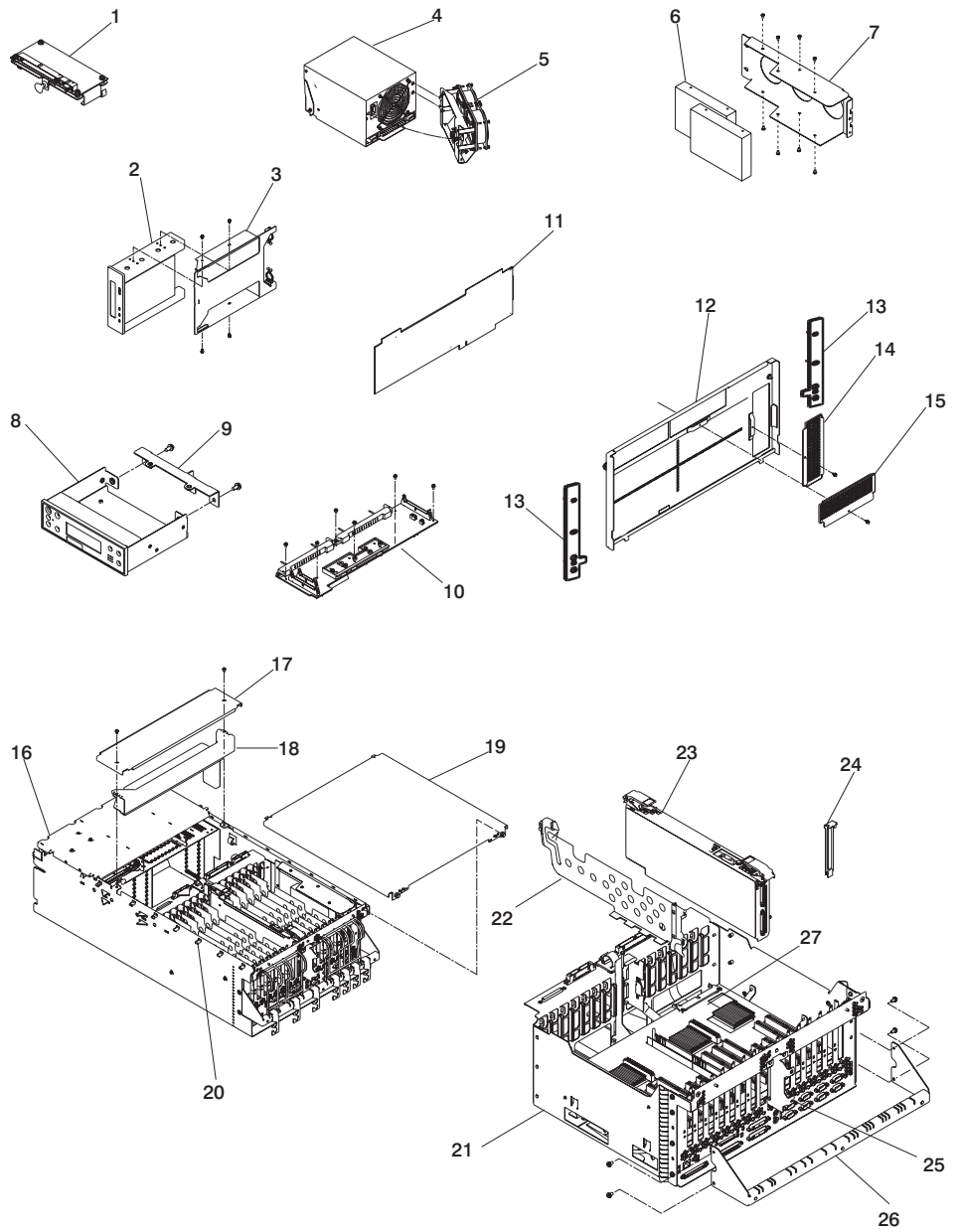
| Index | Part Number | CCIN Number | Units Per Assembly | Description |
|-------|-------------|-------------|--------------------|--|
| 1 | 11K0802 | | Up to 2 | AC power supply (645 watt) |
| | 41L5404 | | 1 | DC power supply |
| | 03N2829 | | 1 | Cooling unit |
| 2 | 41L5448 | | 1 | Fan assembly |
| 3 | 41L5406 | | 1 | Power distribution board |
| 4 | 11K1107 | | 1 | Fan controller card |
| 5 | 07L7729 | | Up to 32 | 32MB DIMM |
| | 93H4702 | | Up to 32 | 128MB DIMM |
| | 09L5585 | | Up to 32 | 128MB DIMM |
| | 07L9030 | | Up to 32 | 256MB DIMM |
| | 10L5417 | | Up to 32 | 512MB DIMM F/C 4131 (Cannot be mixed with F/C 4100 in a quad or in a pair if memory DIMMs are installed on a 1 way CPU card) |
| | 07L9758 | | Up to 32 | 512MB DIMM F/C 4100 (Cannot be mixed with F/C 4131 in a quad or in a pair if memory DIMMs are installed on a 1 way CPU card) |
| | 09P0335 | | Up to 32 | 1GB DIMM |
| | 44H8167 | | Up to 32 | Memory DIMM filler |
| 6 | 04N4808 | 288D | Up to 2 | Memory riser card |
| 7 | 23L8127 | 263D | Up to 2 | Memory filler card |
| 8 | 04N4765 | 24A1 | 1 | 1-way 450 MHz processor |
| | 04N5353 | 25BB | 1 | 1-way 600 MHz processor |
| | 53P2023 | 25CB | 1 | 1-way 750 MHz processor |
| | 21P4751 | 24A2 | 1 | 2-way 450 MHz processor |
| | 23L7785 | 25BD | 1 | 2-way 600 MHz processor |
| | 53P1514 | 25EB | 1 | 2-way 750 MHz processor |
| | 21P4760 | 24A3 | 1 | 4-way 450 MHz processor |
| | 23L7794 | 25BE | 1 | 4-way 600 MHz processor |
| | 53P1301 | 25EA | 1 | 4-way 750 MHz processor |
| | 21P4774 | 24A4 | 1 | 6-way 500 MHz processor (some models) |
| | 23L7799 | 25BF | 1 | 6-way 668 MHz processor (some models) |
| | 53P1334 | 25F2 | 1 | 6-way 750 MHz processor |
| | 04N2934 | | 1 | Processor filler card |
| 9 | 11K0868 | | 14 | Clip (ac cord) |
| 10 | 11K0207 | | 1 | Chassis |
| 11 | 44L0026 | | 1 | LED panel assembly |
| 12 | 03N3174 | | 1 | LED panel bracket |
| 13 | 03N3453 | | 1 | Bezel (ac systems) |
| | 00P1749 | | 1 | Bezel OEM (ac systems) |
| | 03N3607 | | 1 | Bezel (dc systems) |
| | 09P0752 | | 1 | Bezel OEM (dc systems) |

| Index | Part Number | CCIN Number | Units Per Assembly | Description |
|--------------|--------------------|------------------------|-------------------------------|-------------------------------------|
| 14 | 11K0358 | | 2 | Trim/ship bracket |
| 15 | 03N3845 | | 1 | Left rail assembly |
| 16 | 03N3847 | | 1 | Right rail assembly |
| 17 | 09P0327 | | 2 | Anti-tip bracket |
| 18 | 00P2402 | | 2 | Channel cable bracket (T00 rack) |
| 19 | 11K0826 | | 2 | Channel cable bracket (S00 rack) |
| 20 | 11K0851 | | 1 | Reset bracket |



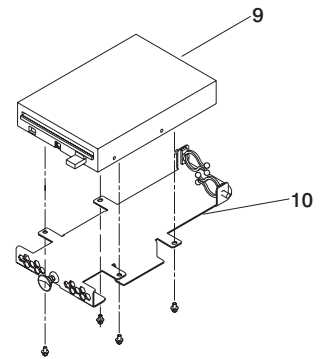
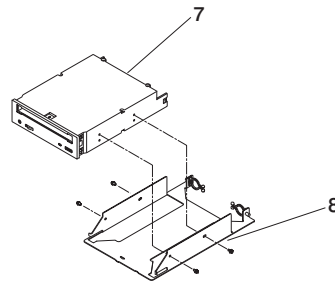
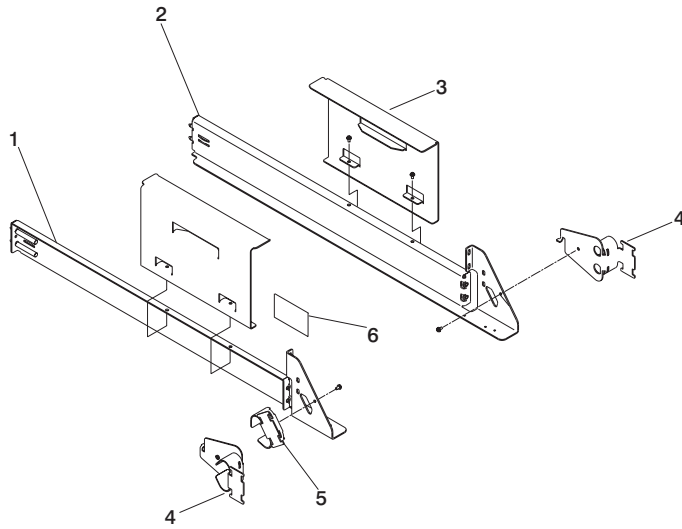
| Index | Part Number | Units Per Assy | Description |
|--------------|--------------------|-----------------------|---------------------|
| 1 | 11K0237 | 1 | CEC cage assembly |
| 2 | 11K0354 | 1 | Insulator-CEC board |
| 3 | 21P3784 | 1 | CEC backplane |
| 4 | 11K0122 | 1 | Mech. Assembly-CEC |
| 5 | 46G3537 | 6 | Standoff |
| 6 | 09P4061 | 1 | Tie bar assembly |
| 7 | 1614920 | 2 | Standoff |
| 8 | 41L5315 | 2 | Fan assembly |
| 9 | 11K0249 | 1 | Cable bracket |
| 10 | 41L5208 | 1 | Back cover |
| 11 | 41L5206 | 1 | Center cover |
| | 00G1268 | As required | Screw - M4 |

I/O Drawer



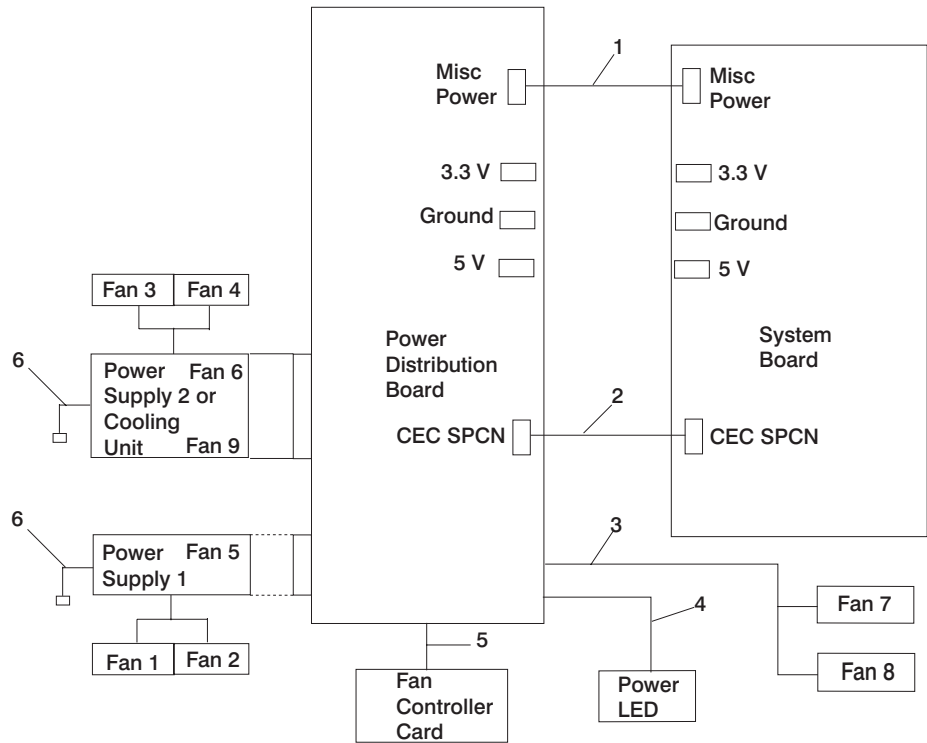
| Index | Part Number | CCIN Number | Units Per Assy | Description |
|-------|-------------|-------------|----------------|------------------------------------|
| 1 | 11K1107 | | 1 | Fan controller card |
| 2 | See note | | 1 | Tape drive |
| 3 | 41L5691 | | 1 | Tape drive carrier |
| 4 | 11K0812 | | Up to 2 | AC power supply (595 watt) |
| | 41L5413 | | Up to 2 | DC power supply |
| | 03N2829 | | 1 | Cooling unit (Power supply filler) |
| 5 | 41L5448 | | 1 | Fan assembly |
| 6 | See note | | Up to 2 | Disk drive |
| 7 | 03N2897 | | 1 | Disk drive mounting bracket |
| 8 | 24L1089 | | 1 | Primary operator panel |
| | 24L0955 | | 1 | Secondary operator panel |
| 9 | 03N2965 | | 1 | Operator panel bracket |
| 10 | 00P2382 | | 1 | Power distribution board |
| 11 | See note | | Up to 14 | Adapter card |
| 12 | 03N3176 | | 1 | Bezel (ac systems) |
| | 00P1746 | | 1 | Bezel OEM (ac systems) |
| | 03N3610 | | 1 | Bezel (dc systems) |
| | 09P0751 | | 1 | Bezel OEM (dc systems) |
| 13 | 11K0358 | | 2 | Trim/ship bracket |
| 14 | 03N3253 | | 1 | Bezel blank (tape drive) |
| | 59H4118 | | 1 | Bezel black (tape drive) |
| | 94H0136 | | 1 | Bezel (tape drive) |
| 15 | 03N3253 | | 1 | Bezel blank (CD-ROM) |
| | 97H7611 | | 1 | Bezel black (CD-ROM) |
| 16 | 11K0207 | | 1 | Chassis |
| 17 | 41L5206 | | 1 | Center cover |
| 18 | 11K0243 | | 1 | Cable tray |
| 19 | 41L5208 | | 2 | Back cover |
| 20 | 11K0868 | | 14 | Clip (AC cord) |
| 21 | 41L5560 | | 1 | Primary I/O tray assembly |
| | 41L5561 | | 1 | Secondary I/O tray assembly |
| 22 | 44L0041 | | 13 | I/O divider |
| 23 | 04N6907 | 2691 | 1 | RIO card assembly |
| 24 | 03K8992 | | As required | I/O blanks |
| 25 | 11K0584 | | 1 | RIO cable bracket |
| 26 | 09P4061 | | 1 | Tie bar |
| 27 | 16G8095 | | 1 | Battery |
| | 21P5041 | | 1 | SP Control W/S Adapter |
| | 21P6323 | | 1 | SAMI CABLE, internal |

Note: See RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems for part numbers.



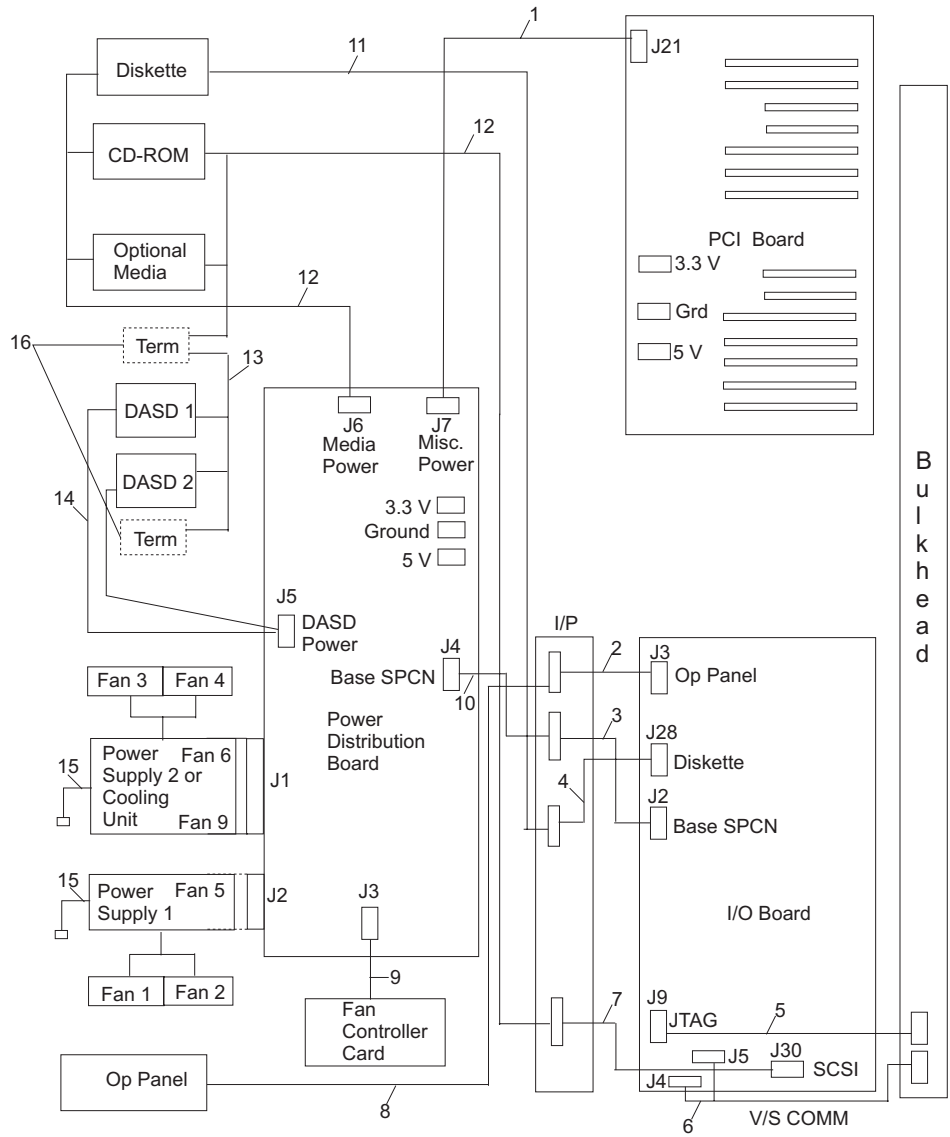
| Index | Part Number | Units Per Assy | Description |
|---|-------------|----------------|----------------------------------|
| 1 | 03N3845 | 1 | Left rail assembly |
| 2 | 03N3847 | 1 | Right rail assembly |
| 3 | 09P0327 | 2 | Anti-tip bracket |
| 4 | 00P2402 | 2 | Channel cable bracket (T00 Rack) |
| 5 | 11K0826 | 2 | Channel cable bracket (S00 Rack) |
| 6 | 11K0851 | 1 | Reset bracket |
| 7 | See note | 2 | CD-ROM drive |
| 8 | 41L5691 | 1 | CD-ROM carrier |
| 9 | 76H4091 | 1 | Diskette drive |
| 10 | 41L5688 | 1 | Diskette drive carrier |
| | 00G1268 | As required | Screw - M4 |
| | 33G3907 | As required | Screw - M3 |
| Note: | | | |
| See <i>RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems</i> for part numbers. | | | |

CEC Drawer Internal Cables



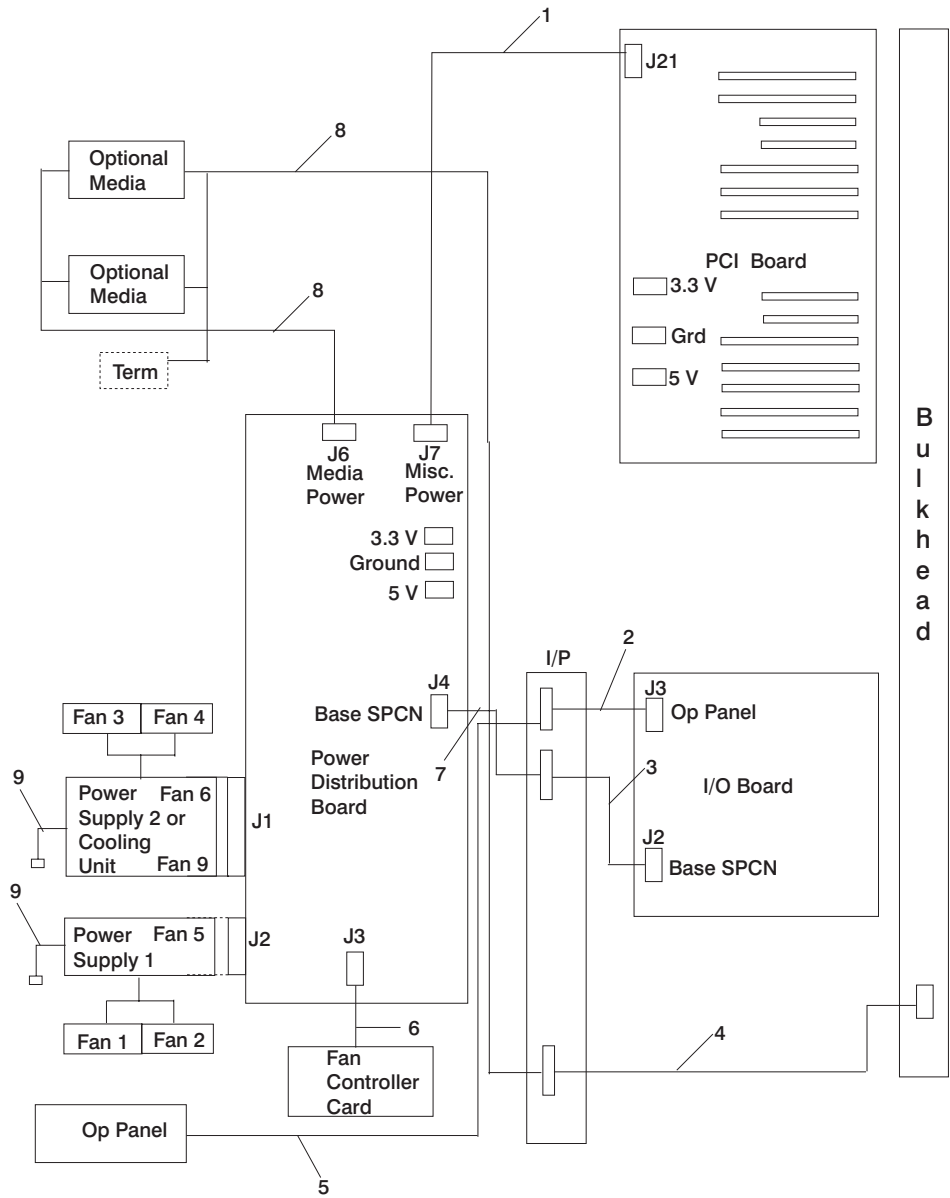
| Index | Part Number | Units Per Assembly | Description |
|--------------|--------------------|---------------------------|---------------------------|
| 1 | 41L5866 | 1 | Misc. Power Cable |
| 2 | 41L5867 | 1 | CEC SPCN Cable |
| 3 | 41L5868 | 1 | Fan Power Cable |
| 4 | 03N3235 | 1 | Power LED Cable |
| 5 | 41L5652 | 1 | Fan Controller Card Cable |
| 6 | 34G0240 | Up to 2 | AC Power Cable |
| | 11K0400 | Up to 2 | DC Power Cable |

Primary I/O Drawer Internal Cables



| Index | Part Number | Units Per Assy | Description |
|--------------|--------------------|-----------------------|---|
| 1 | 03N3040 | 1 | Misc. Power Cable (PDB to PCI board) |
| 2 | 41L5517 | 1 | Operator Panel Cable (I/O board to I/P) |
| 3 | 41L5518 | 1 | Base SPCN Cable (I/O board to I/P) |
| 4 | 41L5516 | 1 | Diskette Cable (I/O board to I/P) |
| 5 | 41L5946 | 1 | JTAG Cable (I/O board to bulkhead) |
| 6 | 41L5521 | 1 | V/S COMM Cable (I/O board to bulkhead) |
| 7 | 41L5519 | 1 | Internal SCSI (I/O board to I/P) |
| 8 | 41L5649 | 1 | Operator Panel Cable (I/P to Op panel) |
| 9 | 42L5652 | 1 | Fan Cont. Card Cable (PDB to FCC) |
| 10 | 41L5650 | 1 | Base SPCN Cable (I/P to PDB) |
| 11 | 41L5522 | 1 | Diskette Cable (I/P to diskette) |
| 12 | 11K0233 | 1 | Internal SCSI Cable (signal and power) |
| 13 | 00P1676 | 1 | Internal SCSI Cable (Int. to IPL DASD) |
| | 09P1709 | 1 | External SCSI Cable (Ext. SCSI adapter to IPL DASD) |
| 14 | 09P1449 | 1 | DASD Power Cable (PDB to IPL DASD) |
| 15 | 34G0240 | Up to 2 | AC Power Cable |
| | 00P1799 | Up to 2 | DC Power Cable |
| | 40H6328 | 1 | 9–25 Pin adapter |
| 16 | 88G3977 | 1 | SCSI Terminator |

Secondary I/O Drawer Internal Cables

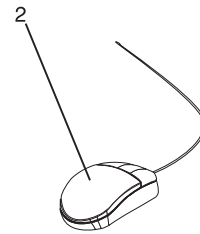
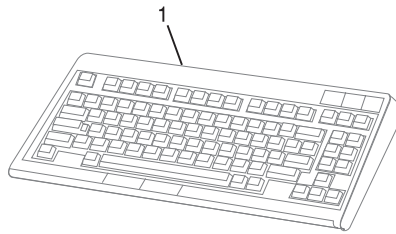


| Index | Part Number | Units Per Assy | Description |
|--------------|--------------------|-----------------------|---|
| 1 | 03N3040 | 1 | Misc. Power Cable (PDB to PCI board) |
| 2 | 41L5517 | 1 | Operator Panel Cable (I/O board to I/P) |
| 3 | 41L5518 | 1 | Base SPCN Cable (I/O board to I/P) |
| 4 | 03N3448 | 1 | SCSI Cable (bulkhead to I/P) |
| 5 | 41L5649 | 1 | Operator Panel Cable (I/P to Op panel) |
| 6 | 41L5652 | 1 | Fan Cont. Card Cable (PDB to FCC) |
| 7 | 41L5650 | 1 | Base SPCN Cable (I/P to PDB) |
| 8 | 11K0233 | 1 | Internal SCSI Cable (signal and power) |
| 9 | 34G0240 | 1 | AC Power Cable (PS to PDB) to FCC |

External Cables

| FRU Part Number | Units Per Assy | Description |
|-----------------|----------------|--|
| 21H7375 | 1 | JTAG cable 3-meter |
| 44L0033 | 1 | V/S COMM cable 3-meter |
| 97H7328 | 1 | V/S COMM cable 6-meter |
| 44L0005 | Up to 6 | RIO cable 3-meter |
| 97H7490 | Up to 6 | RIO cable 6-meter |
| 04N7014 | Up to 6 | RIO cable 15-meter |
| 09P1251 | Up to 3 | SPCN cable 3-meter |
| 21F9469 | Up to 3 | SPCN cable 6-meter |
| 21F9358 | Up to 3 | SPCN cable 15-meter |
| 1614920 | 2 | JTAG cable standoff (CEC and primary I/O drawer) |
| 46G3537 | 2 | RIO cable standoff (CEC drawer) |
| 46G3537 | 2 | RIO cable standoff (I/O drawer) |
| 44H7478 | 1 | V/S COMM cable standoff (I/O drawer) |
| 46G3537 | 1 | V/S COMM cable standoff (CEC) |
| 62X0388 | 10 | Primary I/O drawer: parallel cable standoff debug cable standoff serial cable standoff SPCN cable standoff |
| 07L7411 | 1 | External SCSI cable standoff (I/O drawer) |
| 12J4098 | 1 | 8 foot cable, mouse |
| 00P2401 | 2 | Power cable |

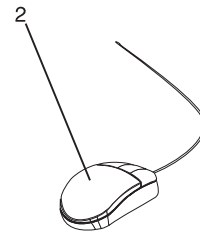
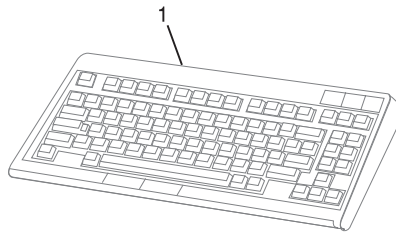
Keyboards and Mouse



| Index Number | FRU Part Number | Units Per Assy | 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 Romainian (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) |

| Index Number | FRU Part Number | Units Per Assy | Description |
|---------------------|------------------------|-----------------------|-----------------------------------|
| | 93H8154 | 1 | Keyboard, 106 Japan (ID 194) |
| | 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 Assy | 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) |

| Index Number | FRU Part Number | Units Per Assy | Description |
|---------------------|------------------------|-----------------------|-----------------------------------|
| | 07L9480 | 1 | Keyboard, 106 Japan (ID 194) |
| | 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, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. For country specific instructions refer to the following web site:
<http://www.ibm.com/ibm/environment/products/prp.phtml>

This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries, contact your local waste disposal facility.

In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, please contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

Environmental Design

The environmental efforts that have gone into the design of this system signify IBM's commitment to improve the quality of its products and processes. Some of these accomplishments include the elimination of the use of Class 1 ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Acoustical Noise Emissions

The equivalent continuous A-weighted sound pressure level at workstations (emission sound pressure level at the 1-meter bystander positions) does not exceed 70 dB(A).

Der Geräuschpegel der Einheit ist kleiner oder gleich 70 db(A).

Declared Acoustical Noise Emissions

| Noise Emissions | Operating | Idle |
|--------------------------|-----------|----------|
| With H80 CEC Drawer only | | |
| $L_{WA,d}$ | 5.8 bels | 5.8 bels |
| $L_{pA,m}$ | N/A | N/A |
| $<L_{pA}>_m$ | 45 dBA | 45 dBA |

| | | |
|--|------------------|-------------|
| Impulsive or prominent discrete tones | No | No |
| Noise Emissions | Operating | Idle |
| With H80 and Primary I/O Drawer | | |
| L_{WA_d} | 6.2 bels | 6.2 bels |
| L_{pA_m} | N/A | N/A |
| $\langle L_{pA} \rangle_m$ | 48 dBA | 48 dBA |
| Impulsive or prominent discrete tones | No | No |
| Noise Emissions¹ | Operating | Idle |
| L_{WA_d} | 5.8 bels | 5.8 bels |
| L_{pA_m} | N/A | N/A |
| $\langle L_{pA} \rangle_m$ | 45 dBA | 45 dBA |
| Impulsive or prominent discrete tones | No | No |
| 1. Noise emissions data are based on the following configuration: the drawer is mounted in a T00 Rack and a power distribution unit. | | |

Noise Emission Notes

1. L_{WA_d} is the declared (upper limit) sound power emission level for a production series of machines.
2. L_{pA_m} is the mean value of the A-weighted 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 A-weighted 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.

Appendix B. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

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Appendix C. Service Processor Setup and Test

For your convenience, an example of a basic service processor setup checklist is included here. Your setup may include more or fewer of the available features, so you can adjust this checklist for your own application so that it is helpful to you.

Service Processor Setup Checklist

1. Unplug the power cord from the server.
2. Attach a local terminal for this setup procedure.
3. Plug in the system and power on the local terminal.
Attention: Make sure that system power remains off.
4. Start the service processor menus. See Chapter 7, “Using the Service Processor” on page 361.
5. Set the system name. See “Privileged User Menus” on page 364.
6. Enable surveillance. See “Service Processor Functions” on page 389.
7. Configure Call-In/Call-Out. See “Call-In/Call-Out Setup Menu” on page 383.
8. Exit the service processor menus.
9. Unplug the power cord from the system.
10. Attach modems (if needed). See “Accessing the Service Processor Menus Remotely” on page 362.
11. Plug in the system.
Attention: Make sure that the system power remains off.
12. Test both of the following:
 - Call-In, see “Testing Call-In” on page 490
 - Call-Out, see “Testing Call-Out” on page 490
13. Use the “Save or Restore Hardware Management Policies,” in the “Introduction to Tasks and Service Aids” section of the *RS/6000 and @server pSeries Diagnostics Information for Multiple Bus Systems* to back up the service processor settings.

Note: This step is strongly recommended to protect the usefulness of the service processor and the availability of the server.

Your service processor is now ready for use.

Testing the Setup

This section contains sample testing procedures to help ensure that your setup is working.

These tests include communicating with the server operating system. Before you start, ensure that the necessary serial port(s) is configured. If you need assistance, refer to “Serial Port Configuration” on page 491.

The server should be powered off as a result of the “Service Processor Setup Checklist” on page 489.

Testing Call-In

1. At your remote terminal, call in to your server. Your server answers and offers you the Service Processor Main Menu after requesting your privileged access password.
2. Select **System Power Control**.
3. Select **Power-On System**.
When you are asked if you wish to continue powering on the system, type **Y**.
4. After the system firmware and operating system have initialized the server, the login prompt displays at your remote terminal if you set up Seamless Modem Transfer (refer to “Transfer of a Modem Session” on page 498 for more information). This may take several minutes. When the login prompt displays, you have successfully called the service processor.
5. Type `logout` to disconnect from the operating system. The message `No Carrier` displays on your remote terminal.
6. Call your server again. The operating system answers and offers you the login prompt. If these tests are successful, call-in is working.
7. Log in and type `shutdown` to shut down your server.
8. The message `No Carrier` displays on your remote terminal.

Testing Call-Out

During the setup, you entered your phone numbers for the pager (on page 386) and customer voice (on page 386). These numbers are used for this test.

1. Your remote terminal is disconnected as a result of the Call-In test.
2. Call your server again.
3. At the service processor main menu, select **Call-In/Call-Out Setup** menu, then select **Call-Out** test. This action causes a simulated error condition for the purposes of this test.
4. After a few moments, a message displays, regarding an illegal entry. Press `Enter` to clear the message and return to the main menu.
5. When your telephone rings, answer the call. You should hear the sound of a telephone being dialed. Your computer is trying to page you.

If this test is successful, call-out is working correctly.

Return to the “Telephone Number Setup Menu” on page 386 to enter the actual telephone numbers your server will use for reporting problems.

Serial Port Configuration

To configure the serial port on an AIX system, run the following from an AIX console:

1. Log in as root user.
2. To determine if you have any serial ports already configured, type:

```
lsdev -Cc tty
```

If no serial ports are configured, none are listed. If you want to configure serial ports that are not listed, continue with the remaining steps.

3. Identify the serial port(s) with the modem(s).
4. Type `smit tty`
5. Select **add tty**
6. Select **RS232**
7. Select **Baud rate 9600** or higher.
8. Select **login enable** and set the flow control to RTS.
9. Commit the selections and set up any other needed serial ports.
10. Exit SMIT.

Appendix D. Modem Configurations

The service processor is designed to place little demand on an attached modem, thereby increasing the setup and connection success rates.

Sample Modem Configuration Files

This appendix contains information about several sample modem configuration files that either work directly with your modem or provide a good starting point for a custom setup.

The sample modem configuration files are located in your service processor firmware in the **/usr/share/modems** subdirectory (if your server is using AIX) with the following names. A listing of each specific file is included in this appendix.

Generic Modem Configuration Files

| AIX File Name | Service Processor 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 | Service Processor 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 determine which of the configuration files is suitable for your use.

Configuration File Selection

Use the following steps to select a configuration file:

1. Is your modem an IBM 7852-400?

If Yes, use modem configuration file **modem_m0.cfg** and go to step 7 on page 495.

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 497 for the correct switch settings.

If No, continue with step 2.

2. Is your modem an IBM 7857-017?

If Yes, use modem configuration file **modem_m1.cfg** and go to step 7 on page 495.

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.

If No, continue with step 3.

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:

- ATZ reset command

or

- ATZ n reset commands, where n can be 0, 1, and so on?

If ATZ, configuration file **modem_z.cfg** is recommended.

If ATZ n , configuration file **modem_z0.cfg** is recommended.

Go to step 7 on page 495.

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, disable this test. You can use sample configuration files

/usr/share/modem_m0.cfg or **/usr/share/modem_m1.cfg** as models to help you create a file for your particular modem. See “Customizing the Modem Configuration Files” on page 496 for more information. Go to step 7 on page 495.

If No, go to step 6.

6. Does your modem respond to:

- AT&F reset command

or

- AT&F n reset commands, where n can be 0, 1, and so on?

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. You have completed selection of the configuration file.

If your modem configuration selection is not available in the Service Processor Modem Configuration Menu, you must access it through the Configure Remote Maintenance Policy Service Aid.

If you find it necessary to adjust any of these configuration files, use the manual provided with your modem to accomplish that task. It is recommended you select settings that enable hardware flow control and respond to DTR.

Note: Some older modems do not respond to the **X0** or **&R1** commands. Edit out these commands from the modem configuration file if yours is such a modem. See your modem manual for more information.

Some modems, such as the IBM 7857-017, are not designed for the paging function. Although they can be used for paging, they 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 causes 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.

Examples for Using the Generic Sample Modem Configuration Files

The following table contains information to help you determine which modem configuration file to use with various modems.

| Modem | Setup Z | Setup Z0 (Rare) | Setup F | Setup F0 | Setup F1 |
|--|---------|--------------------|---------|----------|----------|
| AT&T DataPort 2001 (Ring interrupt only on first ring) | | | | 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 | | |

Customizing the Modem Configuration Files

You can create your own modem configuration files 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 service processor menus.

Note: If you have already set up your serial ports, line speeds, authorizations, and telephone numbers from the service processor menus, use the service aid to specify your customized modem configuration files.

If you have not already set up your serial ports, line speeds, authorizations, and telephone numbers from the service processor menus, use the service aids to set them while you specify your customized modem configuration files.

To disable Auto-Reliable Mode testing of the remote modem, use the sample modem configuration file `/usr/share/modems/modem_f.cfg` as a model that you can modify, as follows:

1. Find the necessary command in your modem manual.
2. Copy the `/usr/share/modems/modem_f.cfg` file to a new file with a different name (for example, `modem_fx.cfg`).
3. In the new file (`modem_fx.cfg`), change the line `Send "ATE0T\r"` to `Send "ATcccE0T\r"` where `ccc` is the added command as specified in your modem manual, as follows:

Change the third line of each of the following stanzas:

- `condout`

- condin
 - ripo
4. Save the changes.

IBM 7852-400 DIP Switch Settings

If you are using a 7852-400 modem to enable service processor communications, for proper operation, the dual inline package (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 |
| 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.

Xon/Xoff Modems

Some early modems assume software flow control (Xon/Xoff) between the computer and the modem. Modems with this design send extra characters during and after the transmitted data. The service processor cannot accept these extra characters. If your configuration includes such a modem, your functional results may be unpredictable.

The sample modem configuration files included in this appendix do not support these modems, so custom configuration files are necessary. Anchor Automation 2400E is an example of such a modem.

If you experience unexplainable performance problems that may be due to Xon/Xoff characters, it is recommended that you upgrade your modem.

Ring Detection

Most modems produce an interrupt request each time they detect a ring signal. Some modems generate an interrupt only on the first ring signal that they receive. AT&T DataPort 2001 is an example of such a modem.

The service processor uses the ring interrupt request to count the number of rings when Ring Indicate Power-On (RIPO) is enabled. If your modem produces an interrupt on only the first ring, set Ring Indicate Power-On to start on the first ring. Otherwise, you can choose to start Ring Indicate Power-On on any ring count.

Terminal Emulators

The service processor is compatible with simple ASCII terminals, and therefore compatible with most emulators. When a remote session is handed off from the service processor to the operating system, agreement between terminal emulators becomes important.

The server's operating system will have some built-in terminal emulators. You 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, ensuring successful communications and control.

For best formatting, choose line wrap in your terminal emulator setup.

Recovery Procedures

Situations such as line noises and power surges 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 might be necessary to recover your modem to a known state.

If your modem communicates correctly with remote users, it is probably in control. It may be wise to occasionally change some of the functional settings and then change them back, just for the sense of security that the modem is communicating, and to ensure it has been initialized recently.

If your system is particularly difficult to access physically, another strategy is to protect it with an Uninterruptible Power Source (UPS) and a phone-line surge protector.

In case recovery becomes necessary, shut down your system using established procedures. Disconnect the power cable and press the power button to drain capacitance while power is disconnected. Disconnect and reconnect modem power, and then reconnect system power to completely reinitialize your system.

Transfer of a Modem Session

Because many modem command variations exist, the sample modem configuration files located at the end of this appendix 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. Using this mechanism, the server hangs up on a connection under normal conditions.

Consult your modem 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 you use one of these strategies, determine if your server's modem is set up correctly 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 displays 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 three of the sample modem configuration files, as follows:

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 shut down and power off. (Use the AIX command **shutdown -F**.) Watch for the message NO CARRIER on your remote terminal.

If Yes, this is the correct response. The modem is set up correctly.

If No, try another **&Dn** setting for your server's modem. See your model manual for this information. The **&Dn** command appears in three places each in three of the sample modem configuration files. Only the following sample modem configuration files contain the **&Dn** command (in three places each):

- modem_f.cfg
- modem_f0.cfg
- modem_f1.cfg

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 two calls to establish a remote session. This solution is the easiest to implement and allows more freedom for configuring your server's serial ports.

To set up a remote terminal session, dial into the service processor and start the system. After the operating system is loaded and initialized, the connection will be dropped. At this point, call the server back and the operating system will answer and offer you the login prompt.

Prevention Strategy

The disconnect is caused by the operating system when it initializes the Primary Console. The tests listed in “Transfer of a Modem Session” on page 498 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, then 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 Sample Files

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.
#
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#
#
# 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.
#
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#

ICDelay 1
DefaultTO 10
CallDelay 120
#
# %N Call-Out phone number %R Return phone number
#
#
# PROGRAMMING NOTE: No blanks between double quote marks (").

conduit: 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" 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
# Confirm commands 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 "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

ribo: 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
# Confirm commands successful.
#

error: # Handle unexpected modem
# responses.

expect "8\r" or "7\r" or "4\r" or "3\r"
delay 2
done

```

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
DefaultT0 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 "ATZ00T\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 "ATZ00T\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 (").

conduit:  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=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 "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 "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=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_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
DefaultTO 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 (").

conduit: 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 "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\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 "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                                         # RI Power On enabled.
error:    # Handle unexpected modem

```



```
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 (").

connect: 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

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&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=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&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.
                                                    # Confirm command successful.

expect "0\r" timeout 2

```

```
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 (").

conduit:  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

conadin:  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.

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&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                                          # 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
```

Appendix E. Rack Drawer Rail Instructions

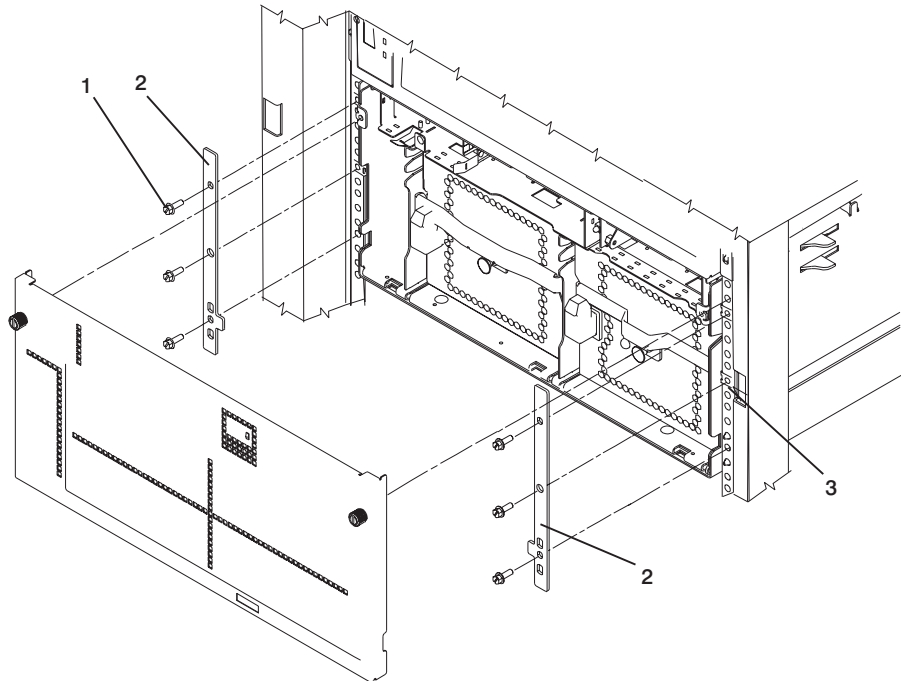
This appendix provides information for installing rails into your rack or system.

Read the safety information in “Safety Notices” on page xi before using these procedures.

Front Drawer-Stop Installation

Install a drawer stop **(2)**, part number 11K0358, on each side at the front of the rack to prevent the drawer from sliding out the front. Use six screws **(1)**, part number 73H2932, and four nut clips **(3)**, part number 74F1823, to attach the drawer stops.

Note: To put the drawer in the front-service position, the drawer stops have to be removed temporarily.



Drawer Rail Assembly and Installation

The drawer rails require assembly before you put them in your rack.

Use two screws, part number 00G1268, to attach an anti-tip guide **(2)**, part number 09P0327, to each rail. The left rail **(1)** is part number 03N3845 and the right rail **(5)** is part number 03N3847.

Rails for an S00 Type Rack

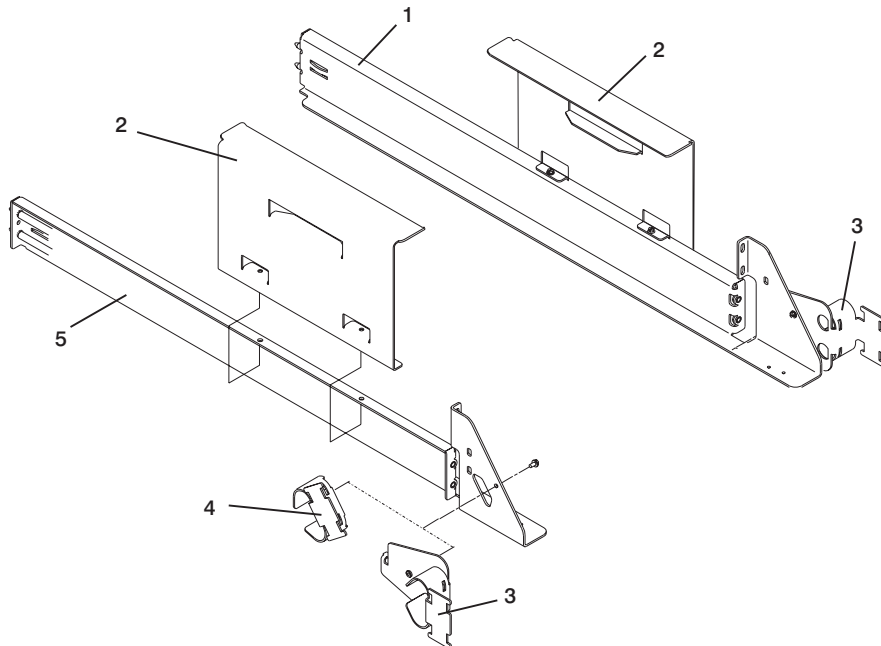
Use one screw, part number 00G1268, to attach a Model S00 type cable guide **(4)**, part number 11K0826, to the right rail. The model S00 type rack does not have enough room on the left side of the rack for a cable guide. Install a guide only on the right rails.

Rails for a T00 Type Rack

Use one screw, part number 00G1268, to attach a Model T00 type cable guide **(3)**, part number 00P2402, to each rail. The model T00 type rack has room for guides on both the left and the right rails.

Rail Installation

As you install the right rail into the rack, install the drawer latch reset bracket, part number 11K0851, above the right rail. Refer to the *Installation Guide* for your system drawers to install the rails in your rack.



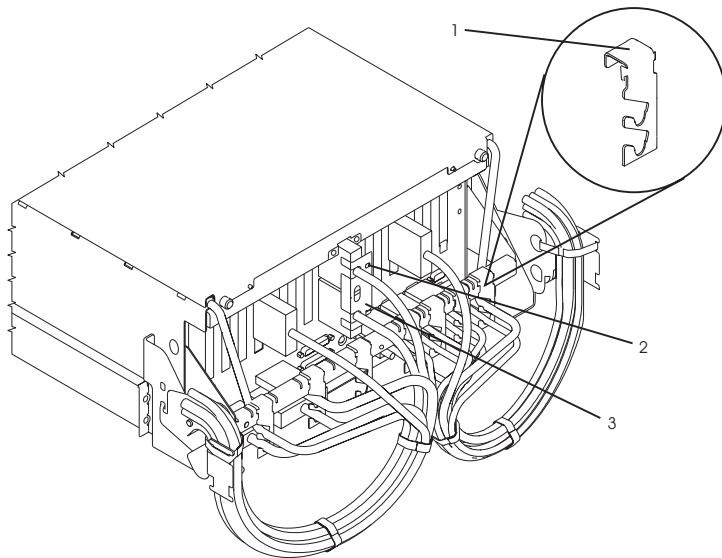
Cable Routing

Use the following descriptions to route and secure the cables in the rack drawer.

I/O Drawer Cables: If present, connect the RIO drawer cables to the I/O drawer and secure them with the RIO cable retainer **(3)**, part number 11K0584. Use two screws **(2)**, part number 00G1268.

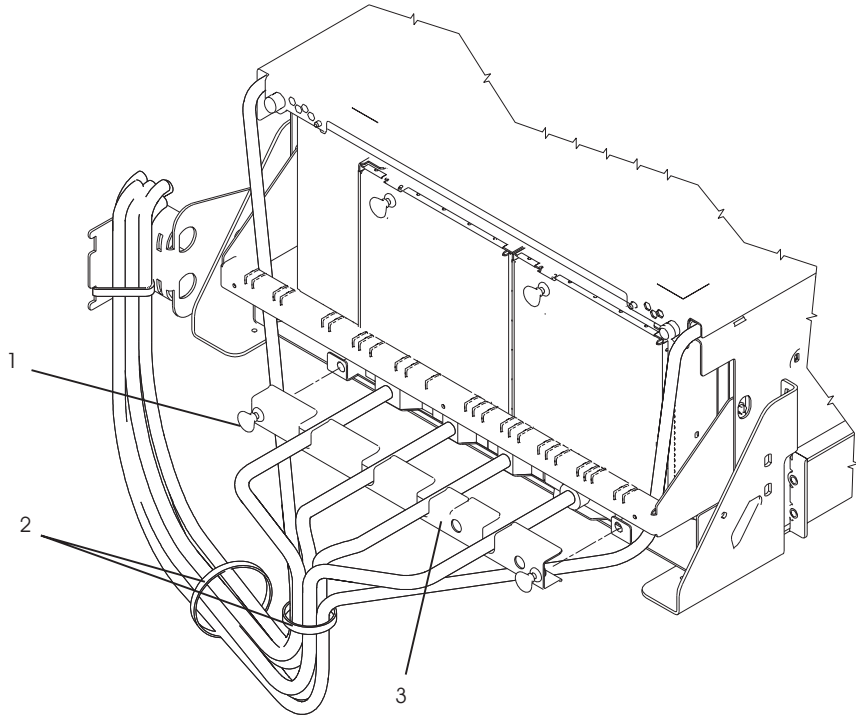
To hold the cables, use the cable hanging brackets **(1)**, part number 11K1013, as needed.

Route the cables over the cable guides, and secure the cables with Velcro strips, part number 07H6855 or 51H9502.

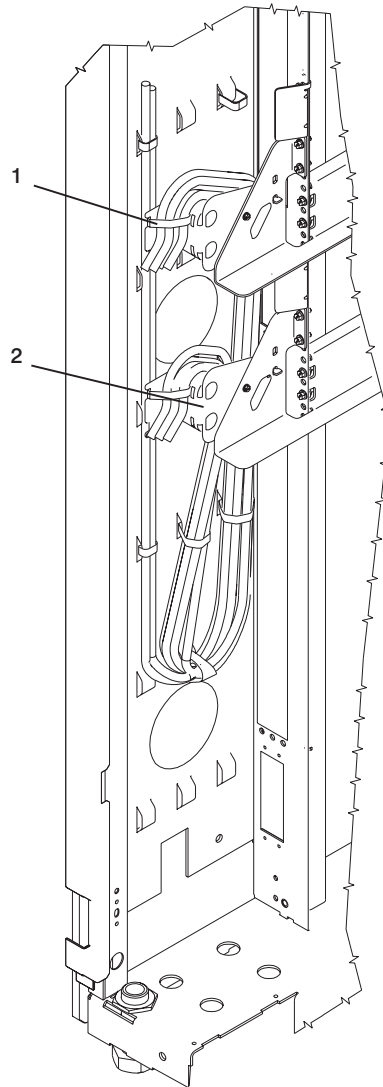


CEC Drawer Cables: Arrange the CEC drawer cables in the CEC drawer cable bracket **(3)**, part number 11K0249, and fasten the bracket to the back of the CEC drawer. (Fasteners **(1)** push in to lock and pull out to unlock.)

Route the cables over the cable guides, and secure the cables with Velcro strips **(2)**, part number 07H6855 or 51H9502.



Securing Drawer Cables: Route the cables over the cable guides (2) and secure the cables with Velcro strips (1), part number 07H6855 or 51H9502. Leave a loop large enough so that the drawer can be pulled out the back.



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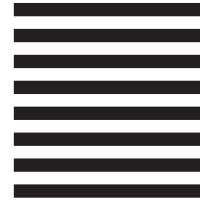
Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

Information Development
Department H6DS-905-6C006
11400 Burnet Road
Austin, TX 78758-3493



Fold and Tape

Please do not staple

Fold and Tape

SA38-0566-03

Cut or Fold
Along Line



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April 2002

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Spine information:

RS/6000 Enterprise Server
Model H80
eServer pSeries 660
Models 6H0 and 6H1



Service Guide

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