

IBM System x3850 M2 and x3950 M2
Types 7141, 7233, 7144, and 7234



Problem Determination and Service Guide

IBM System x3850 M2 and x3950 M2
Types 7141, 7233, 7144, and 7234



Problem Determination and Service Guide

Note: Before using this information and the product it supports, read the general information in Appendix B, "Notices," on page 341.

The most recent version of this document is available at <http://www.ibm.com/systems/support/>.

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Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安裝本产品之前，请仔细阅读 **Safety Information** (安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Guidelines for trained service technicians

This section contains information for trained service technicians.

Inspecting for unsafe conditions

Use the information in this section to help you identify potential unsafe conditions in an IBM product that you are working on. Each IBM product, as it was designed and manufactured, has required safety items to protect users and service technicians from injury. The information in this section addresses only those items. Use good judgment to identify potential unsafe conditions that might be caused by non-IBM alterations or attachment of non-IBM features or optional devices that are not addressed in this section. If you identify an unsafe condition, you must determine how serious the hazard is and whether you must correct the problem before you work on the product.

Consider the following conditions and the safety hazards that they present:

- Electrical hazards, especially primary power. Primary voltage on the frame can cause serious or fatal electrical shock.
- Explosive hazards, such as a damaged CRT face or a bulging capacitor.
- Mechanical hazards, such as loose or missing hardware.

To inspect the product for potential unsafe conditions, complete the following steps:

1. Make sure that the power is off and the power cord is disconnected.
2. Make sure that the exterior cover is not damaged, loose, or broken, and observe any sharp edges.
3. Check the power cord:
 - Make sure that the third-wire ground connector is in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and the frame ground.
 - Make sure that the power cord is the correct type, as specified in "Power cords" on page 253.
 - Make sure that the insulation is not frayed or worn.
4. Remove the cover.
5. Check for any obvious non-IBM alterations. Use good judgment as to the safety of any non-IBM alterations.
6. Check inside the server for any obvious unsafe conditions, such as metal filings, contamination, water or other liquid, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.
8. Make sure that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Guidelines for servicing electrical equipment

Observe the following guidelines when you service electrical equipment:

- Check the area for electrical hazards such as moist floors, nongrounded power extension cords, power surges, and missing safety grounds.
- Use only approved tools and test equipment. Some hand tools have handles that are covered with a soft material that does not provide insulation from live electrical currents.
- Regularly inspect and maintain your electrical hand tools for safe operational condition. Do not use worn or broken tools or testers.

- Do not touch the reflective surface of a dental mirror to a live electrical circuit. The surface is conductive and can cause personal injury or equipment damage if it touches a live electrical circuit.
- Some rubber floor mats contain small conductive fibers to decrease electrostatic discharge. Do not use this type of mat to protect yourself from electrical shock.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Locate the emergency power-off (EPO) switch, disconnecting switch, or electrical outlet so that you can turn off the power quickly in the event of an electrical accident.
- Disconnect all power before you perform a mechanical inspection, work near power supplies, or remove or install main units.
- Before you work on the equipment, disconnect the power cord. If you cannot disconnect the power cord, have the customer power-off the wall box that supplies power to the equipment and lock the wall box in the off position.
- Never assume that power has been disconnected from a circuit. Check it to make sure that it has been disconnected.
- If you have to work on equipment that has exposed electrical circuits, observe the following precautions:
 - Make sure that another person who is familiar with the power-off controls is near you and is available to turn off the power if necessary.
 - When you work with powered-on electrical equipment, use only one hand. Keep the other hand in your pocket or behind your back to avoid creating a complete circuit that could cause an electrical shock.
 - When you use a tester, set the controls correctly and use the approved probe leads and accessories for that tester.
 - Stand on a suitable rubber mat to insulate you from grounds such as metal floor strips and equipment frames.
- Use extreme care when you measure high voltages.
- To ensure proper grounding of components such as power supplies, pumps, blowers, fans, and motor generators, do not service these components outside of their normal operating locations.
- If an electrical accident occurs, use caution, turn off the power, and send another person to get medical aid.

Safety statements

Important:

Each caution and danger statement in this document is labeled with a number. This number is used to cross reference an English-language caution or danger statement with translated versions of the caution or danger statement in the *Safety Information* document.

For example, if a caution statement is labeled “Statement 1,” translations for that caution statement are in the *Safety Information* document under “Statement 1.”

Be sure to read all caution and danger statements in this document before you perform the procedures. Read any additional safety information that comes with the server or optional device before you install the device.

Statement 1:



DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlet.
5. Turn device ON.

To Disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

Statement 2:



CAUTION:

When replacing the lithium battery, use only IBM Part Number 15F8409 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

Statement 3:



CAUTION:

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

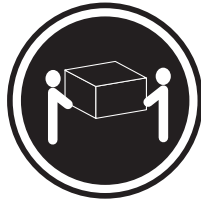


DANGER

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

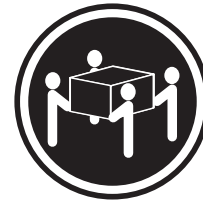
Statement 4:



≥ 18 kg (39.7 lb)



≥ 32 kg (70.5 lb)



≥ 55 kg (121.2 lb)

CAUTION:

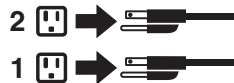
Use safe practices when lifting.

Statement 5:



CAUTION:

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



Statement 8:



CAUTION:

Never remove the cover on a power supply or any part that has the following label attached.



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Statement 26:



CAUTION:

Do not place any object on top of rack-mounted devices.



Statement 27:



CAUTION:

Hazardous moving parts are nearby.



Chapter 1. Start here

You can solve many problems without outside assistance by following the troubleshooting procedures in this *Problem Determination and Service Guide* and on the IBM Web site. This document describes the diagnostic tests that you can perform, troubleshooting procedures, and explanations of error messages and error codes. The documentation that comes with your operating system and software also contains troubleshooting information.

Diagnosing a problem

Before you contact IBM or an approved warranty service provider, follow these procedures in the order in which they are presented to diagnose a problem with your server:

1. **Determine what has changed.**

Determine whether any of the following items were added, removed, replaced, or updated before the problem occurred:

- BIOS code
- Device drivers
- Firmware
- Hardware components
- Software

If possible, return the server to the condition it was in before the problem occurred.

2. **Collect data.**

Thorough data collection is necessary for diagnosing hardware and software problems.

a. **Document error codes and system-board LEDs.**

- **System error codes:** See “POST error codes” on page 24 for information about a specific error code.
- **Software or operating-system error codes:** See the documentation for the software or operating system for information about a specific error code. See the manufacturer's Web site for documentation.
- **Light path diagnostics LEDs:** See “Light path diagnostics” on page 86 for information about light path diagnostics LEDs that are lit.
- **System-board LEDs:** See “Internal LEDs, connectors, and jumpers” on page 15 for information about system-board LEDs that are lit.

b. **Collect system data.**

Run Dynamic System Analysis (DSA) to collect information about the hardware, firmware, software, and operating system. Have this information available when you contact IBM or an approved warranty service provider. For instructions for running the DSA program, see “Diagnostic programs and messages” on page 100.

If you have to download the latest version of DSA, go to <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?brandind=5000008&Indocid=SERV-DSA> or complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

- 1) Go to <http://www.ibm.com/systems/support/>.
- 2) Under **Product support**, click **System x**.
- 3) Under **Popular links**, click **Software and device drivers**.
- 4) Under **Related downloads**, click **Dynamic System Analysis (DSA)**.

For information about DSA command-line options, see http://publib.boulder.ibm.com/infocenter/toolsctr/v1r0/index.jsp?topic=/com.ibm.xseries.tools.doc/erep_tools_dsa.html or complete the following steps:

- 1) Go to <http://publib.boulder.ibm.com/infocenter/toolsctr/v1r0/index.jsp>.
 - 2) In the navigation pane, click **IBM System x and BladeCenter Tools Center**.
 - 3) Click **Tools reference > Error reporting and analysis tools > IBM Dynamic System Analysis**.
3. **Follow the problem-resolution procedures.**

The four problem-resolution procedures are presented in the order in which they are most likely to solve your problem. Follow these procedures in the order in which they are presented:

a. **Check for and apply code updates.**

Most problems that appear to be caused by faulty hardware are actually caused by BIOS code, system firmware, device firmware, or device drivers that are not at the latest levels.

Important:: Some cluster solutions require specific code levels or coordinated code updates. If the device is part of a cluster solution, verify that the latest level of code is supported for the cluster solution before you update the code.

1) **Determine the existing code levels.**

In DSA, click **Firmware/VPD** to view system firmware levels, or click **Software** to view operating-system levels.

2) **Download and install updates of code that is not at the latest level.**

To display a list of available updates for your server, go to <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?brandind=5000008&Indocid=MIGR-4JTS2T> or complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

- a) Go to <http://www.ibm.com/systems/support/>.
- b) Under **Product support**, click **System x**.
- c) Under **Popular links**, click **Software and device drivers**.
- d) Click **System x3850 M2 or System x3950 M2** to display the list of downloadable files for the server.

You can install code updates that are packaged as an UpdateXpress System Pack or UpdateXpress CD image. An UpdateXpress System Pack contains an integration-tested bundle of online firmware and device-driver updates for your server.

Be sure to separately install any listed critical updates that have release dates that are later than the release date of the UpdateXpress System Pack or UpdateXpress image.

When you click an update, an information page is displayed, including a list of the problems that the update fixes. Review this list for your specific problem; however, even if your problem is not listed, installing the update might solve the problem.

b. **Check for and correct an incorrect configuration.**

If the server is incorrectly configured, a system function can fail to work when you enable it; if you make an incorrect change to the server configuration, a system function that has been enabled can stop working.

1) **Make sure that all installed hardware and software are supported.**

See <http://www.ibm.com/servers/eserver/serverproven/compat/us/> to verify that the server supports the installed operating system, optional devices, and software levels. If any hardware or software component is not supported, uninstall it to determine whether it is causing the problem. You must remove nonsupported hardware before you contact IBM or an approved warranty service provider for support.

2) **Make sure that the server, operating system, and software are installed and configured correctly.**

Many configuration problems are caused by loose power or signal cables or incorrectly seated adapters. You might be able to solve the problem by turning off the server, reconnecting cables, reseating adapters, and turning the server back on. For information about performing the checkout procedure, see “Checkout procedures” on page 67.

If the problem is associated with a specific function (for example, if a RAID hard disk drive is marked offline in the RAID array), see the documentation for the associated controller and management or controlling software to verify that the controller is correctly configured.

Problem determination information is available for many devices such as RAID and network adapters.

For problems with operating systems or IBM software or devices, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

- a) Go to <http://www.ibm.com/systems/support/>.
- b) Under **Product support**, click **System x**.
- c) From the **Product family** list, select **System x3850 M2** or **System x3950 M2**.
- d) Under **Support & downloads**, click **Documentation**, **Install**, and **Use** to search for related documentation.

c. **Check for troubleshooting procedures and RETAIN tips.**

Troubleshooting procedures and RETAIN tips document known problems and suggested solutions. To search for troubleshooting procedures and RETAIN tips, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

- 1) Go to <http://www.ibm.com/systems/support/>.
- 2) Under **Product support**, click **System x**.
- 3) From the **Product family** list, select **System x3850 M2** or **System x3950 M2**.

- 4) Under **Support & downloads**, click **Troubleshoot**.
- 5) Select the troubleshooting procedure or RETAIN tip that applies to your problem:
 - Troubleshooting procedures are under **Diagnostic**.
 - RETAIN tips are under **Troubleshoot**.

d. **Check for and replace defective hardware.**

If a hardware component is not operating within specifications, it can cause unpredictable results. Most hardware failures are reported as error codes in a system or operating-system log. For more information, see “Troubleshooting tables” on page 71 and Chapter 5, “Removing and replacing server components,” on page 257. Hardware errors are also indicated by light path diagnostics LEDs. see “Light path diagnostics” on page 86 for more information.

A single problem might cause multiple symptoms. Follow the troubleshooting procedure for the most obvious symptom. If that procedure does not diagnose the problem, use the procedure for another symptom, if possible.

If the problem remains, contact IBM or an approved warranty service provider for assistance with additional problem determination and possible hardware replacement. To open an online service request, go to <http://www.ibm.com/support/electronic/>. Be prepared to provide information about any error codes and collected data.

Undocumented problems

If you have completed the diagnostic procedure and the problem remains, the problem might not have been previously identified by IBM. After you have verified that all code is at the latest level, all hardware and software configurations are valid, and no light path diagnostics LEDs or log entries indicate a hardware component failure, contact IBM or an approved warranty service provider for assistance. To open an online service request, go to <http://www.ibm.com/support/electronic/>. Be prepared to provide information about any error codes and collected data and the problem determination procedures that you have used.

Chapter 2. Introduction

This *Problem Determination and Service Guide* contains information to help you solve problems that might occur in your IBM® System x3850 M2 and System x3950 M2 server. It describes the diagnostic tools that come with the server, error codes and suggested actions, and instructions for replacing failing components.

Replaceable components are of three types:

- **Tier 1 customer replaceable unit (CRU):** Replacement of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.
- **Tier 2 customer replaceable unit:** You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **Field replaceable unit (FRU):** FRUs must be installed only by trained service technicians.

For information about the terms of the warranty and getting service and assistance, see the *Warranty Information* document that came with your server.

Related documentation

In addition to this document, the following documentation also comes with the server:

- *Installation Guide*

This printed document contains instructions for setting up the server and basic instructions for installing some optional devices.

- *User's Guide*

This document is in Portable Document Format (PDF) on the IBM *System x Documentation* CD. It provides general information about the server, including information about features, and how to configure the server. It also contains detailed instructions for installing, removing, and connecting optional devices that the server supports.

- *Rack Installation Instructions*

This printed document contains instructions for installing the server in a rack.

- *Safety Information*

This document is in PDF on the IBM *System x Documentation* CD. It contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the *Safety Information* document.

- *Warranty Information*

This printed document contains information about the terms of the warranty.

- *Environmental Notices and User Guide*

This document is in PDF on the IBM *Documentation* CD. It contains translated environmental notices.

- *IBM License Agreement for Machine Code*

This document is in PDF on the IBM *Documentation* CD. It provides translated versions of the IBM License Agreement for Machine code for your product.

- *IBM MCP Linux License Information and Attributions*

This document is in PDF on the IBM *Document* CD. It provides information about the open-source notices.

Depending on the server model, additional documentation might be included on the IBM *System x Documentation* CD.

The System x and xSeries® Tools Center is an online information center that contains information about tools for updating, managing, and deploying firmware, device drivers, and operating systems. The System x and xSeries Tools Center is at <http://publib.boulder.ibm.com/infocenter/toolsctr/v1r0/index.jsp>.

The server might have features that are not described in the documentation that comes with the server. The documentation might be updated occasionally to include information about those features, or technical updates might be available to provide additional information that is not included in the server documentation. These updates are available from the IBM Web site. To check for updated documentation and technical updates, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Publications lookup**.
4. From the **Product family** menu, select **System x3850 M2** or **System x3950 M2** and click **Continue**.

Notices and statements in this document

The caution and danger statements in this document are also in the multilingual *Safety Information* document, which is on the IBM *System x Documentation* CD. Each statement is numbered for reference to the corresponding statement in your language in the *Safety Information* document.

The following notices and statements are used in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage might occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Features and specifications

The following information is a summary of the features and specifications of the server. Depending on the server model, some features might not be available, or some specifications might not apply.

Notes:

1. Racks are marked in vertical increments of 4.45 cm (1.75 inches). Each increment is referred to as a unit, or “U.” A 1-U-high device is 4.45 cm (1.75 inches) tall.
2. Power consumption and heat output vary depending on the number and type of optional features that are installed and the power-management optional features that are in use.
3. These levels were measured in controlled acoustical environments according to the procedures specified by the American National Standards Institute (ANSI) S12.10 and ISO 7779 and are reported in accordance with ISO 9296. Actual sound-pressure levels in a given location might exceed the average values stated because of room reflections and other nearby noise sources. The declared sound-power levels indicate an upper limit, below which a large number of computers will operate.

Table 1. Features and specifications

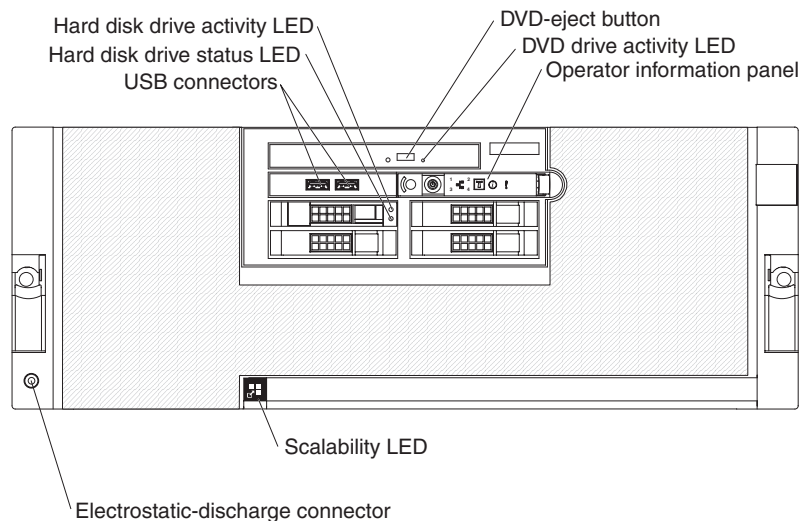
<p>Microprocessor:</p> <ul style="list-style-type: none"> Intel Xeon multi-core microprocessor with 8 MB Level-2 cache 1066 MHz front-side bus (FSB) Single node minimum: One microprocessor per core Multi-node minimum: One microprocessor per core in each node Support for up to four microprocessors <p>Note: Use the Configuration/Setup Utility program to determine the type and speed of the microprocessors.</p> <p>Memory:</p> <ul style="list-style-type: none"> Single-node minimum: 2 GB depending on server model, expandable to 256 GB Multi-node minimum: 4 GB in node 1 and 2 GB in all other nodes expandable to a total of 1 TB Type: Registered, ECC, PC2-5300 double data rate (DDR) II, SDRAM Sizes: 1 GB, 2 GB, 4 GB or 8 GB (when available) in pairs Connectors: Two-way interleaved, eight dual inline memory module (DIMM) connectors per memory card Maximum: Four memory cards, each card containing four pairs of PC2-5300 DDR II DIMMs <p>Drives:</p> <ul style="list-style-type: none"> Slim DVD-ROM: IDE and SATA (optional in some models) Serial Attached SCSI (SAS) hard disk drives <p>Expansion bays:</p> <ul style="list-style-type: none"> Four SAS, 2.5-inch bays One 12.7 mm removable-media drive bay (DVD drive installed, standard on some models only) <p>Expansion slots:</p> <p>Seven PCI Express x8 (half-length) slots:</p> <ul style="list-style-type: none"> Five non-hot-swap Two hot-swap 	<p>Upgradeable microcode:</p> <p>System BIOS, FPGA, diagnostics, service processor, BMC, and SAS microcode</p> <p>Power supply:</p> <ul style="list-style-type: none"> Standard: One or two dual-rated power supplies, depending on the model <ul style="list-style-type: none"> 1440 watts at 220 V ac input 720 watts at 110 V ac input Hot-swappable and redundant at 220 V ac, only with two power supplies If the server is operating at 110 V ac, a second power supply must be installed to maintain a fully functional server. <p>Size:</p> <ul style="list-style-type: none"> 4U Height: 128.35 mm (5.05 in.) Depth: 715 mm (28.15 in.) Width: 440 mm (17.32 in.) Weight: approximately 43.1 kg (95 lb) when fully configured or 31.75 kg (70 lb) minimum <p>Integrated functions:</p> <ul style="list-style-type: none"> Baseboard management controller IBM EXA-4 chip set with integrated memory and I/O controller Remote Supervisor Adapter II Light path diagnostics Six Universal Serial Bus (USB) ports (2.0) <ul style="list-style-type: none"> Three on rear of server Two on front of server One internal Broadcom 5709 dual 10/100/1000 Gigabit Ethernet controller ATI RN50 video <ul style="list-style-type: none"> 16 MB video memory SVGA compatible Serial-attached SCSI (SAS) controller with RAID capabilities Support for ServeRAID-MR10k SAS controller Serial connector SMP Expansion Ports <p>Acoustical noise emissions:</p> <ul style="list-style-type: none"> Sound power, idle: 6.6 bel declared Sound power, operating: 6.6 bel declared 	<p>Environment:</p> <ul style="list-style-type: none"> Air temperature: <ul style="list-style-type: none"> Server on: <ul style="list-style-type: none"> 10° to 35°C (50° to 95°F); altitude: 0 to 914 m (3000 ft). If the server has a dual-core microprocessor, at maximum power reduce the 35°C by 1°C per 300 m above sea level, or the microprocessor might throttle to remain within the internal thermal specifications. Server off: 10° to 43°C (50.0° to 109.4°F); maximum altitude: 2133 m (6998.0 ft) Humidity: <ul style="list-style-type: none"> Server on: 8% to 80% Server off: 8% to 80% Particulate contamination: <p>Attention: Airborne particulates and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the server. For information about the limits for particulates and gases, see "Particulate contamination" on page 343.</p> <p>Heat output:</p> <p>Approximate heat output:</p> <ul style="list-style-type: none"> Minimum configuration: 1297 Btu (380 watts) per hour Typical configuration: 2730 Btu (800 watts) per hour Maximum configuration: <ul style="list-style-type: none"> 5527 Btu per hour (1620 watts) at 110 V ac 5425 Btu per hour (1590 watts) at 220 V ac <p>Electrical input:</p> <ul style="list-style-type: none"> Sine-wave input (50 - 60 Hz) required Input voltage low range: <ul style="list-style-type: none"> Minimum: 100 V ac Maximum: 127 V ac Input voltage high range: <ul style="list-style-type: none"> Minimum: 200 V ac Maximum: 240 V ac Approximate input kilovolt-amperes (kVA): <ul style="list-style-type: none"> Minimum: 0.39 kVA Typical: 0.8 kVA Maximum: 1.65 kVA
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Server controls, connectors, LEDs, and power

This section describes the controls, connectors, and light-emitting diodes (LEDs) and how to turn the server on and off.

Front view

The following illustration shows the controls, LEDs, and connectors on the front of the server. The DVD drive is optional in some models.



Hard disk drive activity LED: On some server models, each hot-swap hard disk drive has an activity LED. When this LED is flashing, it indicates that the drive is in use.

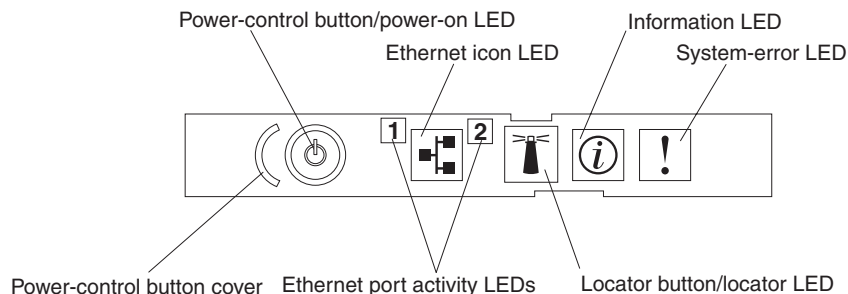
Hard disk drive status LED: On some server models, each hot-swap hard disk drive has a status LED. When this LED is lit continuously, that individual drive is faulty. When the drive is connected to the integrated SAS controller with RAID capabilities, a flashing status LED indicates that the drive is a secondary drive in a mirrored pair and the drive is being synchronized.

USB connectors: Connect USB devices to these connectors.

DVD-eject button: Press this button to release a CD or DVD from the DVD drive.

DVD drive activity LED: When this LED is lit, it indicates that the DVD drive is in use.

Operator information panel: This panel contains controls and LEDs. The following illustration shows the controls and LEDs on the operator information panel.



The following controls and LEDs are on the operator information panel:

- **Power-control button cover:** Slide this cover over the power-control button to prevent the server from being turned off accidentally.
- **Power-control button:** Press this button to turn the server on and off manually.
- **Power-on LED:** When this LED is lit and not flashing, it indicates that the server is turned on. When this LED is flashing, it indicates that the server is turned off and still connected to an ac power source. When this LED is off, it indicates that ac power is not present or the power supply or the LED itself has failed.

Note: If this LED is off, it does not mean that there is no electrical power in the server. The LED might be burned out. To remove all electrical power from the server, you must disconnect the power cords from the electrical outlets.

- **Ethernet-icon LED:** This LED lights the Ethernet icon.
- **Ethernet activity LEDs:** When these LEDs flash, they indicate that there is activity between the server and the network on the indicated port.
- **Locator LED:** Use this LED to visually locate the server among other servers. You can use IBM Director to light this LED remotely or press the locator button to light the LED manually. This LED is also lit during startup.

In multi-node configurations, when this LED flashes, it indicates that the server is the primary node. When this LED is lit continuously, it indicates that the server is a secondary node.

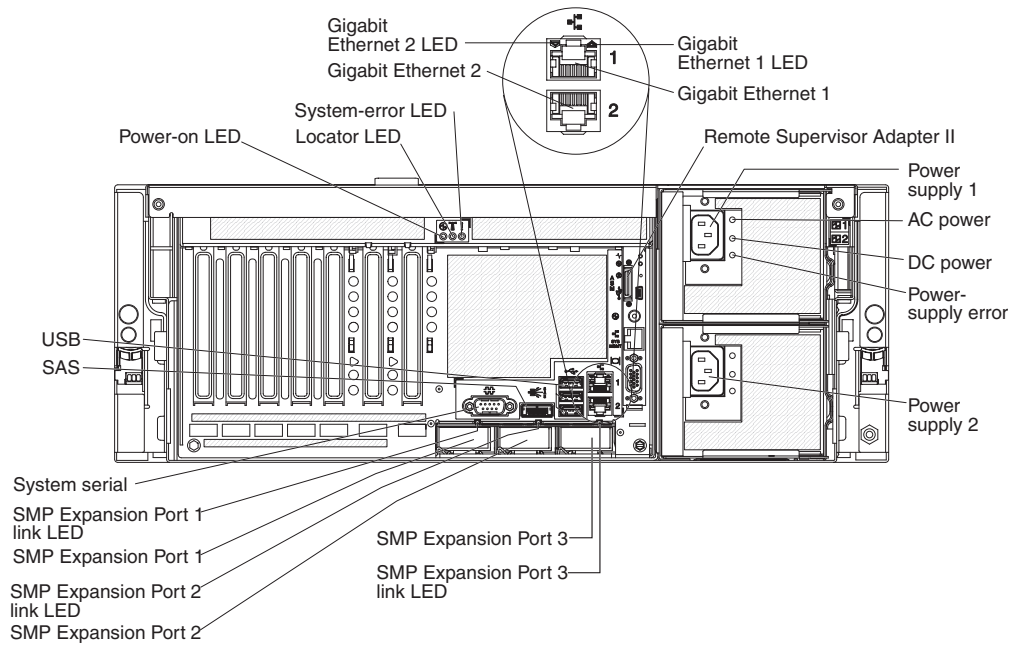
- **Locator button:** Press this button to turn the locator LED on and off manually. In multi-node configurations, press this button to turn the locator LED on and off in all nodes in the configuration.
- **Information LED:** When this LED is lit, it indicates that there is a suboptimal condition in the server and that light path diagnostics will light an additional LED to help isolate the condition. This LED and LEDs on the light path diagnostics panel remain lit until you resolve the condition or you press the remind button.
- **System-error LED:** When this LED is lit, it indicates that a system error has occurred. An LED on the light path diagnostics panel is also lit to help isolate the error.

Electrostatic-discharge connector: Connect an electrostatic-discharge wrist strap to this connector.

Scalability LED: When this LED is lit, it indicates that the server is connected to other servers in a multi-node configuration.

Rear view

The following illustration shows the connectors and LEDs on the rear of the server. Power supply 2 is optional in some models.



Power-on LED: When this LED is lit and not flashing, it indicates that the server is turned on. When this LED is flashing, it indicates that the server is turned off and still connected to an ac power source. When this LED is off, it indicates that ac power is not present or the power supply or the LED itself has failed.

Note: If this LED is off, it does not mean that there is no electrical power in the server. The LED might be burned out. To remove all electrical power from the server, you must disconnect the power cords from the electrical outlets.

Locator LED: Use this LED to visually locate the server among other servers. You can use IBM Director to light this LED remotely or press the locator button to light the LED manually. This LED is also lit during startup.

System-error LED: When this LED is lit, it indicates that a system error has occurred. An LED on the light path diagnostics panel is also lit to help isolate the error.

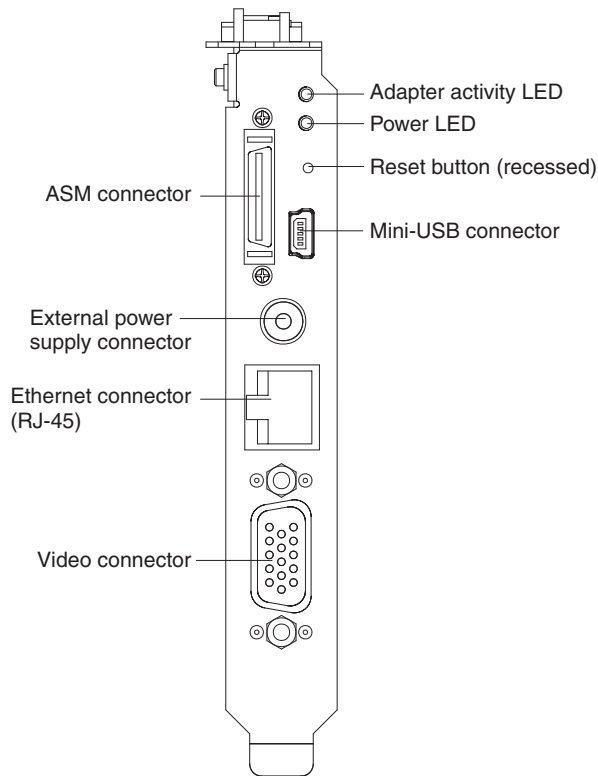
Gigabit Ethernet 2 LED: When this LED flashes, it indicates that there is activity between the server and the network. When this LED is lit continuously, it indicates that there is an active connection on the Ethernet port.

Gigabit Ethernet 2 connector: Use this connector to connect the server to a network.

Gigabit Ethernet 1 LED: When this LED flashes, it indicates that there is activity between the server and the network. When this LED is lit continuously, it indicates that there is an active connection on the Ethernet port.

Gigabit Ethernet 1 connector: Use this connector to connect the server to a network. This connector is shared with the baseboard management controller and is assigned two MAC addresses. For information about configuring the controller, see the *Broadcom NetXtreme Gigabit Ethernet Software* CD that comes with the server.

Remote Supervisor Adapter II controls, connectors, and LEDs: These controls, connectors, and LEDs are used for systems-management information and control.



The following controls, connectors, and LEDs are on the Remote Supervisor Adapter II:

- **Adapter activity LED:** When this LED is flashing, the Remote Supervisor Adapter II is functioning normally. When this LED is lit continuously, there is a problem with the Remote Supervisor Adapter II. When the LED is off, the Remote Supervisor Adapter II is not functioning.
- **Power LED:** When this LED is lit, the Remote Supervisor Adapter II is receiving power from the server or from an external power supply.
- **Reset button:** (Trained service technician only) Insert and press the open end of a paper clip (or similar object) into the recessed reset button to manually reset the Remote Supervisor Adapter II.
- **Mini-USB connector:** This connector is not supported.
- **Video connector:** Use this connector to connect the server monitor.
- **Ethernet connector (RJ45):** Use this connector to connect a Category 3 (10 Mbps) or Category 5 (100 Mbps) Ethernet cable to enable a LAN connection.
- **External power-supply connector:** Use this connector to connect an external power-supply to the Remote Supervisor Adapter II.
- **ASM connector:** This connector is not supported.

Power supply 1 connector: Connect the power cord to this connector.

AC power LED: This green LED provides status information about the power supply. During typical operation, both the ac and dc power LEDs are lit. For any other combination of LEDs, see “Power-supply LEDs” on page 97.

DC power LED: This green LED provides status information about the power supply. During typical operation, both the ac and dc power LEDs are lit. For any other combination of LEDs, see “Power-supply LEDs” on page 97.

Power-supply error LED: When this amber LED is lit, it indicates that there is an error condition within the power supply. For any other combination of LEDs, see “Power-supply LEDs” on page 97.

Power supply 2 connector: Connect the power cord to this connector.

SMP Expansion Port 3 connector: Use this connector to connect the server to other servers to form multi-node configurations (requires scalability enablement).

SMP Expansion Port 3 link LED: When this LED is lit, it indicates that there is an active connection on SMP Expansion Port 3.

SMP Expansion Port 1 link LED: When this LED is lit, it indicates that there is an active connection on SMP Expansion Port 1.

SMP Expansion Port 1 connector: Use this connector to connect the server to other servers to form multi-node configurations (requires scalability enablement).

SMP Expansion Port 2 link LED: When this LED is lit, it indicates that there is an active connection on SMP Expansion Port 2.

SMP Expansion Port 2 connector: Use this connector to connect the server to other servers to form multi-node configurations (requires scalability enablement).

System serial connector: Connect a 9-pin serial device to this connector.

SAS connector: Connect an internal SAS device to this connector.

USB connectors: Connect USB devices to these connectors.

Server power features

When the server is connected to an ac power source but is not turned on, the operating system does not run, and all core logic except for the service processor is shut down; however, the server can respond to requests from the service processor, such as a remote request to turn on the server. The power-on LED flashes to indicate that the server is connected to ac power but not turned on.

Turning on the server

Approximately 20 seconds after the server is connected to ac power, the power-control button becomes active, and one or more fans might start running to provide cooling while the server is connected to power. You can turn on the server and start the operating system by pressing the power-control button.

The server can also be turned on in any of the following ways:

- If a power failure occurs while the server is turned on, the server will restart automatically when power is restored.
- If the server is installed in a static partition, you can turn on the server and start the operating system by pressing the power-control button on the primary node in the partition.
- If your operating system supports the systems-management software for the Remote Supervisor Adapter II, the systems-management software can turn on the server.
- If your operating system supports the Wake on LAN feature, the Wake on LAN feature can turn on the server.

Note: When 4 GB or more of memory (physical or logical) is installed, some memory is reserved for various system resources and might be unavailable to the operating system. The amount of memory that is reserved for system resources depends on the operating system, the configuration of the server, and the configured PCI options.

Turning off the server

When you turn off the server and leave it connected to ac power, the server can respond to requests from the service processor, such as a remote request to turn on the server. While the server remains connected to ac power, one or more fans might continue to run. To remove all power from the server, you must disconnect it from the power source.

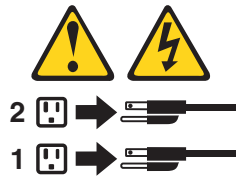
Some operating systems require an orderly shutdown before you turn off the server. See your operating-system documentation for information about shutting down the operating system.

Statement 5:



CAUTION:

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



The server can be turned off in any of the following ways:

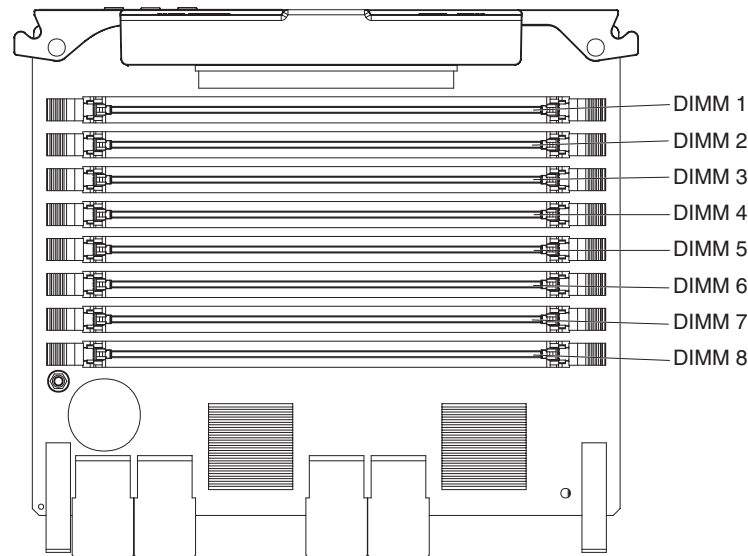
- You can turn off the server from the operating system, if your operating system supports this feature. After an orderly shutdown of the operating system, the server will be turned off automatically.
- You can press the power-control button to start an orderly shutdown of the operating system and turn off the server, if your operating system supports this feature.
- If the operating system stops functioning, you can press and hold the power-control button for more than 4 seconds to turn off the server.
- If the server is installed in a static partition, pressing the power-control button on the primary node in the partition will start an orderly shutdown of the operating system and turn off the server.
- The server can be turned off from the Remote Supervisor Adapter II user interface.
- If the Wake on LAN feature turned on the server, the Wake on LAN feature can turn off the server.
- You can turn off the server through a request from the service processor.

Internal LEDs, connectors, and jumpers

The following illustrations show the connectors, LEDs, and jumpers on the internal boards. The illustrations might differ slightly from your hardware.

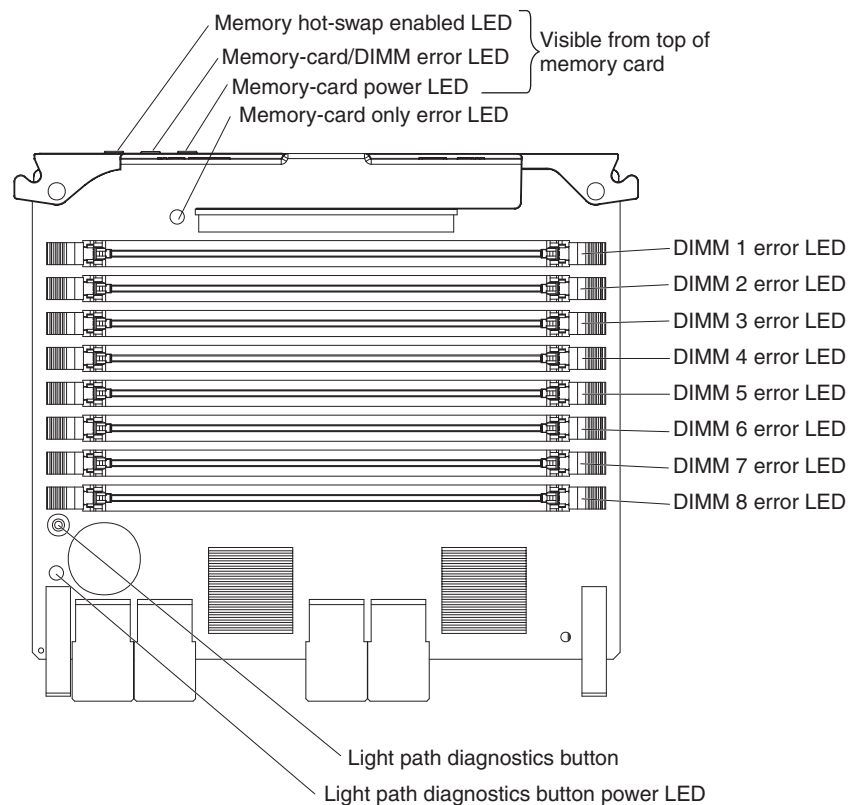
Memory-card DIMM connectors

The following illustration shows the DIMM connectors on the memory card.



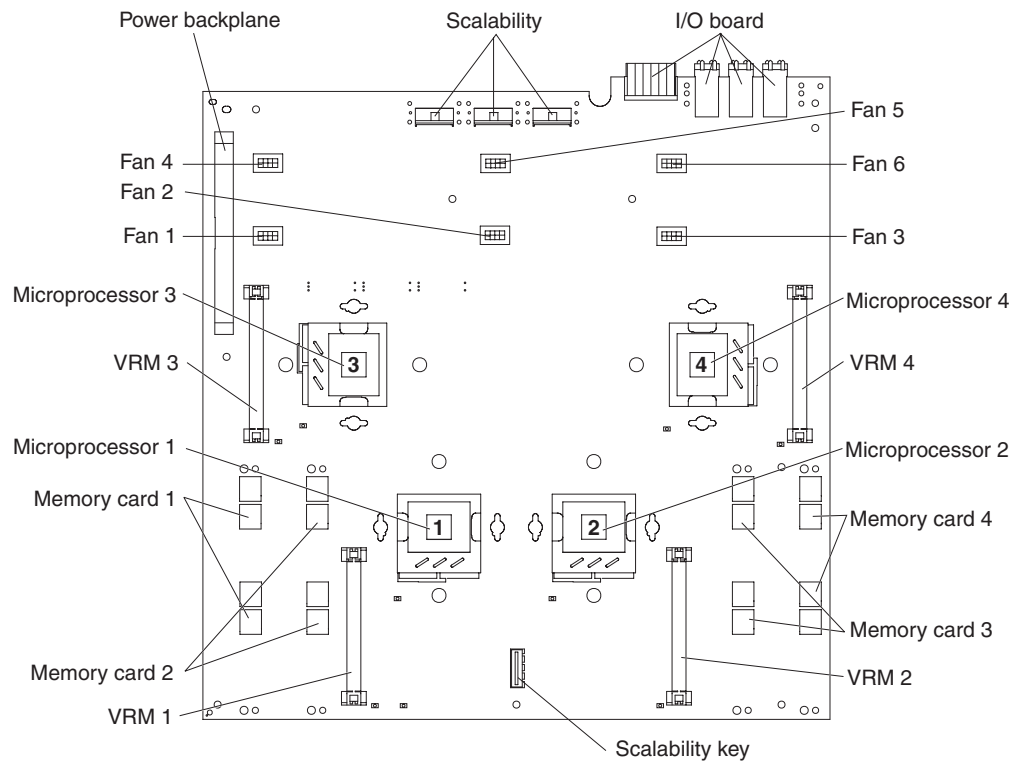
Memory-card LEDs

The following illustration shows the LEDs on the memory card.



Microprocessor-board connectors

The following illustration shows the connectors on the microprocessor board.



Microprocessor-board LEDs

The following illustration shows the LEDs on the microprocessor board.

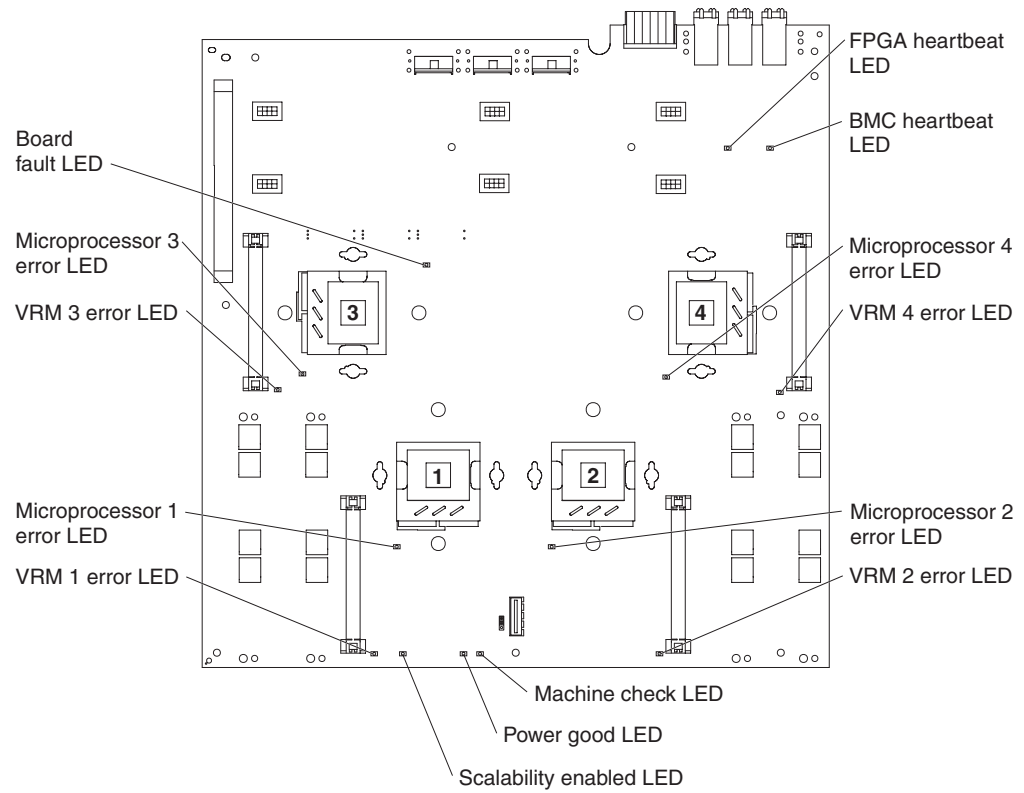


Table 2 describes the function of each non-light path diagnostics status LED.

Table 2. Microprocessor board non-light path diagnostics status LEDs

LED	Description
BMC heartbeat	When this LED is flashing at a constant rate of every other second, it indicates normal operation of the baseboard management controller.
FPGA heartbeat	When this LED is flashing at a constant rate of every other half-second, it indicates normal operation of the FPGA (field-programmable gate array) chip.
Machine check	When this LED is lit continuously, the server is prepared to capture a machine check. When this LED is flashing, the server has captured a machine check. When this LED is off, the server is not prepared to capture a machine check.
Power good	When this LED is lit, it indicates that all VRMs are operational.

Microprocessor-board jumpers

The following illustration shows the jumpers on the microprocessor board.

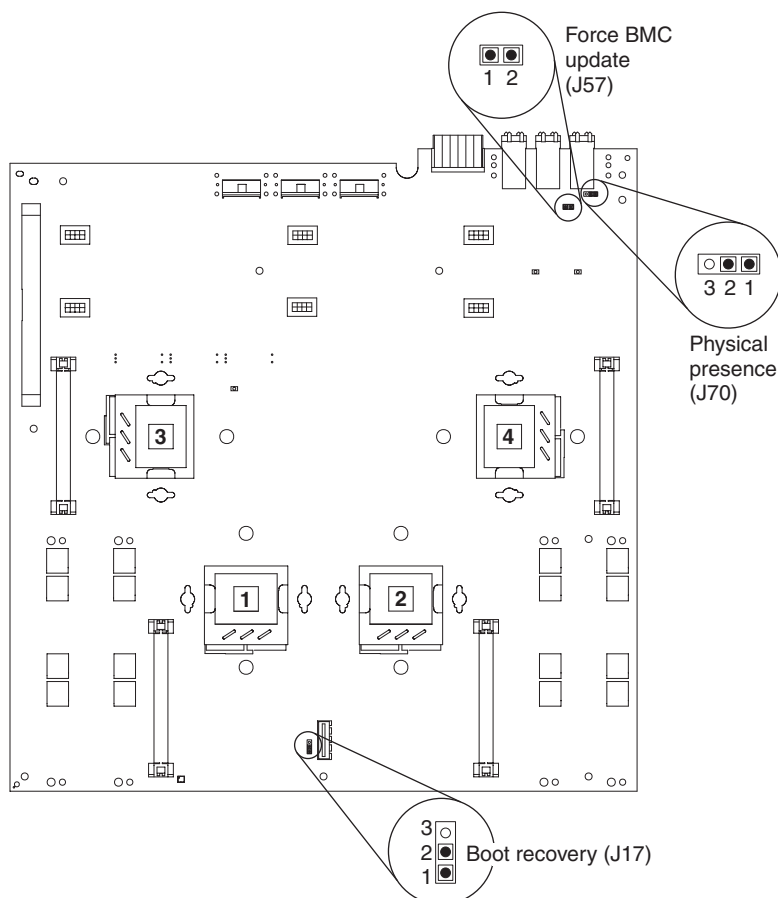


Table 3 describes the function of each jumper block.

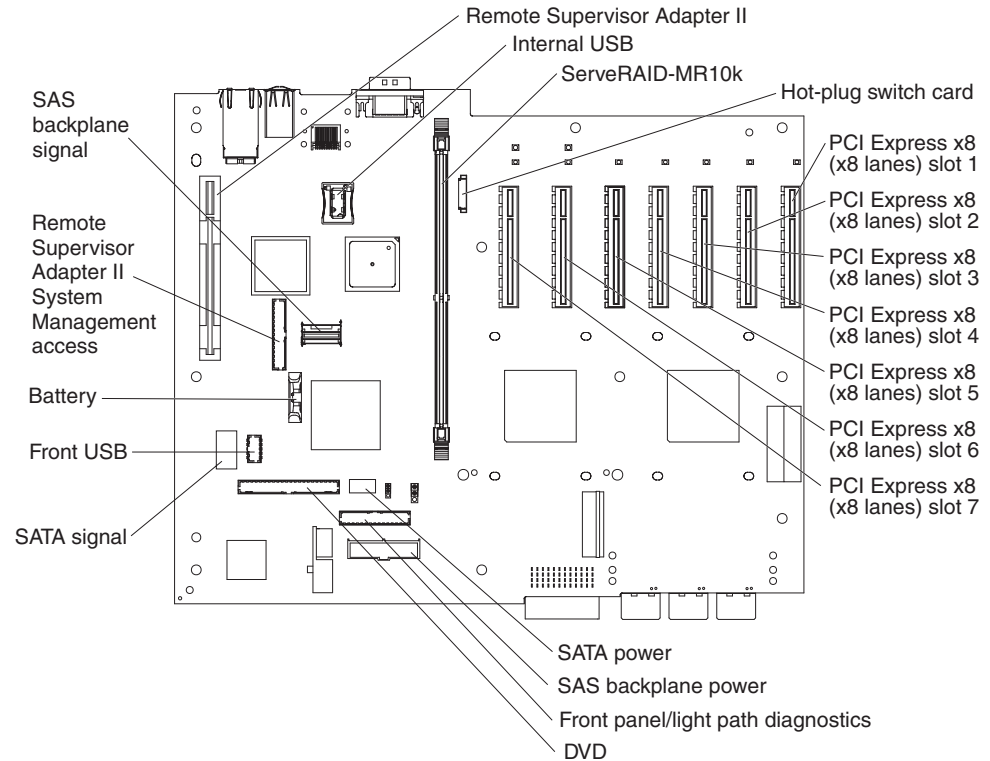
Table 3. Microprocessor board jumper blocks

Jumper name	Description
Boot recovery (BIOS) (J17)	The default position is pins 1 and 2 (use the primary page during startup). Move the jumper to pins 2 and 3 to use the secondary page during startup.
Force BMC update (J57)	Place a jumper over pins 1 and 2 to bypass the operational firmware image and perform a baseboard management controller firmware update, if the normal firmware update procedure results in an inoperative BMC. Note: Only use the force BMC update jumper if the normal firmware update procedure fails and the operational firmware image is corrupted. Use of the force BMC update jumper disables normal baseboard management controller operation.
Physical presence (J70)	The default position is pins 1 and 2. Move the jumper to pins 2 and 3 to activate Physical Presence. After the required settings are performed in setup, move the jumper back to pins 1 and 2.

Note: You must remove the fan cage to access these jumpers.

Internal I/O board connectors

The following illustration shows the internal connectors on the I/O board.



Note: If you are installing a hypervisor key (flash device), install it in the internal USB connector.

I/O board LEDs

The following illustration shows the LEDs on the I/O board.

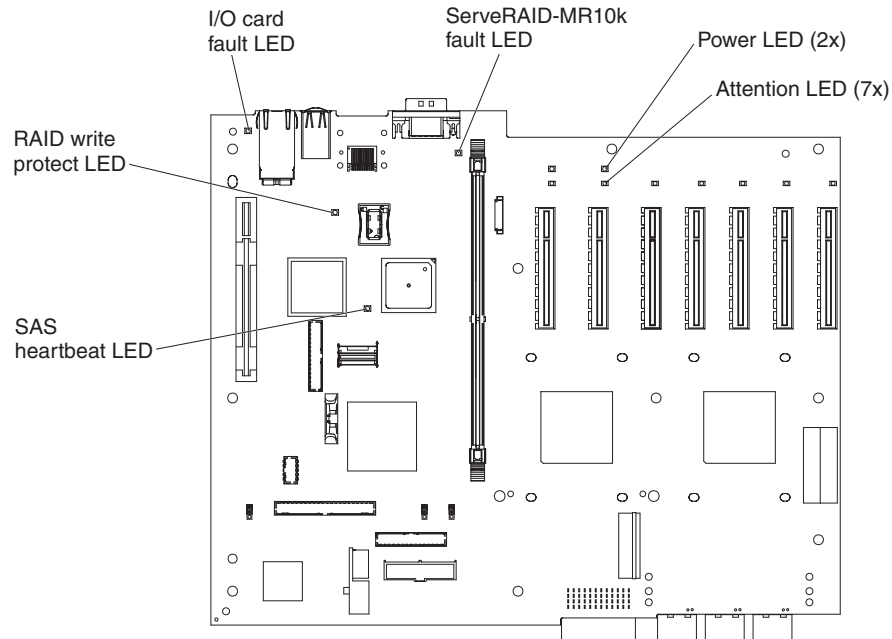


Table 4 describes the function of each non-light path diagnostics status LED.

Table 4. I/O board non-light path diagnostics status LEDs

LED	Description
SAS heartbeat	When this LED is flashing at a constant rate of every other second, it indicates normal operation of the SAS controller.
RAID write protect	When this LED is lit, it indicates the SAS controller is write protected.

I/O-board jumpers

The following illustration shows the jumpers on the I/O board.

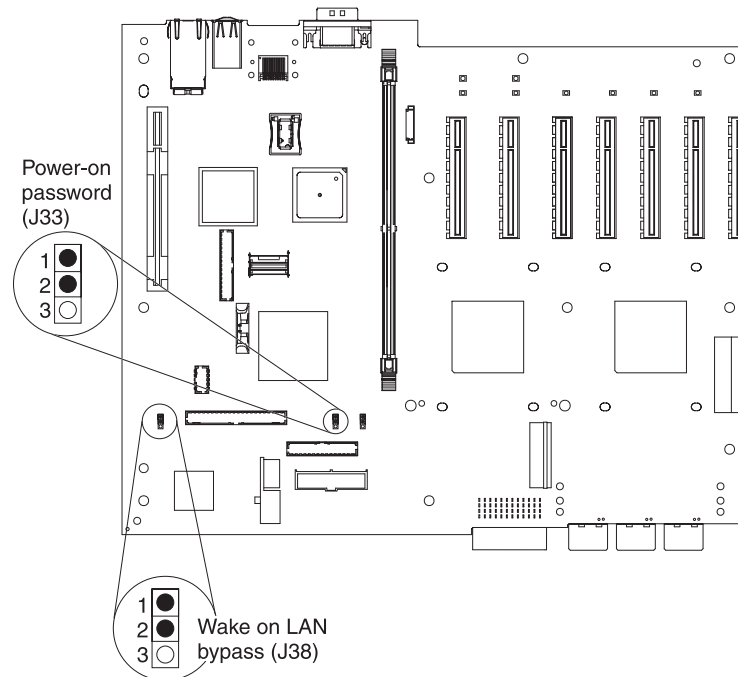


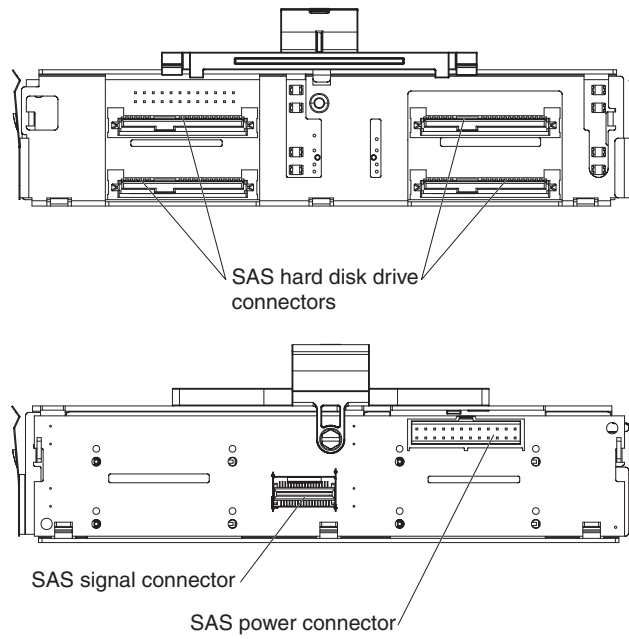
Table 5 describes the function of each jumper block.

Table 5. I/O board jumper blocks

Jumper name	Description
Power-on password (J33)	<p>The default position is pins 1 and 2. Change the position of this jumper to pins 2 and 3 to bypass the power-on password check.</p> <p>Changing the position of this jumper does not affect the administrator password check if an administrator password is set. If the administrator password is lost, the microprocessor board must be replaced.</p> <p>For more information about passwords, see “Passwords” on page 326.</p>
Wake on LAN bypass (J38)	<p>The default position is pins 1 and 2. Move the jumper to pins 2 and 3 to prevent a Wake on LAN packet from waking the system when the system is in the powered-off state.</p>

SAS-backplane connectors

The following illustration shows the connectors on the SAS backplane.



Chapter 3. Diagnostics

This chapter describes the diagnostic tools that are available to help you solve problems that might occur in the server.

If you cannot diagnose and correct a problem by using the information in this chapter, see Appendix A, “Getting help and technical assistance,” on page 339 for more information.

Diagnostic tools

The following tools are available to help you diagnose and solve hardware-related problems:

- **POST beep codes, error messages, and error logs**

The power-on self-test (POST) generates beep codes and messages to indicate successful test completion or the detection of a problem. See “POST error codes” on page 24 for more information.

- **Troubleshooting tables**

These tables list problem symptoms and actions to correct the problems. See “Troubleshooting tables” on page 71.

- **Light path diagnostics**

Use light path diagnostics to diagnose system errors quickly. See “Light path diagnostics” on page 86 for more information.

- **Dynamic System Analysis (DSA) Preboot diagnostic programs**

The DSA Preboot diagnostic programs provide problem isolation, configuration analysis, and error log collection. The diagnostic programs are the primary method of testing the major components of the server and are stored in integrated USB memory. The diagnostic programs collect the following information about the server:

- System configuration
- Network interfaces and settings
- Installed hardware
- Light path diagnostics status
- Service processor status and configuration
- Vital product data, firmware, and BIOS configuration
- Hard disk drive health
- RAID controller configuration
- ServeRAID controller and service processor event logs, including:
 - System error logs
 - Temperature, voltage, and fan speed information
 - Tape drive presence and read/write test results
 - Systems management analysis and reporting technology (SMART) data
 - Machine check registers
 - USB information
 - Video and monitor configuration information
 - Video memory test results
 - PCI slot information

Notes:

1. In a multi-node environment, each server has a unique DSA interface. You can view server specific information, such as error logs, from these unique DSA interfaces.

2. The Preboot DSA diagnostic program might appear to be unresponsive for an unusual length of time when you start the program. This is normal operation while the program loads.

The diagnostic programs create a merged log that includes events from all collected logs. The information is collected into a file that you can send to the IBM Support Center. Additionally, you can view the server information locally through a generated text report file. You can also copy the log to removable media and view the log from a Web browser. See “Diagnostic programs and messages” on page 100 for more information.

- **IBM Electronic Service Agent**

IBM Electronic Service Agent is a software tool that monitors the server for hardware error events and automatically submits electronic service requests to the IBM Support Center. Also, it can collect and transmit system configuration information on a scheduled basis so that the information is available to you and your support representative. It uses minimal system resources, is available free of charge, and can be downloaded from the Web. For more information and to download Electronic Service Agent, go to <http://www.ibm.com/support/electronic/>.

- **Remote Supervisor Adapter II**

When the IBM Remote Supervisor Adapter II is used with the systems-management software that comes with the server, you can manage the functions of the server locally and remotely. The Remote Supervisor Adapter II also provides system monitoring, event recording to an event log, and dial-out alert capability. The event logs are time stamped, saved on the Remote Supervisor Adapter II, and can be attached to e-mail alerts.

Note: In a multi-node environment, each server has a unique Remote Supervisor Adapter II interface. You can view server specific information, such as error logs, from these unique Remote Supervisor Adapter II interfaces.

For information about the Remote Supervisor Adapter II, see the *Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* on the IBM System x Documentation CD.

- **Checkpoint codes**

Checkpoint codes track the progress of POST routines at system startup or reset. Checkpoint codes are shown on the checkpoint display, which is on the light path diagnostics panel. See “Checkpoint codes” on page 69 for more information.

POST error codes

When you turn on the server, it performs a series of tests to check the operation of the server components and some optional devices in the server. This series of tests is called the power-on self-test, or POST.

If a power-on password is set, you must type the password and press Enter, when prompted, for POST to run.

If POST is completed without detecting any problems, a single beep sounds, and the server startup is completed.

If POST detects a problem, more than one beep might sound, or an error message is displayed. See “Beep code descriptions” on page 25 and “POST error codes” on page 41 for more information.

POST beep codes

A beep code is a combination of short or long beeps or series of short beeps that are separated by pauses. For example, a “1-2-3” beep code is one short beep, a pause, two short beeps, and pause, and three short beeps. A beep code other than one beep indicates that POST has detected a problem. To determine the meaning of a beep code, see “Beep code descriptions.” If no beep code sounds, see “No-beep symptoms” on page 38.

Beep code descriptions

The following table describes the beep codes and suggested actions to correct the detected problems.

A single problem might cause more than one error message. When this occurs, correct the cause of the first error message. The other error messages usually will not occur the next time POST runs.

Exception: If multiple error codes or light path diagnostics LEDs indicate a microprocessor error, the error might be in a microprocessor or in a microprocessor socket. See “Microprocessor problems” on page 77 for information about diagnosing microprocessor problems.

<ul style="list-style-type: none">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.• See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).• If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.		
Beep code	Description	Action
1-1-3	CMOS write/read test failed.	<ol style="list-style-type: none">1. Reseat the following components:<ol style="list-style-type: none">a. Battery (see “Removing the battery” on page 268 and “Replacing the battery” on page 268).b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).2. Replace the components listed in step 1 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
1-1-4	BIOS ROM checksum failed.	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. Use the boot recovery jumper (J17 on the microprocessor board, see “Microprocessor-board jumpers” on page 18) to manually restore the BIOS code. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
1-2-1	Programmable interval timer failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
1-2-2	DMA initialization failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
1-2-3	DMA page register write/read failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
1-2-4	RAM refresh verification failed.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace the components listed in step 1 one at a time, in the order shown, restarting the server each time. 3. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
1-3-1	1st 64K RAM test failed.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace the lowest numbered pair of DIMMs with an identical known good pair of DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286); then, restart the server. If the beep code error remains, go to step 3. Reinstall one DIMM at a time from the failed pair (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286), restarting the server after each DIMM, to identify the failed DIMM. 3. Replace the components listed in step 1 one at a time, in the order shown, restarting the server each time. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
2-1-1	Secondary DMA register failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
2-1-2	Primary DMA register failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
2-1-3	Primary interrupt mask register failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
2-1-4	Secondary interrupt mask register failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
2-4-4	Invalid memory configuration	<p>Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318.</p> <ol style="list-style-type: none"> 1. Make sure that all memory cards contain the correct number of DIMMs; install or reseal DIMMS; then, restart the server. See “Memory cards and memory modules (DIMM)” on page 279 for additional information about DIMM installation considerations. 2. Reseat the following components: <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM, then restart the server. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
3-1-1	Timer tick interrupt failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
3-1-2	Interval timer channel 2 failed.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
3-1-4	Time-of-day clock failed.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Battery (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the components listed in step 1 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
3-3-2	Critical SMBUS error occurred.	<ol style="list-style-type: none"> 1. Disconnect power cord, wait 30 seconds, and retry. 2. Reseat the following components: <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). d. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). d. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
3-3-3	No operational memory in system.	<p>Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318.</p> <ol style="list-style-type: none"> 1. Make sure that all memory cards contain the correct number of DIMMs; install or reseal DIMMS; then, restart the server. 2. Reseat the following components: <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
3-3-4	All installed memory has been disabled due to POST memory test failure.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reseat the battery (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
3-4-1	All installed memory has been disabled due to uncorrectable run time errors.	<ol style="list-style-type: none"> Check the system-error log (see “Event logs” on page 39). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Note: Install the replacement memory card in another memory card connector. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. Move the memory card back to the original slot, when the memory error is corrected.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
4-1-1	Memory card 1 has failed.	<ol style="list-style-type: none"> 1. Reseat memory card 1 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace memory card 1 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
4-1-2	Memory card 2 has failed.	<ol style="list-style-type: none"> 1. Reseat memory card 2 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace memory card 2 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
4-1-3	Memory card 3 has failed.	<ol style="list-style-type: none"> 1. Reseat memory card 3 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace memory card 3 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
4-1-4	Memory card 4 has failed.	<ol style="list-style-type: none"> 1. Reseat memory card 4 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace memory card 4 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
Two short beeps	Information only, configuration has changed.	<ol style="list-style-type: none"> 1. Run the Configuration/Setup Utility program. 2. Run the diagnostic programs (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
Three short beeps	Memory error.	<p>Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318.</p> <ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. Replace the lowest numbered pair of DIMMs with an identical known good pair of DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286); then, restart the server. If the beep code error remains, go to step 3. Reinstall one DIMM at a time from the failed pair (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286), restarting the server after each DIMM, to identify the failed DIMM. 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). b. Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
One continuous beep	Microprocessor error.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). b. (Trained service technician only) Optional microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. (Trained service technician only) If there is no indication of which microprocessor has failed, isolate the error by testing with one microprocessor at a time (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). b. (Trained service technician only) Optional microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Beep code	Description	Action
Repeating short beeps	Keyboard error.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Keyboard b. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Keyboard b. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Repeating long beeps	Memory error.	Reseat the DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286).
One long and one short beep	Card error.	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
One long and two short beeps	Card error.	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 		
Beep code	Description	Action
Two long and two short beeps	Card error.	<ol style="list-style-type: none"> (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

No-beep symptoms

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 		
No-beep symptom	Description	Action
No beeps occur, and the system operates correctly.		<ol style="list-style-type: none"> Reseat the operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300). Replace the operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300).
No beeps occur after successful completion of POST.	The power-on status is Disabled.	<ol style="list-style-type: none"> Run the Configuration/Setup Utility program and select Start Options; then, set Power-On Status to Enable. Reseat the operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300). Replace the operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300).

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only)”, that step must be performed only by a trained service technician. 		
No-beep symptom	Description	Action
No beeps occur, and there is no video.		See “Solving undetermined problems” on page 239.

Event logs

Error codes and messages are displayed in the following types of event logs:

- **POST event log:** This log contains the three most recent error codes and messages that were generated during POST. You can view the POST event log from the Setup utility.
- **System-event log:** This log contains messages that were generated during POST and all system status messages from the service processor. You can view the system-event log from the Setup utility.

The system-event log is limited in size. When it is full, new entries will not overwrite existing entries; therefore, you must periodically clear the system-event log through the Setup utility. When you are troubleshooting an error, be sure to clear the system-event log so that you can find current errors more easily.

Each system-event log entry is displayed on its own page. To display all the data for an entry, use the Up Arrow (↑) and Down Arrow (↓) keys or the Page Up and Page Down keys. To move from one entry to the next, select **Get Next Entry** or **Get Previous Entry**.

The system-event log indicates an assertion event when an event has occurred. It indicates a deassertion event when the event is no longer occurring.

- **Remote Supervisor Adapter II event log:** If the server has a Remote Supervisor Adapter II, this log contains a subset of information that is in the system-event log and other information and events. You can view this log through the Remote Supervisor Adapter II Web interface.

Entries that are written to the Remote Supervisor Adapter II event log during the early phase of POST show an incorrect date and time as the default time stamp; however, the date and time are corrected as POST continues.

- **Diagnostic event log:** This log is generated by the Dynamic System Analysis (DSA) program, and it contains merged contents of the system-event log and the Remote Supervisor Adapter II event log. You can view the diagnostic event log through the DSA program.

Some of the error codes and messages in the logs are abbreviated.

When you are troubleshooting PCI-X slots, note that the event logs report the PCI-X buses numerically. The numerical assignments vary depending on the configuration. You can check the assignments by running the Setup utility (see “Using the Configuration/Setup Utility program” on page 318 for more information).

Viewing event logs from the Setup utility

For complete information about using the Setup utility, see “Using the Configuration/Setup Utility program” on page 318.

To view the POST event log or system-event log, complete the following steps:

1. Turn on the server.
2. When the prompt <F1> Setup is displayed, press F1. If you have set both a power-on password and an administrator password, you must type the administrator password to view the event logs.
3. Select **System Event Logs** and use one of the following procedures:
 - To view the POST event log, select **POST Event Viewer**.
 - To view the system-event log, select **System Event Log**.

Viewing event logs without restarting the server

If the server is not hung, methods are available for you to view one or more event logs without having to restart the server.

If you have installed Portable or Installable Dynamic System Analysis (DSA), you can use it to view the diagnostic event log, which merges the contents of the system-event log and the Remote Supervisor Adapter II. You can also use DSA Preboot to view the diagnostic event log, although you must restart the server to use DSA Preboot. To install Portable DSA, Installable DSA, or DSA Preboot or to download a DSA Preboot CD image, go to <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=SERV-DSA&brandind=5000008> or complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Under **Related downloads**, click **Dynamic System Analysis (DSA)** to display the matrix of downloadable DSA files.

If IPMItool is installed in the server, you can use it to view the system-event log. Most recent versions of the Linux operating system come with a current version of IPMItool. For information about IPMItool, see http://publib.boulder.ibm.com/infocenter/toolsctr/v1r0/index.jsp?topic=/com.ibm.xseries.tools.doc/config_tools_ipmitool.html or complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://publib.boulder.ibm.com/infocenter/toolsctr/v1r0/index.jsp>.
2. In the navigation pane, click **IBM System x and BladeCenter Tools Center**.
3. Expand **Tools reference**, expand **Configuration tools**, expand **IPMI tools**, and click **IPMItool**.

For an overview of IPMI, go to <http://publib.boulder.ibm.com/infocenter/systems/index.jsp?topic=/liaai/ipmi/liaaiipmi.htm> or complete the following steps:

1. Go to <http://publib.boulder.ibm.com/infocenter/systems/index.jsp>.
2. In the navigation pane, click **IBM Systems Information Center**.
3. Expand **Operating systems**, expand **Linux information**, expand **Blueprints for Linux on IBM systems**, and click **Using Intelligent Platform Management Interface (IPMI) on IBM Linux platforms**.

You can view the Remote Supervisor Adapter II event log through the **Event Log** link in the Remote Supervisor Adapter II Web interface. For more information, see the Remote Supervisor Adapter II *User's Guide*.

The following table describes the methods that you can use to view the event logs, depending on the condition of the server. The first three conditions generally do not require that you restart the server.

Table 6. Methods for viewing event logs

Condition	Action
The server is not hung and is connected to a network.	Run Portable or Installable DSA to view the diagnostic event log or create an output file that you can send to IBM service and support. Alternatively, you can use IPMITool to view the system-event log.
The server is not hung and is not connected to a network.	Use IPMITool locally to view the system-event log.
The server is not hung and has a Remote Supervisor Adapter II or integrated management module (IMM).	In a Web browser, type the IP address of the Remote Supervisor Adapter II or IMM and go to the Event Log page.
The server is hung.	If DSA Preboot is installed, restart the server and press F2 to start DSA Preboot and view the diagnostic event log. If DSA Preboot is not installed, insert the DSA Preboot CD and restart the server to start DSA Preboot and view the diagnostic event log. Alternatively, you can restart the server and press F1 to start the Setup utility and view the POST event log or system-event log. For more information, see "Viewing event logs from the Setup utility" on page 39.

POST error codes

The following table describes the POST error codes and suggested actions to correct the detected problems.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
062	Three consecutive boot failures using the default configuration.	<ol style="list-style-type: none"> 1. Flash the system firmware to the latest level. 2. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
101, 102	Tick timer internal interrupt, internal timer channel 2.	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
114	Adapter read-only memory (ROM) error.	<ol style="list-style-type: none"> 1. Remove all adapters and reinstall them one at a time, restarting the server each time, to identify the failing adapter; then, replace the failing adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). 2. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
151	Real-time clock error.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
161	Real-time clock battery error.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
162	Device configuration error.	<ol style="list-style-type: none"> 1. Run the Configuration/Setup Utility program, select Load Default Settings, and save the settings. 2. Reseat the following components: <ol style="list-style-type: none"> a. Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. Failing device (see Chapter 5, “Removing and replacing server components,” on page 257). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Remove the battery for 5 minutes (see “Removing the battery” on page 268); then, reinstall the battery (see “Replacing the battery” on page 268) and restart the server. 4. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. Failing device (see Chapter 5, “Removing and replacing server components,” on page 257). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
163	Real-time clock error.	<ol style="list-style-type: none"> 1. Run the Configuration/Setup Utility program, select Load Default Settings, make sure that the date and time are correct, and save the settings. 2. Reseat the following components: <ol style="list-style-type: none"> a. Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
175	Bad EEPROM CRC#1.	<ol style="list-style-type: none"> 1. Restart the server. 2. Update the BMC firmware. 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).. 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
178	System VPD not available.	<ol style="list-style-type: none"> 1. Restart the server. 2. Update the BMC firmware. 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).. 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
184	Power-on password damaged.	<ol style="list-style-type: none"> 1. Run the Configuration/Setup Utility program, select Load Default Settings, and save the settings. 2. Reseat the following components: <ol style="list-style-type: none"> a. Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Remove the battery for 5 minutes (see “Removing the battery” on page 268); then, reinstall the battery (see “Replacing the battery” on page 268) and restart the server. 4. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Battery on the I/O board (see “Removing the battery” on page 268 and “Replacing the battery” on page 268). b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
187	VPD serial number not set.	<ol style="list-style-type: none"> 1. Set the serial number by updating the BIOS code level. 2. Reseat the following components: <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). b. Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). b. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
188	Bad EEPROM CRC #2.	<ol style="list-style-type: none"> 1. Restart the server. 2. Update the BMC firmware (see “Using the baseboard management controller utility programs” on page 330 for instructions for downloading the files). 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
189	An attempt was made to access the server with an incorrect password.	Restart the server and enter the administrator password; then, run the Configuration/Setup Utility program and change the power-on password (see “Starting the Configuration/Setup Utility program” on page 318).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
289	Memory card xx has failed BIST and has been disabled.	Replace failing memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
289	A DIMM has been disabled by the user or by the system.	<p>Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318.</p> <ol style="list-style-type: none"> 1. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 2. Make sure that the DIMM is installed correctly (see “Memory cards and memory modules (DIMM)” on page 279). 3. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 4. Replace the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 5. Run the Configuration/Setup Utility program and enable the DIMM (see “Using the Configuration/Setup Utility program” on page 318).
301	Keyboard or keyboard controller error.	<ol style="list-style-type: none"> 1. If you have installed a USB keyboard, run the Configuration/Setup Utility program and enable keyboardless operation to prevent the POST error message 301 from being displayed during startup. 2. Reseat the following components: <ol style="list-style-type: none"> a. Keyboard b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Keyboard b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
303	Keyboard controller error.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). b. Keyboard 2. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. Keyboard b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
1600	The baseboard management controller failed BIST (built-in self-test).	<ol style="list-style-type: none"> 1. Update the BMC firmware. 2. Update the BIOS code. 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
1601	The Baseboard Management Controller is not functioning.	<p>Note: This error can also occur if the server is warm-rebooted after updating the BMC firmware from diskette or other bootable media. The diskette version requires that you manually power off, then: power on the server. The Microsoft Windows or Linux versions of the BMC firmware update automatically reset the BMC.</p> <ol style="list-style-type: none"> 1. Update the BMC firmware. 2. Update the BIOS code. 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
1602	Systems-management adapter communication error.	<ol style="list-style-type: none"> 1. Make sure that the Remote Supervisor Adapter II is installed correctly (see “Internal I/O board connectors” on page 19 for the location of the connectors for the adapter and cable, and see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 2. Update the Remote Supervisor Adapter II firmware. 3. Update the BMC firmware. 4. Update the BIOS code. 5. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 6. Replace the Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 7. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
1603	The systems-management adapter firmware needs to be updated.	<ol style="list-style-type: none"> 1. Reseat the Remote Supervisor Adapter II to I/O board planar cable. 2. Update the Remote Supervisor Adapter II firmware. 3. Update the BMC firmware. 4. Update the BIOS code.
1800	Unavailable PCI hardware interrupt.	<ol style="list-style-type: none"> 1. Run the Configuration/Setup Utility program and adjust the adapter settings (see “Starting the Configuration/Setup Utility program” on page 318). 2. Remove each adapter one at a time, restarting the server each time, until the problem is isolated (see “Removing an adapter” on page 266).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
1962	A drive does not contain a valid boot sector.	<ol style="list-style-type: none"> 1. Make sure that a bootable operating system is installed. 2. Run the hard disk drive diagnostic tests (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100). 3. Check for a valid RAID configuration, if the ServeRAID-MR10k controller is installed.
5962	IDE CD or DVD drive configuration error.	<ol style="list-style-type: none"> 1. Run the Configuration/Setup Utility program and load the default settings (see “Starting the Configuration/Setup Utility program” on page 318). 2. Reseat the following components: <ol style="list-style-type: none"> a. CD or DVD drive cable b. CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
8603	Pointing-device error.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Pointing device b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the components listed in step 1 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
00012000	Processor machine check error.	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). b. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). b. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
00019501	Processor 1 is not functioning; check processor LEDs.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). VRM 1 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> VRM 1 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
00019502	Processor 2 is not functioning; check processor LEDs.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). VRM 2 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor 2 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> VRM 2 (Trained service technician only) Microprocessor 2 (Trained service technician only) Microprocessor board
00019503	Processor 3 is not functioning; check VRM and processor LEDs.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). VRM 3 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor 3 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> VRM 3 (Trained service technician only) Microprocessor 3 (Trained service technician only) Microprocessor board

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
00019504	Processor 4 is not functioning; check VRM and processor LEDs.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). VRM 4 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor 4 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> VRM 4 (Trained service technician only) Microprocessor 4 (Trained service technician only) Microprocessor board
00019701	Processor 1 failed BIST.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). VRM 1 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 1 VRM1 (Trained service technician only) Microprocessor board

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
00019702	Processor 2 failed BIST.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 2 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). VRM 2 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 2 VRM2 (Trained service technician only) Microprocessor board
00019703	Processor 3 failed BIST.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 3 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). VRM 3 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 3 VRM3 (Trained service technician only) Microprocessor board

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
00019704	Processor 4 failed BIST.	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 4 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). VRM 4 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> (Trained service technician only) Microprocessor 4 VRM4 (Trained service technician only) Microprocessor board

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action												
001801nn	<p>A PCI device resource allocation error has occurred, where nn=slot number.</p> <table><tr><th>Slot number</th><th>Node</th></tr><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. Change the order of the adapters in the PCI Express slots (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Make sure that the boot device is positioned early in the scan order (see the <i>User's Guide</i> for information about the scan order).2. Make sure that the settings for the adapter and all other adapters in the Configuration/Setup Utility program are correct. If the memory resource settings are not correct, change them.3. If all memory resources are being used, remove an adapter to make memory available to the adapter. Disabling the BIOS on the adapter should correct the error. See the documentation that comes with the adapter. <p>If the condition remains, complete the following additional troubleshooting steps to resolve the condition:</p> <ul style="list-style-type: none">• Disable the BIOS on all adapters that are not required to boot the server. You can disable the integrated devices from the Configuration/Setup Utility program.• Disable the BIOS of other adapters that might also use the ROM space, for example the Remote Supervisor Adapter II.• Remove all network adapters from the startup sequence.• Reallocate the boot order of the adapters so that the adapters with larger boot ROMs have more space to load. The boot order starts with PCI slot 1, and continues in numeric order to slot 7. <p>For further instructions for resolving the condition, see http://www.ibm.com/systems/support/ and search for MIGR-61724.</p>
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action												
001802nn	<p>No more I/O space is available for a PCI adapter, where nn=slot number.</p> <table><tr><th>Slot number</th><th>Node</th></tr><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. If the error code indicates a particular PCI Express slot or device, remove that device (see “Removing an adapter” on page 266).2. If the error continues, reseal the following components:<ol style="list-style-type: none">a. Each adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													
001803nn	<p>No more memory (above 1 MB for a PCI adapter), where nn=slot number.</p> <table><tr><th>Slot number</th><th>Node</th></tr><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. If the error code indicates a particular PCI Express slot or device, remove that device (see “Removing an adapter” on page 266).2. Reseat the following components:<ol style="list-style-type: none">a. Each adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													
001804nn	<p>No more memory (below 1 MB for a PCI adapter), where nn=slot number.</p> <table><tr><th>Slot number</th><th>Node</th></tr><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. Reseat the following components:<ol style="list-style-type: none">a. Each adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).2. Replace the components listed in step 1 one at a time, in the order shown, restarting the server each time.
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action												
001805nn	<p>PCI option ROM checksum error, where nn=slot number.</p> <table><thead><tr><th>Slot number</th><th>Node</th></tr></thead><tbody><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></tbody></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. Remove the failing adapter (see “Removing an adapter” on page 266).2. Reseat the following components:<ol style="list-style-type: none">a. Each adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													
001806nn	<p>PCI built-in self-test failure, where nn=slot number.</p> <table><thead><tr><th>Slot number</th><th>Node</th></tr></thead><tbody><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></tbody></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. If the error code indicates a particular PCI Express slot or device, remove that device (see “Removing an adapter” on page 266). Note: Slot 0 indicates the I/O board shuttle assembly.2. Reseat the following components:<ol style="list-style-type: none">a. Each adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).b. (Trained service technician only, if the specified board is a FRU) The board that is indicated in the error code. (See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243, to determine CRU or FRU status.)3. Replace the components listed in step 2 one at a time, in the order shown above, restarting the server each time.
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action												
001807nn, 001808nn	General PCI error, where nn=slot number. <table><tr><th>Slot number</th><th>Node</th></tr><tr><td>00</td><td>Internal planar</td></tr><tr><td>1-7</td><td>Slots on node 1</td></tr><tr><td>8-14</td><td>Slots on node 2</td></tr><tr><td>15-21</td><td>Slots on node 3</td></tr><tr><td>22-28</td><td>Slots on node 4</td></tr></table>	Slot number	Node	00	Internal planar	1-7	Slots on node 1	8-14	Slots on node 2	15-21	Slots on node 3	22-28	Slots on node 4	<ol style="list-style-type: none">1. Make sure that no devices have been disabled in the Configuration/Setup Utility program.2. Reseat the following components:<ol style="list-style-type: none">a. Failing adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Note: If an error LED is lit on the I/O board shuttle assembly or on an adapter, reseat that adapter first; if no LEDs are lit, reseat each adapter one at a time, restarting the server each time, to isolate the failing adapter.b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297)3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Slot number	Node													
00	Internal planar													
1-7	Slots on node 1													
8-14	Slots on node 2													
15-21	Slots on node 3													
22-28	Slots on node 4													
00181000	PCI error.	<ol style="list-style-type: none">1. Remove the adapters from the PCI Express slots (see “Removing an adapter” on page 266).2. Reseat the following components:<ol style="list-style-type: none">a. Failing adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Note: If an error LED is lit on the I/O board shuttle assembly or on an adapter, reseat that adapter first; if no LEDs are lit, reseat each adapter one at a time, restarting the server each time, to isolate the failing adapter.b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.												
01298001	No update data for processor 1.	<ol style="list-style-type: none">1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318).2. Update the BIOS code again.3. (Trained service technician only) Reseat microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).4. (Trained service technician only) Replace microprocessor 1.												

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
01298002	No update data for processor 2.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 2 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 2.
01298004	No update data for processor 3.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 3 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 3.
01298005	No update data for processor 4.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 4 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 4.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
01298101	Bad update data for processor 1.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 1.
01298102	Bad update data for processor 2.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 2 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 2.
01298103	Bad update data for processor 3.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 3 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 3.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error code	Description	Action
01298104	Bad update data for processor 4.	<ol style="list-style-type: none"> 1. Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318). 2. Update the BIOS code again. 3. (Trained service technician only) Reseat microprocessor 4 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 4. (Trained service technician only) Replace microprocessor 4.
01298200	Processor speed mismatch.	Make sure that all microprocessors have the same cache size (see “Starting the Configuration/Setup Utility program” on page 318).
I9990301	Fixed disk sector error.	<ol style="list-style-type: none"> 1. Reseat the hard disk drive cables. 2. Replace the hard disk drive cables. 3. Run the hard disk drive diagnostic tests (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100). 4. Reseat the following components: <ol style="list-style-type: none"> a. Hard disk drive (see “Removing the hot-swap hard disk drive” on page 275) and “Replacing the hot-swap hard disk drive” on page 275). b. SAS signal and power cables c. SAS backplane (see “Removing the SAS hard disk drive backplane assembly” on page 302 and “Replacing the SAS hard disk drive backplane assembly” on page 303). d. ServeRAID-MR10k adapter (see “Removing the ServeRAID-MR10k SAS controller” on page 303 and “Replacing the ServeRAID-MR10k SAS controller” on page 304). e. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 5. Replace the components listed in step 4 one at a time, in the order shown, restarting the server each time.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 		
Error code	Description	Action
I9990305	An operating system was not found.	<ol style="list-style-type: none"> 1. Make sure that a bootable operating system is installed. 2. Run the hard disk drive diagnostic tests (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100). 3. Reseat the following components: <ol style="list-style-type: none"> a. Hard disk drive (see “Removing the hot-swap hard disk drive” on page 275) and “Replacing the hot-swap hard disk drive” on page 275). b. SAS hard disk drive backplane and cables (see “Removing the SAS hard disk drive backplane assembly” on page 302 and “Replacing the SAS hard disk drive backplane assembly” on page 303). c. DVD drive and cables (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). d. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 4. Replace the components listed in step 3 one at a time, in the order shown, restarting the server each time.
I9990650	AC power has been restored.	<ol style="list-style-type: none"> 1. Check the power cables. 2. Check for interruption of the power supply (see “Power-supply LEDs” on page 97). 3. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 4. Replace the components listed in step 3 one at a time, in the order shown, restarting the server each time.

System Merge Failures

The following table describes the system merge failure messages that are generated during POST and suggested actions to correct the detected problems.

Note: If the scalability LED's are not lit on the SMP expansion ports after POST completes, this indicates there is no activity between the systems.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Message	Action
BIOS version is newer than secondary server BIOS BIOS version is older than secondary server BIOS Primary server booted standalone Communication error occurred with secondary server Timed out waiting for secondary server Merge Information - Expected chassis count / Actual chassis count No secondary servers found to merge Communication error occurred with primary server Secondary server booted standalone Timeout occurred waiting for primary server BIOS version is newer than primary server BIOS Invalid complex descriptor header Failure reading complex descriptor Failed determining local chassis ID	<ol style="list-style-type: none"> 1. Reboot all nodes to verify that the problem remains. 2. Check the multi-node cabling to confirm proper cabling and if the SMP link LEDs are lit (see “SMP Expansion cabling” on page 260). 3. Ensure all flashable code BIOS, FPGA, RSA, and BMC are at the same levels on all nodes. 4. Check the partition merge delay minutes in the Scalable Partition Web interface (see “Using the Scalable Partition Web interface” on page 335). 5. Refer to the Scalable Partition Web interface to aid in problem determination (see “Using the Scalable Partition Web interface” on page 335). 6. Delete the partition, remove and reapply AC power in all nodes in the configuration, and recreate the partition before replacing any hardware. 7. Replace the scalability cables (see “SMP Expansion cabling” on page 260). 8. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
No partition descriptor found Error reading partition descriptor	<ol style="list-style-type: none"> 1. Ensure that there is a partition descriptor defined in the Scalable Partition Web interface (see “Using the Scalable Partition Web interface” on page 335). 2. Reset the partition to the default values on all nodes (see “Using the Scalable Partition Web interface” on page 335).
Error reading system UUID	Reflash BIOS using the parameter to force UUID. <ol style="list-style-type: none"> 1. Load the BIOS diskette (as if you were updating BIOS). 2. Press F5 when the Loading from DOS Diskette message displays. This will bypass the autoexec.bat, and the Configuration/Setup utility program. 3. Type flash2 /e at the DOS prompt and press Enter. This will write a new UUID and start the BIOS update. You must complete the BIOS update for the UUID change to be successful. 4. Reboot the server and press F1 to re-enter BIOS and verify the new UUID.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Message	Action
CPU mismatch	The primary and secondary nodes have microprocessors that have mismatched cores. Install microprocessors with the same number of cores in both the primary and secondary nodes (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). Check the microprocessors types in BIOS.
Primary node has less than 4 GB memory installed...merge not supported!	<ol style="list-style-type: none"> 1. Ensure that the primary server has at least 4 GB of installed and usable memory. 2. Ensure that no memory errors have occurred on the primary server which may have resulted in memory being disabled.

Checkout procedures

The checkout procedure is the sequence of tasks that you should follow to diagnose a problem in the server.

About the checkout procedure

Before you perform the checkout procedure for diagnosing hardware problems, review the following information:

- Read the safety information that begins on page vii.
- The diagnostic programs provide the primary methods of testing the major components of the server, such as the microprocessor board, Ethernet controller, keyboard, mouse (pointing device), serial ports, and hard disk drives. You can also use them to test some external devices. If you are not sure whether a problem is caused by the hardware or by the software, you can use the diagnostic programs to confirm that the hardware is working correctly.
- When you run the diagnostic programs, a single problem might cause more than one error message. When this happens, correct the cause of the first error message. The other error messages usually will not occur the next time you run the diagnostic programs.

Exception: If multiple error codes or light path diagnostics LEDs indicate a microprocessor error, the error might be in a microprocessor or in a microprocessor socket. See “Microprocessor problems” on page 77 for information about diagnosing microprocessor problems.

- Before you run the diagnostic programs, you must determine whether the failing server is part of a shared hard disk drive cluster (two or more servers sharing external storage devices). If it is part of a cluster, you can run all diagnostic programs except the ones that test the storage unit (that is, a hard disk drive in the storage unit) or the storage adapter that is attached to the storage unit. The failing server might be part of a cluster if any of the following conditions is true:
 - You have identified the failing server as part of a cluster (two or more servers sharing external storage devices).

- One or more external storage units are attached to the failing server and at least one of the attached storage units is also attached to another server or unidentifiable device.
- One or more servers are located near the failing server.

Important: If the server is part of a shared hard disk drive cluster, run one test at a time. Do not run any suite of tests, such as “quick” or “normal” tests, because this might enable the hard disk drive diagnostic tests.

- If the server is halted and a POST error code is displayed, see “Event logs” on page 39. If the server is halted and no error message is displayed, see “Troubleshooting tables” on page 71 and “Solving undetermined problems” on page 239.
- For information about power-supply problems, see “Solving power problems” on page 238 and “Power-supply LEDs” on page 97.
- For intermittent problems, check the error log; see “Event logs” on page 39 and “Diagnostic programs and messages” on page 100.

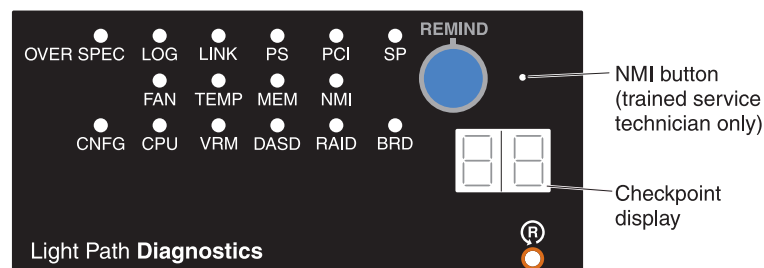
Performing the checkout procedure

To perform the checkout procedure, complete the following steps:

1. Is the server part of a cluster?
 - **No:** Go to step 2.
 - **Yes:** Shut down all failing servers that are related to the cluster. Go to step 2.
2. Complete the following steps:
 - a. Check the power-supply LEDs (see “Power-supply LEDs” on page 97).
 - b. Turn off the server and all external devices.
 - c. Check all internal and external devices for compatibility (see the ServerProven[®] list at <http://www.ibm.com/servers/eserver/serverproven/compat/us/>).
 - d. Check all cables and power cords.
 - e. Set all display controls to the middle positions.
 - f. Turn on all external devices.
 - g. Turn on the server. If the server does not start, see “Troubleshooting tables” on page 71.
 - h. Check the system-error LED on the operator information panel. If it is flashing, check the light path diagnostics LEDs (see “Light path diagnostics” on page 86).
 - i. Check for the following results:
 - Successful completion of POST, which is indicated by a single beep
 - Successful completion of startup, which is indicated by a readable display of the operating-system desktop
3. Did a single beep sound and are there readable instructions on the main menu?
 - **No:** Find the failure symptom in “Troubleshooting tables” on page 71; if necessary, see “Solving undetermined problems” on page 239.
 - **Yes:** Run the diagnostic programs (see “Diagnostic programs and messages” on page 100).
 - If you receive an error, follow the instructions.
 - If the diagnostic programs were completed successfully and you still suspect a problem, see “Solving undetermined problems” on page 239.

Checkpoint codes

A checkpoint code identifies the check that was occurring when the server stopped; it does not provide error codes or suggest replacement components. Checkpoint codes are shown on the checkpoint display, which is on the light path diagnostics panel. By using the checkpoint display, you do not have to wait for the video to initialize each time you restart the server.



There are two types of checkpoint codes: field programmable gate array (FPGA) hardware checkpoint codes and BIOS checkpoint codes. The BIOS checkpoint

codes might change because of code sequence and timing changes or when the BIOS code is updated. See <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-5072378&brandind=5000008> for checkpoint code information.

Troubleshooting tables

Use the troubleshooting tables to find solutions to problems that have identifiable symptoms.

If you cannot find a problem in these tables, see “Diagnostic programs and messages” on page 100 for information about testing the server.

If you have just added new software or a new optional device and the server is not working, complete the following steps before you use the troubleshooting tables:

1. Check the light path diagnostics LEDs on the operator information panel (see “Light path diagnostics” on page 86).
2. Remove the software or device that you just added.
3. Run the diagnostic tests to determine whether the server is running correctly (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100).
4. Reinstall the new software or new device.

CD or DVD drive problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
The CD or DVD drive is not recognized.	<ol style="list-style-type: none">1. Make sure that:<ul style="list-style-type: none">• The IDE channel to which the CD or DVD drive is attached (primary or secondary) is enabled in the Configuration/Setup Utility program.• The signal cable and connector are not damaged and the connector pins are not bent.• All cables and jumpers are installed correctly.• The correct device driver is installed for the CD or DVD drive.2. Run the CD or DVD drive diagnostic programs (see “Diagnostic programs and messages” on page 100).3. Reseat the following components:<ol style="list-style-type: none">a. CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270).b. CD or DVD drive cablec. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).4. Replace the components listed in step 3 one at a time, in the order shown, restarting the server each time.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Symptom	Action
A CD or DVD is not working correctly.	<ol style="list-style-type: none"> 1. Clean the CD or DVD. 2. Run the CD or DVD drive diagnostic programs (see “Diagnostic programs and messages” on page 100). 3. Check the connector and signal cable for bent pins or damage. 4. Reseat the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). 5. Replace the CD or DVD drive.
The CD or DVD drive tray is not working.	<ol style="list-style-type: none"> 1. Make sure that the server is turned on. 2. Insert the end of a straightened paper clip into the manual tray-release opening. 3. Reseat the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). 4. Replace the CD or DVD drive.

Embedded hypervisor problems

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Symptom	Action
If an embedded hypervisor device is not listed in the expected boot order, doesn't appear in the list of boot devices at all, or a similar problem has occurred.	<ol style="list-style-type: none"> 1. Make sure the embedded hypervisor device is selected on the boot menu (in F1 setup and in F12). 2. If the embedded hypervisor resides on an internal flash memory device, make sure the internal flash memory device is seated in the connector correctly (see “Removing the internal flash memory” on page 277 and “Replacing the internal flash memory” on page 277). 3. If the problem remains, see the documentation that comes with your embedded hypervisor for setup and configuration information. 4. Make sure that other software works on the server.

General problems

<ul style="list-style-type: none">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.• See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).• If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.	
Symptom	Action
A cover lock is broken, an LED is not working, or a similar problem has occurred.	If the part is a CRU, replace it. If the part is a FRU, the part must be replaced by a trained service technician (see “Replaceable server components” on page 245 to determine if the part is a CRU or a FRU).

Hard disk drive problems

<ul style="list-style-type: none">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.• See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).• If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.	
Symptom	Action
Not all drives are recognized by the hard disk drive diagnostic test (the Fixed Disk test).	Remove the drive that is indicated by the diagnostic tests (see “Removing the hot-swap hard disk drive” on page 275); then, run the hard disk drive diagnostic test again (see “Diagnostic programs and messages” on page 100). If the remaining drives are recognized, replace the drive that you removed with a new one.
The server stops responding during the hard disk drive diagnostic test.	Remove the hard disk drive that was being tested when the server stopped responding (see “Removing the hot-swap hard disk drive” on page 275), and run the diagnostic test again (see “Diagnostic programs and messages” on page 100). If the hard disk drive diagnostic test runs successfully, replace the drive that you removed with a new one (see “Replacing the hot-swap hard disk drive” on page 275).
A hard disk drive was not detected while the operating system was being started.	Reseat all hard disk drives and cables; then, run the hard disk drive diagnostic tests again (see “Diagnostic programs and messages” on page 100).
A hard disk drive passes the diagnostic Fixed Disk Test but the problem remains.	Run the diagnostic SAS Fixed Disk Test (see “Diagnostic programs and messages” on page 100). Note: This test is not available to servers using RAID or servers with IDE or SATA hard disk drives.

Intermittent problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
A problem occurs only occasionally and is difficult to diagnose.	<ol style="list-style-type: none">1. Make sure that:<ul style="list-style-type: none">• All cables and cords are connected securely to the rear of the server and attached devices.• When the server is turned on, air is flowing from the fan grille. If there is no airflow, the fan is not working. This can cause the server to overheat and shut down.2. Check the system-error log (see “Event logs” on page 39).3. See “Solving undetermined problems” on page 239.

USB keyboard, mouse, or pointing-device problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
All or some keys on the keyboard do not work.	<ol style="list-style-type: none">1. If you have installed a USB keyboard, run the Configuration/Setup Utility program and enable keyboardless operation to prevent the POST error message 301 from being displayed during startup.2. See the ServerProven list at http://www.ibm.com/servers/eserver/serverproven/compat/us/ for information about keyboard compatibility.3. Make sure that:<ul style="list-style-type: none">• The keyboard cable is securely connected.• The server and the monitor are turned on.4. Reseat the following components:<ol style="list-style-type: none">a. Keyboardb. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).5. Replace the components listed in step 4 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
The USB mouse or USB pointing device does not work.	<ol style="list-style-type: none"> 1. See the ServerProven list at http://www.ibm.com/servers/eserver/serverproven/compat/us/ for information about mouse compatibility. 2. Make sure that: <ul style="list-style-type: none"> • The mouse or pointing-device USB cable is securely connected to the server, and the device drivers are installed correctly. • The server and the monitor are turned on. • Keyboardless operation has been enabled in the Configuration/Setup Utility program. 3. If you are using a USB hub, disconnect the USB device from the hub and connect it directly to the server. 4. Reseat the following components: <ol style="list-style-type: none"> a. Mouse or pointing device b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 5. Replace the components listed in step 4 one at a time, in the order shown, restarting the server each time.

Memory problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
The amount of system memory that is displayed is less than the amount of installed physical memory.	<p>Note: If you change the memory, you must update the memory configuration in the Configuration/Setup Utility program.</p> <ol style="list-style-type: none"> Make sure that: <ul style="list-style-type: none"> No error LEDs are lit on the operator information panel or on the memory card. Memory mirroring does not account for the discrepancy. Scalability does not account for the discrepancy. <p>Note: Each node in a multi-node configuration uses 256 MB of system memory.</p> The memory modules are seated correctly ((see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286)). You have installed the correct type of memory. If you changed the memory, you updated the memory configuration in the Configuration/Setup Utility program. All banks of memory are enabled. The server might have automatically disabled a memory bank when it detected a problem, or a memory bank might have been manually disabled. Check the POST error log for error message 289. If a DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. Run memory diagnostics (see “Diagnostic programs and messages” on page 100). Make sure that there is no memory mismatch when the server is at the minimum memory configuration (two 1 GB DIMMs). Reinstall the removed DIMMs one pair at a time, making sure that the DIMMs in each pair match. Reinstall the removed memory cards one memory card at a time (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285), making sure that the DIMMs on each card match. Reseat the following components: <ol style="list-style-type: none"> DIMM Memory card Replace the components listed in step 7 one at a time, in the order shown, restarting the server each time. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

Microprocessor problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
The server emits a continuous beep during POST, indicating that the startup (boot) microprocessor is not working correctly.	<ol style="list-style-type: none"> 1. Correct any errors that are indicated by the light path diagnostics LEDs (see “Light path diagnostics” on page 86). 2. Make sure that the server supports all the microprocessors and that the microprocessors match in speed and cache size. 3. Reseat the following components: <ol style="list-style-type: none"> a. Microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). b. Microprocessor VRMs (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. (Trained service technician only) If there is no indication of which microprocessor has failed, isolate the error by testing with one microprocessor at a time. 5. Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor 1 b. Microprocessor VRMs c. (Trained service technician only) Microprocessor board 6. (Trained service technician only) If multiple error codes or light path diagnostics LEDs indicate a microprocessor error, reverse the locations of two microprocessors to determine whether the error is associated with a microprocessor or with a microprocessor socket. Also reverse the locations of the VRMs. <ul style="list-style-type: none"> • If the error is associated with a microprocessor, replace the microprocessor. • If the error is associated with a VRM, replace the VRM. • If the error is associated with a microprocessor socket, (trained service technician only) replace the microprocessor board.

Monitor problems

Some IBM monitors have their own self-tests. If you suspect a problem with your monitor, see the documentation that comes with the monitor for instructions for testing and adjusting the monitor. If you cannot diagnose the problem, call for service.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
Testing the monitor	<ol style="list-style-type: none">1. Make sure the monitor cables are firmly connected.2. Try using a different monitor on the server, or try using the monitor that is being tested on a different server.3. Run the diagnostic programs (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100). If the monitor passes the diagnostic programs, the problem might be a video device driver.4. Reseat the following components:<ol style="list-style-type: none">a. Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289).b. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).5. Replace the components listed in step 4 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
The screen is blank.	<ol style="list-style-type: none"> 1. If the server is attached to a KVM switch, bypass the KVM switch to eliminate it as a possible cause of the problem: connect the keyboard cable directly to the correct connector on the rear of the server. 2. Make sure that: <ul style="list-style-type: none"> • The server is powered on. If there is no power to the server, see “Power problems” on page 82. • The monitor cables are connected correctly. • The monitor is turned on and the brightness and contrast controls are adjusted correctly. • No beep codes sound when the server is turned on. <p>Important: In some memory configurations, the 3-3-3 beep code might sound during POST, followed by a blank monitor screen. If this occurs, complete the following steps:</p> <ol style="list-style-type: none"> a. Turn off the server. b. Move the memory card to a different slot (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). c. Turn on the server. Note: BIOS detects a new configuration and automatically re-enables the memory slots that were previously disabled. d. Turn off the server. e. Return the memory card to the slot that you removed it from in step 2b. f. Turn on the server. 3. Make sure that the correct server is controlling the monitor, if applicable. 4. Make sure that damaged BIOS code is not affecting the video; see “Recovering from a BIOS update failure” on page 198. 5. Observe the checkpoint LEDs on the light path diagnostics panel; if the codes are changing, go to the next step. If the codes are not changing, see “Checkpoint codes” on page 69. 6. See “Solving undetermined problems” on page 239.
The monitor works when you turn on the server, but the screen goes blank when you start some application programs.	<ol style="list-style-type: none"> 1. Make sure that: <ul style="list-style-type: none"> • The application program is not setting a display mode that is higher than the capability of the monitor. • You installed the necessary device drivers for the application. 2. Run video diagnostics (see “Diagnostic programs and messages” on page 100). <ul style="list-style-type: none"> • If the server passes the video diagnostics, the video is good; see “Solving undetermined problems” on page 239. • If the server fails the video diagnostics, reseal the Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). • Replace the Remote Supervisor Adapter II.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
The monitor has screen jitter, or the screen image is wavy, unreadable, rolling, or distorted.	<ol style="list-style-type: none"> 1. If the monitor self-tests show the monitor is working correctly, consider the location of the monitor. Magnetic fields around other devices (such as transformers, appliances, fluorescent lights, and other monitors) can cause screen jitter or wavy, unreadable, rolling, or distorted screen images. If this happens, turn off the monitor. Attention: Moving a color monitor while it is turned on might cause screen discoloration. Move the device and the monitor at least 305 mm (12 in.) apart, and turn on the monitor. Notes: <ol style="list-style-type: none"> a. To prevent diskette drive read/write errors, make sure that the distance between the monitor and any external diskette drive is at least 76 mm (3 in.). b. Non-IBM monitor cables might cause unpredictable problems. 2. Reseat the following components: <ol style="list-style-type: none"> a. Monitor b. Remote Supervisor (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Wrong characters appear on the screen.	<ol style="list-style-type: none"> 1. If the wrong language is displayed, update the BIOS code with the correct language. 2. Reseat the following components: <ol style="list-style-type: none"> a. Monitor b. Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.

Optional-device problems

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Symptom	Action
An IBM optional device that was just installed does not work.	<ol style="list-style-type: none"> 1. Make sure that: <ul style="list-style-type: none"> • The device is designed for the server (see the ServerProven list at http://www.ibm.com/servers/eserver/serverproven/compat/us/). • You followed the installation instructions that came with the device and the device is installed correctly. • You have not loosened any other installed devices or cables. • You updated the configuration information in the Configuration/Setup Utility program. Whenever memory or any other device is changed, you must update the configuration. 2. Reseat the device that you just installed. 3. Replace the device that you just installed.
An IBM optional device that used to work does not work now.	<ol style="list-style-type: none"> 1. Make sure that all of the hardware and cable connections for the device are secure. 2. If the device comes with test instructions, use those instructions to test the device. 3. If the failing device is a SCSI device, make sure that: <ul style="list-style-type: none"> • The cables for all external SCSI devices are connected correctly. • The last device in each SCSI chain, or the end of the SCSI cable, is terminated correctly. • Any external SCSI device is turned on. You must turn on an external SCSI device before turning on the server. 4. Reseat the failing device. 5. Replace the failing device.
POST reporting PCI Event: Redundant PCI Host Bridge IB Link Failed. Slot Number = NA. Bus Number = NA. Device ID = 0xffff. Vendor ID = 0xffff	<ol style="list-style-type: none"> 1. Check for bent pins between the I/O board shuttle and the microprocessor board. 2. Replace the failing device.

Power problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
<p>The power-control button does not work, and the reset button does work (the server does not start).</p> <p>Note: The power-control button will not function until 20 seconds after the server has been connected to ac power.</p>	<ol style="list-style-type: none"> 1. Make sure that the operator information panel power-control button is working correctly: <ol style="list-style-type: none"> a. Disconnect the ac power cord for 20 seconds; then, reconnect the ac power cord and restart the server. b. Reseat the operator information panel cables, and then repeat step 1a. <ul style="list-style-type: none"> • If the server starts, reseat the operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300). If the problem remains, replace the operator information panel. • If the server does not start, reseat the operator information. If the problem remains, replace the operator information panel. 2. Make sure that the reset button is working correctly: <ol style="list-style-type: none"> a. Disconnect the server power cords. b. Reconnect the power cords. c. Reseat the light path diagnostics panel cable (the operator information panel ribbon cable), and then repeat step 1a. <ul style="list-style-type: none"> • If the server starts, replace the operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300). • If the server does not start, go to step 3. 3. Make sure that: <ul style="list-style-type: none"> • The power cords are correctly connected to the server and to a working electrical outlet. • The type of memory that is installed is correct. • The memory card is fully seated . • The LEDs on the power supply do not indicate a problem. • The microprocessors are installed in the correct sequence. <p>(Continued on the next page)</p>

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
(continued)	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Operator information panel (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300). Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). Replace the following components one at a time, in the order shown, restarting the server each time. <ol style="list-style-type: none"> Memory card Operator information panel Power backplane (Trained service technician only) Microprocessor board If you just installed an optional device, remove it, and restart the server. If the server now starts, you might have installed more devices than the power supply supports. See “Power-supply LEDs” on page 97. See “Solving undetermined problems” on page 239.
The server does not turn off.	<ol style="list-style-type: none"> Determine whether you are using an Advanced Configuration and Power Management (ACPI) or a non-ACPI operating system. If you are using a non-ACPI operating system, complete the following steps: <ol style="list-style-type: none"> Press Ctrl+Alt+Delete. Turn off the server by holding the power-control button for 5 seconds. Restart the server. If the server fails POST and the power-control button does not work, disconnect the ac power cord for 20 seconds; then, reconnect the ac power cord and restart the server. If the problem remains or if you are using an ACPI-aware operating system, suspect the microprocessor board.
The server unexpectedly shuts down, and the LEDs on the operator information panel are not lit.	See “Solving undetermined problems” on page 239.

Serial-device problems

<ul style="list-style-type: none">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.• See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).• If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.	
Symptom	Action
The number of serial ports that are identified by the operating system is less than the number of installed serial ports.	<ol style="list-style-type: none">1. Make sure that:<ul style="list-style-type: none">• Each port is assigned a unique address in the Configuration/Setup Utility program and none of the serial ports is disabled.• The serial-port adapter (if one is present) is seated correctly.2. Reseat the serial port adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).3. Replace the serial port adapter.
A serial device does not work.	<ol style="list-style-type: none">1. Make sure that:<ul style="list-style-type: none">• The device is compatible with the server.• The serial port is enabled and is assigned a unique address.• The device is connected to the correct connector (see “Internal LEDs, connectors, and jumpers” on page 15).2. Reseat the following components:<ol style="list-style-type: none">a. Failing serial deviceb. Serial cablec. Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289).d. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.

ServerGuide problems

<ul style="list-style-type: none">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.• See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).• If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.	
Symptom	Action
The <i>ServerGuide Setup and Installation</i> CD will not start.	<ol style="list-style-type: none">1. Make sure that the server supports the ServerGuide program and has a startable (bootable) CD or DVD drive.2. If the startup (boot) sequence settings have been changed, make sure that the CD or DVD drive is first in the startup sequence.3. If more than one CD or DVD drive is installed, make sure that only one drive is set as the primary drive. Start the CD from the primary drive.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Symptom	Action
The ServeRAID Manager program cannot view all installed drives, or the operating system cannot be installed.	<ol style="list-style-type: none"> 1. Make sure that the hard disk drive is connected correctly. 2. Make sure that the SAS hard disk drive cables are securely connected.
The operating-system installation program continuously loops.	Make more space available on the hard disk.
The ServerGuide program will not start the operating-system CD.	Make sure that the operating-system CD is supported by the ServerGuide program. See the <i>ServerGuide Setup and Installation</i> CD label for a list of supported operating-system versions.
The operating system cannot be installed; the option is not available.	Make sure that the server supports the operating system. If it does, either no logical drive is defined (SCSI RAID systems), or the ServerGuide System Partition is not present. Run the ServerGuide program and make sure that setup is complete.

Software problems

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Symptom	Action
You suspect a software problem.	<ol style="list-style-type: none"> 1. To determine whether the problem is caused by the software, make sure that: <ul style="list-style-type: none"> • The server has the minimum memory that is needed to use the software. For memory requirements, see the information that comes with the software. If you have just installed an adapter, the server might have an adapter-address conflict. • The software is designed to operate on the server. • Other software works on the server. • The software works on another server. 2. If you receive any error messages while you use the software, see the information that comes with the software for a description of the messages and suggested solutions to the problem. 3. Contact your place of purchase of the software.

Universal Serial Bus (USB) port problems

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Symptom	Action
A USB device does not work.	<ol style="list-style-type: none">1. Run USB diagnostics (see “Diagnostic programs and messages” on page 100).2. Make sure that:<ul style="list-style-type: none">• The correct USB device driver is installed.• The operating system supports USB devices.3. Make sure that the USB configuration options are set correctly in the Configuration/Setup Utility program menu (see “Using the Configuration/Setup Utility program” on page 318 for more information).4. If you are using a USB hub, disconnect the USB device from the hub and connect it directly to the server.

Video problems

See “Monitor problems” on page 78.

Light path diagnostics

Light path diagnostics is a system of LEDs on various external and internal components of the server. When an error occurs, LEDs are lit throughout the server. By viewing the LEDs in a particular order, you can often identify the source of the error.

The server is designed so that LEDs remain lit when the server is connected to an ac power source but is not turned on, provided that the power supply is operating correctly. This feature helps you to isolate the problem when the operating system is shut down.

Any memory-card LED can be lit while the memory card is removed from the server so that you can isolate a problem. After ac power has been removed from the server, power remains available to these LEDs for up to 24 hours.

To view the memory card LEDs, press and hold the light path diagnostics button on the memory card to light the error LEDs. The LEDs that were lit while the server was turned on will be lit again while the button is pressed.

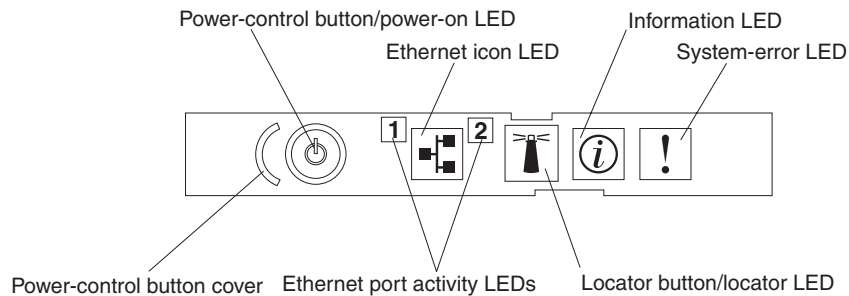
Many errors are first indicated by a lit information LED or system-error LED on the operator information panel on the front of the server. If one or both of these LEDs are lit, one or more LEDs elsewhere in the server might also be lit and can direct you to the source of the error.

Before you work inside the server to view light path diagnostics LEDs, read the safety information that begins on page vii and “Handling static-sensitive devices” on page 259.

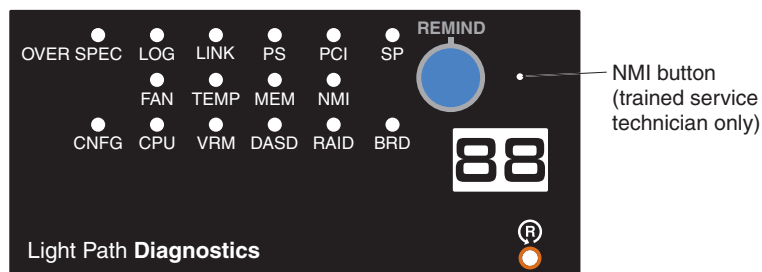
If an error occurs, view the light path diagnostics LEDs in the following order:

1. Check the operator information panel on the front of the server.
 - If the information LED is lit, it indicates that a suboptimal condition in the server exists; go to step 2.
 - If the system-error LED is lit, it indicates that an error has occurred; go to step 2.

The following illustration shows the operator information panel.



2. To view the light path diagnostics panel, press the release latch on the front of the operator information panel to the left; then, slide it forward. This reveals the light path diagnostics panel. Lit LEDs on this panel indicate the type of error that has occurred.

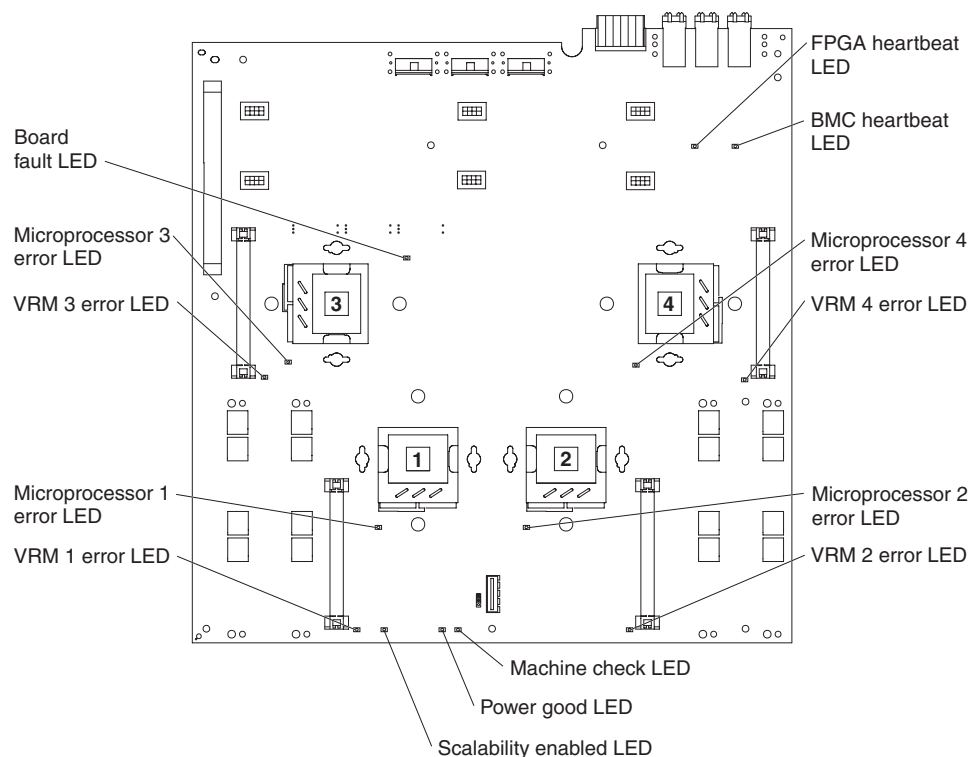


Note: (Trained service technician only) The NMI button is used for operating system debug purposes and will cause the server to reset if pressed.

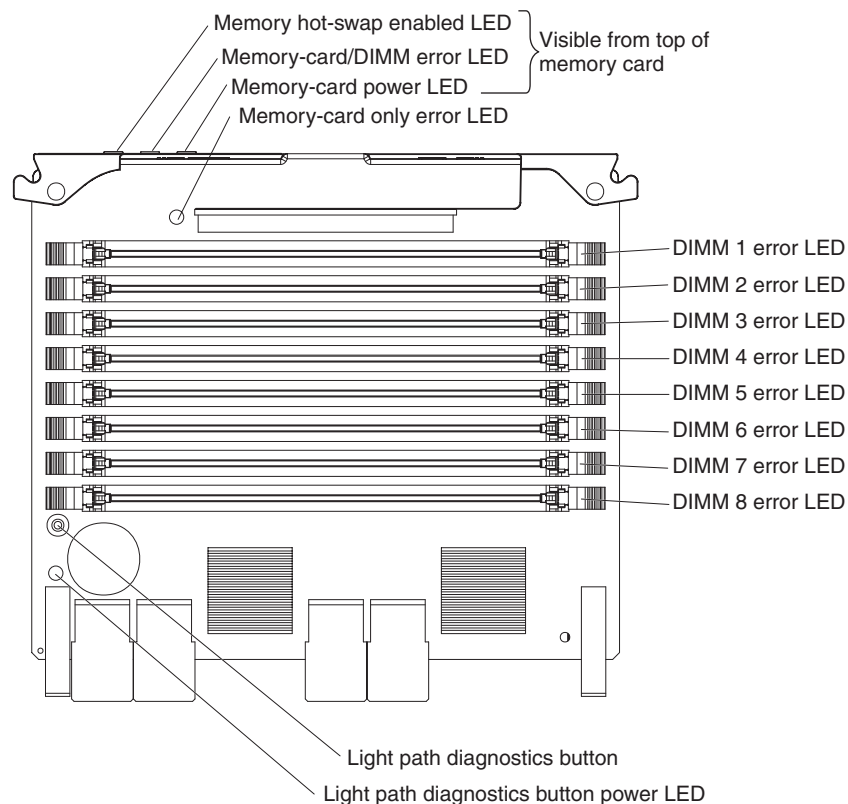
Look at the system service label on the top of the server, which gives an overview of internal components that correspond to the LEDs on the light path diagnostics panel. This information and the information in “Light path diagnostic LEDs” on page 89 can often provide enough information to correct the error.

3. Remove the server cover and look inside the server for lit LEDs. Certain components inside the server have LEDs that will be lit to indicate the location of a problem. For example, a VRM error will light the LED next to the failing VRM on the microprocessor board.

The following illustration shows the LEDs on the microprocessor board.



The following illustration shows the LEDs on the memory card.



Remind button

You can use the remind button on the light path diagnostics panel to put the system-error LED on the operator information panel into Remind mode. When you

press the remind button, you acknowledge the error but indicate that you will not take immediate action. The system-error LED flashes while it is in Remind mode and stays in Remind mode until one of the following conditions occurs:

- All known errors or suboptimal conditions are corrected.
- The server is powered back on.
- A new error or suboptimal condition occurs, causing the system-error LED to be lit again.

You can also use the remind button to turn off the LOG LED on the light path diagnostics panel and the information LED.

In multi-node configurations, you can also press this button during startup to start the server as a stand-alone server.

Light path diagnostic LEDs

The following table describes the LEDs on the light path diagnostics panel and suggested actions to correct the detected problems.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 		
Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
All LEDs are off (only the power LED is lit or flashing).		No action necessary.
All LEDs are off (the power LED is lit or flashing and the system-error LED is lit).	A machine check has occurred. The server is identifying the machine check, the server was interrupted while identifying the machine check, or the server was unable to identify the machine check.	<ol style="list-style-type: none"> 1. Wait several minutes for the server to identify the machine check and the server will restart. 2. (Trained service technician only) Extract the machine check data, which will be used to identify the machine check.
OVERSPEC	There is insufficient power to power the system. The LOG LED might also be lit.	<ol style="list-style-type: none"> 1. Add a power supply if only one power supply is installed. 2. Use 220 V ac instead of 110 V ac. 3. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 4. Remove optional devices. 5. Replace the components listed in step 3 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
LOG	Information is present in the system-error log.	<ol style="list-style-type: none"> 1. Save the log if necessary and clear. 2. Check the log for possible errors.
LINK	<p>There is a fault in an SMP Expansion Port or SMP Expansion cable (requires scalability enablement).</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. This LED remains lit until the problem is resolved and the server is turned off and restarted. 2. If a fault occurs, the SMP Expansion Port link LED on the failed port is off. 	<ol style="list-style-type: none"> 1. Check the SMP Expansion Port link LEDs to find the failing port or cable. 2. Reseat the SMP Expansion cables. 3. Replace the SMP Expansion cables. 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
PS	<p>A power supply has failed or has been removed.</p> <p>Note: In a redundant power configuration, the dc power LED on one power supply might be off.</p>	<ol style="list-style-type: none"> 1. Reinstall the removed power supply (see “Replacing the hot-swap power supply” on page 277). 2. Check the individual power-supply LEDs to find the failing power supply. 3. Reseat the following components: <ol style="list-style-type: none"> a. Failing power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 4. Make sure that the power cord is fully seated in the power-supply inlet and the ac power source. 5. Replace the components listed in step 3 one at a time, in the order shown, restarting the server each time. 6. Disconnect the ac power cord for 20 seconds; then, reconnect the ac power cord and restart the server.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
PCI	A PCI adapter has failed. Note: The error LED next to the failing adapter on the I/O board shuttle is also lit.	<ol style="list-style-type: none"> 1. See the system-error log (see “Event logs” on page 39). 2. Reseat the following components: <ol style="list-style-type: none"> a. Failing adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
SP	The Remote Supervisor Adapter II has failed or is missing or the planar cable is not connected.	<ol style="list-style-type: none"> 1. Reseat the Remote Supervisor Adapter II and planar cable (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 2. Update the firmware for the Remote Supervisor Adapter II. 3. Replace the Remote Supervisor Adapter II.
FAN	A fan has failed or has been removed. Note: A failing fan can also cause the TEMP LED to be lit.	<ol style="list-style-type: none"> 1. Reinstall the removed fan (see “Replacing the hot-swap fan” on page 274). 2. If an individual fan LED is lit, replace the fan. Note: A failing fan might not cause the fan LED to be lit. 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. (Trained service technician only) Replace the microprocessor board.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
TEMP	A system temperature or component has exceeded specifications. Note: A fan LED might also be lit.	<ol style="list-style-type: none"> 1. See the system-error log for the source of the fault (see “Event logs” on page 39). 2. Make sure that the airflow of the server is not blocked. 3. If a fan LED is lit, reseal the fan (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274). 4. Replace the fan for which the LED is lit. 5. Make sure that the room is neither too hot nor too cold (see “Environment” in “Features and specifications” on page 7). 6. If one of the VRMs indicates “hot,” remove ac power before you restore dc power.
MEM	Memory failure.	<ol style="list-style-type: none"> 1. Remove the memory card that has a lit error LED (see “Removing a memory card” on page 284); then, press the light path diagnostics button on the memory card to identify the failed card or DIMM (see “Remind button” on page 88). 2. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 3. Swap the failed DIMM with a known good DIMM, or move the failed DIMM to another connector to see if the error follows the DIMM or stays with the connector. 4. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. DIMM b. Memory card c. (Trained service technician only) Microprocessor board 5. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
NMI	A hardware error has been reported to the operating system. Note: The PCI or MEM LED might also be lit.	<ol style="list-style-type: none"> 1. See the system-error log (see “Event logs” on page 39). 2. If the PCI LED is lit, follow the instructions for that LED. 3. If the MEM LED is lit, follow the instructions for that LED. 4. Restart the server.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
CNFG	A configuration error has occurred.	<ol style="list-style-type: none"> 1. Find the failing or missing component by checking the other light path diagnostic LEDs. 2. Make sure that the fans, power supplies, microprocessors, VRMs, and memory cards are installed in the correct sequence.
CPU	A microprocessor has failed, is missing, or has been incorrectly installed.	<ol style="list-style-type: none"> 1. Make sure that the microprocessors are installed in the correct sequence; see “Microprocessor” on page 305. 2. Check the RSA II event log or the system-error log to determine the reason for the lit LED (see “Event logs” on page 39). 3. Find the failing, missing, or mismatched microprocessor by checking the LEDs on the microprocessor board. 4. Reseat the following components: <ol style="list-style-type: none"> a. (Trained service technician only) Failing microprocessor (see “Microprocessor” on page 305). b. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 5. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. (Trained service technician only) Failing microprocessor b. (Trained service technician only) Microprocessor board

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
VRM	A dc-dc regulator has failed or is missing.	<ol style="list-style-type: none"> 1. Check the system-error log to determine the reason for the lit LED (for a VRM) (see “Event logs” on page 39). 2. Find the failing or missing VRM by checking the LEDs on the microprocessor board. 3. Install any missing VRMs (see “Replacing the VRM” on page 293). 4. Reseat the following components: <ol style="list-style-type: none"> a. Failing VRM (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). b. (Trained service technician only) Microprocessor associated with the VRM (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 5. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Failing VRM b. (Trained service technician only) Microprocessor associated with the VRM c. (Trained service technician only) Microprocessor board

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
DASD	A hard disk drive has failed or has been removed. Note: The error LED on the failing hard disk drive is also lit.	<ol style="list-style-type: none"> 1. Reinstall the removed drive. 2. Reseat the following components: <ol style="list-style-type: none"> a. Failing hard disk drive (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275). b. (Trained service technician only) SAS hard disk drive backplane (see “Removing the SAS hard disk drive backplane assembly” on page 302 and “Replacing the SAS hard disk drive backplane assembly” on page 303). c. SAS signal cable d. (Trained service technician only) I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
RAID	The RAID controller has indicated a fault.	<ol style="list-style-type: none"> 1. Check the system-error log for information (see “Event logs” on page 39). 2. Reseat the following components: <ol style="list-style-type: none"> a. RAID controller, if possible (see “Removing the ServeRAID-MR10k SAS controller” on page 303 and “Replacing the ServeRAID-MR10k SAS controller” on page 304). b. Hard disk drives (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297) 3. Replace the components in step 2 one at a time, in the order shown, restarting the server each time.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Lit light path diagnostics LED with the system-error LED or information LED also lit	Description	Action
BOARD	The I/O board shuttle or microprocessor board has failed.	<ol style="list-style-type: none"> 1. Find the failing board by checking the LEDs on the I/O board shuttle and microprocessor board. 2. Reseat the failing board (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297, or [trained service technician only] see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the failing board.

Power-supply LEDs

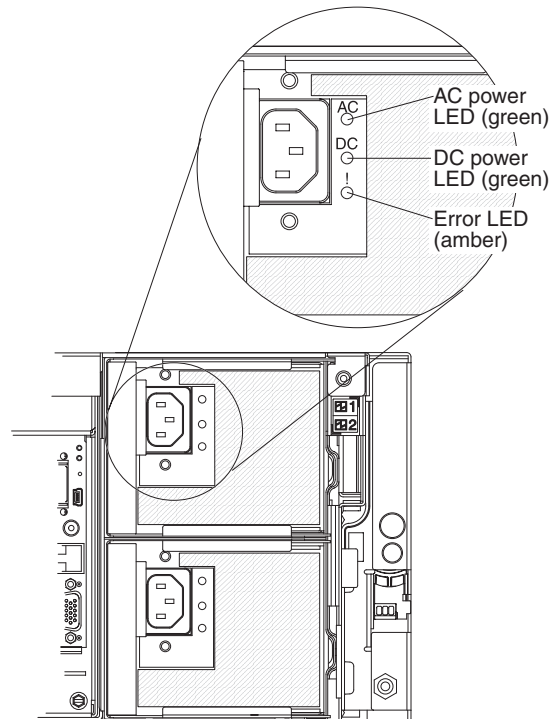
The following minimum configuration is required for the DC LED on the power supply to be lit:

- I/O board
- Power supply
- Power backplane
- Power cord
- Microprocessor board

The following minimum configuration is required for the server to start:

- I/O board
- Power supply
- Power backplane
- Power cord
- Microprocessor board
- One microprocessor and VRM
- Two 1 GB DIMMs on one memory card

The following illustration shows the locations of the power-supply LEDs.



The following table describes the problems that are indicated by various combinations of the power-supply LEDs and the power-on LED on the operator information panel and suggested actions to correct the detected problems.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Power-supply LEDs			Operator information panel power-on LED	Description	Action
AC	DC	Error			
Off	Off	Off	Off	No ac power to the server, or a problem with the ac power source.	<ol style="list-style-type: none"> 1. Check the ac power to the server. 2. Make sure that the power cord is connected to a functioning power source. 3. Make sure that the power cord is fully seated in the power-supply inlet.
Lit	Off	Off	Off	DC source power problem or system error.	<ol style="list-style-type: none"> 1. Make sure that the microprocessor board is connected to the power backplane. 2. Reseat one power supply at a time (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). 3. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 4. View the system-error log (see “Event logs” on page 39).
Lit	Lit	Off	Off	The server is turned off or standby power problem.	<ol style="list-style-type: none"> 1. Press the power-control button on the operator information panel. 2. View the system-error log (see “Event logs” on page 39). 3. Remove one power supply at a time (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). 4. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302).
Lit	Lit	Off	Flashing	System power-on problem.	<ol style="list-style-type: none"> 1. View the system-error log (see “Event logs” on page 39). 2. Press the power-control button on the operator information panel. 3. Remove the Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289), and try to turn on the server. <p>(Continued on the next page)</p>

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Power-supply LEDs			Operator information panel power-on LED	Description	Action
AC	DC	Error			
				(continued)	<p>4. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).</p> <p>5. (Trained service technician only) Replace the microprocessor board.</p>
Lit	Lit or off	Lit	Lit or off	There is an internal power supply fault (for example, thermal fault, or over-voltage or under-voltage condition).	<p>1. View the system-error log (see “Event logs” on page 39).</p> <p>2. Replace the power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277).</p>
Lit	Lit	Off	Lit	The power is good.	No action.

Diagnostic programs and messages

The diagnostic programs are the primary method of testing the major components of the server. As you run the diagnostic programs, text messages are displayed on the screen and are saved in the test log. A diagnostic text message indicates that a problem has been detected and provides the action you should take as a result of the text message.

Make sure that the server has the latest version of the diagnostic programs. To download the latest version, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.

Utilities are available to reset and update the code on the integrated USB flash device, if the diagnostic partition becomes damaged and does not start the diagnostic programs. For more information and to download the utilities, go to <http://www.ibm.com/jct01004c/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-5072294&brandind=5000008>.

Running the diagnostic programs

To run the diagnostic programs, complete the following steps:

1. If the server is running, turn off the server and all attached devices.
2. Turn on all attached devices; then, turn on the server.
3. When the prompt Press F2 for Dynamic System Analysis (DSA) is displayed, press F2.

Note: The Preboot DSA diagnostic program might appear to be unresponsive for an unusual length of time when you start the program. This is normal operation while the program loads.

4. Optionally, select **Exit to DSA** to exit from the stand-alone memory diagnostic program.

Note: After you exit from the stand-alone memory diagnostic environment, you must restart the server to access the stand-alone memory diagnostic environment again.

5. Select **gui** to display the graphical user interface, or select **cmd** to display the DSA interactive menu.
6. Follow the instructions on the screen to select the diagnostic test to run.

If the diagnostic programs do not detect any hardware errors but the problem remains during normal server operation, a software error might be the cause. If you suspect a software problem, see the information that comes with your software.

A single problem might cause more than one error message. When this happens, correct the cause of the first error message. The other error messages usually will not occur the next time you run the diagnostic programs.

Exception: If multiple error codes or light path diagnostics LEDs indicate a microprocessor error, the error might be in a microprocessor or in a microprocessor socket. See “Microprocessor problems” on page 77 for information about diagnosing microprocessor problems.

If the server stops during testing and you cannot continue, restart the server and try running the diagnostic programs again. If the problem remains, replace the component that was being tested when the server stopped.

Diagnostic text messages

Diagnostic text messages are displayed while the tests are running. A diagnostic text message contains one of the following results:

Passed: The test was completed without any errors.

Failed: The test detected an error.

Aborted: The test could not proceed because of the server configuration.

Additional information concerning test failures is available in the extended diagnostic results for each test.

Viewing the test log

To view the test log when the tests are completed, type the **view** command in the DSA interactive menu, or select **Diagnostic Event Log** in the graphical user interface. To transfer DSA collections to an external USB device, type the **copy** command in the DSA interactive menu.

Diagnostic messages

The following table describes the messages that the diagnostic programs might generate and suggested actions to correct the detected problems. Follow the suggested actions in the order in which they are listed in the action column.

Table 7. Diagnostic messages

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
089-801-xxx	CPU	CPU Stress Test	Aborted	Internal program error.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 3. Run the test again. 4. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 5. Run the test again. 6. Turn off and restart the system if necessary to recover from a hung state. 7. Run the test again. <p>(Continued on the next page)</p>

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
089-801-xxx (continued)					<ol style="list-style-type: none"> 8. Replace the following components one at a time, in the order shown, and run this test again to determine whether the problem has been solved: <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). b. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 9. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
089-802-xxx	CPU	CPU Stress Test	Aborted	System resource availability error.	<ol style="list-style-type: none"> Turn off and restart the system. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Run the test again. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Turn off and restart the system if necessary to recover from a hung state. Run the test again. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
089-802-xxx	CPU	CPU Stress Test	Aborted	System resource availability error.	<ol style="list-style-type: none"> 10. Replace the following components one at a time, in the order shown, and run this test again to determine whether the problem has been solved: <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). b. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 11. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
089-901-xxx	CPU	CPU Stress Test	Failed	Test failure.	<ol style="list-style-type: none"> 1. Turn off and restart the system if necessary to recover from a hung state. 2. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 3. Run the test again. 4. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 5. Run the test again. 6. Turn off and restart the system if necessary to recover from a hung state. 7. Run the test again. <p>(Continued on the next page)</p>

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
089-901-xxx (continued)					<ol style="list-style-type: none"> 8. Replace the following components one at a time, in the order shown, and run this test again to determine whether the problem has been solved: <ol style="list-style-type: none"> a. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). b. (Trained service technician only) Microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). c. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 9. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
165-801-xxx	Remote Supervisor Adapter	RSA Restart Test	Aborted	Remote Supervisor Adapter restart test failure with reason: no service processor was found.	<ol style="list-style-type: none"> Make sure that Linux is selected in Advanced Setup → RSA II Settings → OS USB Selection in the Configuration/Setup Utility program. Make sure that the Remote Supervisor Adapter firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Run the test again. Turn off the system and disconnect it from the power source. Reseat the Remote Supervisor Adapter (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). Reconnect the system to the power source and turn on the system. Run the test again. Replace the Remote Supervisor Adapter II, and run this test again. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
165-902-xxx	Remote Supervisor Adapter	RSA Restart Test	Failed	Remote Supervisor Adapter restart test failure with reason: the Remote Supervisor Adapter restart command was not sent successfully.	<ol style="list-style-type: none"> 1. Make sure that Linux is selected in Advanced Setup → RSA II Settings → OS USB Selection in the Configuration/Setup Utility program. 2. Make sure that the Remote Supervisor Adapter firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 3. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 4. Run the test again. 5. Turn off the system and disconnect it from the power source. 6. Reseat the Remote Supervisor Adapter (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 7. Reconnect the system to the power source and turn on the system. 8. Run the test again. 9. Replace the Remote Supervisor Adapter II, and run this test again. 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
165-903-xxx	Remote Supervisor Adapter	RSA Restart Test	Failed	Remote Supervisor Adapter restart test failure with reason: the Remote Supervisor Adapter did not restart.	<ol style="list-style-type: none"> 1. Make sure that Linux is selected in Advanced Setup → RSA II Settings → OS USB Selection in the Configuration/Setup Utility program. 2. Make sure that the Remote Supervisor Adapter firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 3. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 4. Run the test again. 5. Turn off the system and disconnect it from the power source. 6. Reseat the Remote Supervisor Adapter (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 7. Reconnect the system to the power source and turn on the system. 8. Run the test again. 9. Replace the Remote Supervisor Adapter II, and run this test again. 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
165-904-xxx	Remote Supervisor Adapter	RSA Restart Test	Failed	Remote Supervisor Adapter restart test failure with reason: the Remote Supervisor Adapter cannot wake up from the restart process.	<ol style="list-style-type: none"> 1. Make sure that Linux is selected in Advanced Setup → RSA II Settings → OS USB Selection in the Configuration/Setup Utility program. 2. Make sure that the Remote Supervisor Adapter firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 3. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 4. Run the test again. 5. Turn off the system and disconnect it from the power source. 6. Reseat the Remote Supervisor Adapter (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 7. Reconnect the system to the power source and turn on the system. 8. Run the test again. 9. Replace the Remote Supervisor Adapter II, and run this test again. 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
165-905-xxx	Remote Supervisor Adapter	RSA Restart Test	Failed	Remote Supervisor Adapter restart test failure with reason: cannot restart the Remote Supervisor Adapter because of no communication with the service processor.	<ol style="list-style-type: none"> 1. Make sure that Linux is selected in Advanced Setup → RSA II Settings → OS USB Selection in the Configuration/Setup Utility program. 2. Make sure that the Remote Supervisor Adapter firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 3. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 4. Run the test again. 5. Turn off the system and disconnect it from the power source. 6. Reseat the Remote Supervisor Adapter (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 7. Reconnect the system to the power source and turn on the system. 8. Run the test again. 9. Replace the Remote Supervisor Adapter II, and run this test again. 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-801-xxx	BMC	BMC 12C Test	Aborted	12C test canceled: the system returned an incorrect response length.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-802-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: the test cannot be completed for an unknown reason.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-803-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: the node is busy; try later.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-804-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: invalid command.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-805-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: invalid command for the given LUN.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-806-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: timeout while processing the command.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-807-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: out of space.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-808-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: reservation canceled or invalid reservation ID.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-809-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: request data was truncated.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-810-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: request data length is invalid.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-811-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: request data field length limit is exceeded.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-812-xxx	BMC	BMC 12C Test	Aborted	BMC 12C Test canceled a parameter is out of range.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-813-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: cannot return the number of requested data bytes.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-814-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: requested sensor, data, or record is not present.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-815-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: invalid data field in the request.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-816-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: the command is illegal for the specified sensor or record type.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-817-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: a command response could not be provided.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-818-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: cannot execute a duplicated request.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-819-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: a command response could not be provided; the SDR repository is in update mode.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.
166-820-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: a command response could not be provided; the device is in firmware update mode.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code and BMC firmware are at the latest level. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-821-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: a command response could not be provided; BMC initialization is in progress.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-822-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: the destination is unavailable.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-823-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: cannot execute the command; insufficient privilege level.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-824-xxx	BMC	BMC 12C Test	Aborted	BMC 12C test canceled: cannot execute the command.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-901-xxx	BMC	BMC I2C Test	Failed	The BMC indicates a failure in the IPMB bus	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Remove power from the system. 8. Reseat the microprocessor board, if the microprocessors are not on the system board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 9. Reconnect the system to power and turn on the system. 10. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-902-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-902-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory bus.	<ol style="list-style-type: none"> 9. Remove all memory cards and DIMMs. 10. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. 11. Reconnect the system to the power source and turn on the system. 12. Make sure that the reported memory size is the same as the installed memory size. 13. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. 14. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 15. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-903-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the Ethernet bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Make sure that the Ethernet device firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-904-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the main bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Remove power from the system. 8. Reseat the microprocessor board, if the microprocessors are not on the system board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 9. Reconnect the system to power and turn on the system. 10. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-905-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the pecos bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Remove power from the system. 8. Reseat the microprocessor board, if the microprocessors are not on the system board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 9. Reconnect the system to power and turn on the system. 10. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-906-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the BMC private bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-907-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the power backplane bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Remove power from the system. 8. Reseat the microprocessor board, if the microprocessors are not on the system board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 9. Reseat all connections to the power backplane. 10. Reconnect the system to power and turn on the system. 11. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-908-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the microprocessor bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-909-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the hard disk drive bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Remove power from the system. 8. Reseat all connections in the hard disk subsystem, which can include hard disk drives, SCSI or SAS cables, a hard disk backplane, and a hard disk drive or RAID controller. 9. Reseat the microprocessor board, if the microprocessors are not on the system board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 10. Reconnect the system to power and turn on the system. 11. Run the test again

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-910-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the PCIe and light path diagnostics bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Remove power from the system. 8. Check the operator information panel cabling at both ends for loose or broken connections or damage to the cable. Replace the operator information panel cable if it is damaged. 9. (Trained service technician only) Reseat the microprocessor boards, if the microprocessors are not on the system board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 10. Reconnect the system to power and turn on the system. 11. Run the test again

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-911-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-911-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory bus.	<ol style="list-style-type: none"> 8. Turn off the system and disconnect it from the power source. 9. Remove all memory cards and DIMMs (see “Removing a DIMM” on page 285 and “Removing a memory card” on page 284). 10. Install the minimum memory configuration for the system . To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. 11. Reconnect the system to the power source and turn on the system. 12. Make sure that the reported memory size is the same as the installed memory size. 13. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. 14. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. 15. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-912-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 2 bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-912-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 2 bus.	<ol style="list-style-type: none"> Remove all memory cards and DIMMs. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-913-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 3 bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-913-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 3 bus.	<ol style="list-style-type: none"> 9. Remove all memory cards and DIMMs. 10. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. 11. Reconnect the system to the power source and turn on the system. 12. Make sure that the reported memory size is the same as the installed memory size. 13. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. 14. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. 15. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-914-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 4 bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-914-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 4 bus.	<ol style="list-style-type: none"> 9. Remove all memory cards and DIMMs. 10. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. 11. Reconnect the system to the power source and turn on the system. 12. Make sure that the reported memory size is the same as the installed memory size. 13. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. 14. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. 15. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-915-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 1 SPD bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286, and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-915-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 1 SPD bus.	<ol style="list-style-type: none"> Remove all memory cards and DIMMs. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-916-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 2 SPD bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-916-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 2 SPD bus.	<ol style="list-style-type: none"> Remove all memory cards and DIMMs. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-917-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 3 SPD bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-917-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 3 SPD bus.	<ol style="list-style-type: none"> Remove all memory cards and DIMMs. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-918-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 4 SPD bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. If the reported memory size is the same as the installed memory size, complete the following steps. <ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. Reseat all the memory DIMMs and memory cards, if the system has memory cards (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Run the test again. If the problem remains, continue with the next step. Turn off the system and disconnect it from the power source.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-918-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 4 SPD bus.	<ol style="list-style-type: none"> Remove all memory cards and DIMMs. Install the minimum memory configuration for the system (see “Replacing a DIMM” on page 286 and “Replacing the memory card” on page 285). To determine the minimum memory configuration for your system, see “Solving undetermined problems” on page 239. Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. Run the test again. If the memory passes the test, one of the uninstalled memory cards or DIMMs is the failing component. Repeat the steps to remove all memory cards and DIMMs as necessary, using different memory cards and DIMMs to isolate the failing component. Change only one component each time to identify the specific cause of the error. Replace the failing memory card or DIMM.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-919-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 1 light path diagnostics bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Turn off the system and disconnect it from the power source. 8. Reseat the memory card in memory-card connector 1 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 9. Reconnect the system to the power source and turn on the system. 10. Make sure that the reported memory size is the same as the installed memory size. 11. If the problem remains, replace the memory card in memory-card connector 1.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-920-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 2 light path diagnostics bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Turn off the system and disconnect it from the power source. Reseat the memory card in memory-card connector 2 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. If the problem remains, replace the memory card in memory-card connector 2.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-921-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 3 light path diagnostics bus.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. 2. After 45 seconds, reconnect the system to the power source and turn on the system. 3. Run the test again. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Turn off the system and disconnect it from the power source. 8. Reseat the memory card in memory-card connector 3 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 9. Reconnect the system to the power source and turn on the system. 10. Make sure that the reported memory size is the same as the installed memory size. 11. If the problem remains, replace the memory card in memory-card connector 3.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
166-922-xxx	BMC	BMC 12C Test	Failed	The BMC indicates a failure in the memory card 4 light path diagnostics bus.	<ol style="list-style-type: none"> Turn off the system and disconnect it from the power source. You must disconnect the system from ac power to reset the BMC. After 45 seconds, reconnect the system to the power source and turn on the system. Run the test again. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the BMC firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Turn off the system and disconnect it from the power source. Reseat the memory card in memory-card connector 4 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Reconnect the system to the power source and turn on the system. Make sure that the reported memory size is the same as the installed memory size. If the problem remains, replace the memory card in memory-card connector 4.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
180-900-xxx	Check-point panel	Check-point panel test	Failed		<ol style="list-style-type: none"> 1. Check the operator information panel cabling at both ends for loose or broken connections or damage to the cable. Replace the operator information panel cable if it is damaged. 2. Run the test again. 3. Replace the operator information panel assembly (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300). 4. Run the test again.
201-801-xxx	Memory	Memory Test	Aborted	Test canceled: the system BIOS programmed the memory controller with an invalid CBAR address	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
201-802-xxx	Memory	Memory Test	Aborted	Test canceled: the end address in the E820 function is less than 16 MB.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that all DIMMs are enabled in the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318). 4. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 5. Run the test again.
201-803-xxx	Memory	Memory Test	Aborted	Test canceled: could not enable the processor cache.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.
201-804-xxx	Memory	Memory Test	Aborted	Test canceled: the memory controller buffer request failed.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
201-805-xxx	Memory	Memory Test	Aborted	Test canceled: the memory controller display/alter write operation was not completed.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.
201-806-xxx	Memory	Memory Test	Aborted	Test canceled: the memory controller fast scrub operation was not completed.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.
201-807-xxx	Memory	Memory Test	Aborted	Test canceled: the memory controller buffer free request failed.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
201-808-xxx	Memory	Memory Test	Aborted	Test canceled: memory controller display/alter buffer execute error.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again.
201-809-xxx	Memory	Memory Test	Aborted	Test canceled program error: operation running fast scrub.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 4. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1 MIGR-4JTS2T and select your system to display a matrix of available firmware. 5. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
201-810-xxx	Memory	Memory Test	Aborted	Test canceled: unknown error code xxx received in COMMONEXIT procedure.	<ol style="list-style-type: none"> 1. Turn off and restart the system. 2. Run the test again. 3. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 4. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 5. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
201-901-xxx	Memory	Memory Test	Failed	Test failure: single-bit error, failing bank x, failing DIMM z.	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. 2. Reseat memory card y and DIMM z (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. Reconnect the system to power and turn on the system. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Replace the failing DIMMs. 8. Re-enable all memory in the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318). 9. Run the test again. 10. Replace the failing memory card .

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
201-902-xxx	Memory	Memory Test	Failed	Test failure: single-bit and multi-bit error, failing bank x, failing DIMM z	<ol style="list-style-type: none"> 1. Turn off the system and disconnect it from the power source. 2. Reseat memory card y and DIMM z (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. Reconnect the system to power and turn on the system. 4. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 5. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 6. Run the test again. 7. Replace the failing DIMMs. 8. Re-enable all memory in the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318). 9. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
202-801-xxx	Memory	Memory Stress Test	Aborted	Internal program error.	<ol style="list-style-type: none"> Turn off and restart the system. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Make sure that the system BIOS code is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Turn off and restart the system if necessary to recover from a hung state.. Run the memory diagnostics to identify the specific failing DIMM.
202-802-xxx	Memory	Memory Stress Test	Failed	General error: memory size is insufficient to run the test.	<ol style="list-style-type: none"> Make sure that all memory is enabled by checking the Available System Memory in the Resource Utilization section of the DSA event log. If necessary, enable all memory in the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318). Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Run the test again. Run the standard memory test to validate all memory.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
202-901-xxx	Memory	Memory Stress Test	Failed	Test failure.	<ol style="list-style-type: none"> 1. Run the standard memory test to validate all memory. 2. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 3. Turn off the system and disconnect it from power. 4. Reseat the memory cards and DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 and see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 5. Reconnect the system to power and turn on the system. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
215-801-xxx	Optical Drive	<ul style="list-style-type: none"> Verify Media Installed Read/Write Test Self-Test <p>Messages and actions apply to all three tests.</p>	Aborted	Unable to communicate with the device driver.	<ol style="list-style-type: none"> Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. Run the test again. Check the drive cabling at both ends for loose or broken connections or damage to the cable. Replace the cable if it is damaged. Run the test again. For additional troubleshooting information, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-41559. Run the test again. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Replace the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
215-802-xxx	Optical Drive	<ul style="list-style-type: none"> • Verify Media Installed • Read/Write Test • Self-Test <p>Messages and actions apply to all three tests.</p>	Aborted	The media tray is open.	<ol style="list-style-type: none"> 1. Close the media tray and wait 15 seconds. 2. Run the test again. 3. Insert a new CD or DVD into the drive and wait for 15 seconds for the media to be recognized. 4. Run the test again. 5. Check the drive cabling at both ends for loose or broken connections or damage to the cable. Replace the cable if it is damaged. 6. Run the test again. 7. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 8. Run the test again. 9. For additional troubleshooting information, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-41559. 10. Run the test again. 11. Replace the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). 12. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
215-803-xxx	Optical Drive	<ul style="list-style-type: none"> Verify Media Installed Read/Write Test Self-Test <p>Messages and actions apply to all three tests.</p>	Failed	The disc might be in use by the system.	<ol style="list-style-type: none"> Wait for the system activity to stop. Run the test again Turn off and restart the system. Run the test again. Replace the CD or DVD drive (see)“Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.
215-901-xxx	Optical Drive	<ul style="list-style-type: none"> Verify Media Installed Read/Write Test Self-Test <p>Messages and actions apply to all three tests.</p>	Aborted	Drive media is not detected.	<ol style="list-style-type: none"> Insert a CD or DVD into the drive or try a new media, and wait for 15 seconds. Run the test again. Check the drive cabling at both ends for loose or broken connections or damage to the cable. Replace the cable if it is damaged. Run the test again. For additional troubleshooting information, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-41559. Run the test again. Replace the CD or DVD drive (see)“Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
215-902-xxx	Optical Drive	<ul style="list-style-type: none"> • Verify Media Installed • Read/Write Test • Self-Test <p>Messages and actions apply to all three tests.</p>	Failed	Read miscompare.	<ol style="list-style-type: none"> 1. Insert a CD or DVD into the drive or try a new media, and wait for 15 seconds. 2. Run the test again. 3. Check the drive cabling at both ends for loose or broken connections or damage to the cable. Replace the cable if it is damaged. 4. Run the test again. 5. For additional troubleshooting information, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-41559. 6. Run the test again. 7. Replace the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). 8. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
215-903-xxx	Optical Drive	<ul style="list-style-type: none"> Verify Media Installed Read/Write Test Self-Test <p>Messages and actions apply to all three tests.</p>	Aborted	Could not access the drive.	<ol style="list-style-type: none"> 1. Insert a CD or DVD into the drive or try a new media, and wait for 15 seconds. 2. Run the test again. 3. Check the drive cabling at both ends for loose or broken connections or damage to the cable. Replace the cable if it is damaged. 4. Run the test again. 5. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 6. Run the test again. 7. For additional troubleshooting information, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-41559. 8. Run the test again. 9. Replace the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
215-904-xxx	Optical Drive	<ul style="list-style-type: none"> Verify Media Installed Read/Write Test Self-Test <p>Messages and actions apply to all three tests.</p>	Failed	A read error occurred.	<ol style="list-style-type: none"> Insert a CD or DVD into the drive or try a new media, and wait for 15 seconds. Run the test again. Check the drive cabling at both ends for loose or broken connections or damage to the cable. Replace the cable if it is damaged. Run the test again. For additional troubleshooting information, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-41559. Run the test again. Replace the CD or DVD drive (see “Removing the DVD drive” on page 270 and “Replacing the DVD drive” on page 270). If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
Tape drive test (Error Messages apply to results of any of the 4 tests)	Presence Test Self Test Load Tape Test Tape Alert Check Test		Failed	An error was found in the tape alert log page.	<ol style="list-style-type: none"> 1. Clean the tape drive, using the appropriate cleaning media, and insert new media. 2. Run the test again. 3. Clear the error log. 4. Run the test again. 5. Make sure that the drive firmware is at the latest level. For the latest level of drive firmware and software for tape drives and libraries, go to http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES. 6. Run the test again. 7. Note the tape alert flag that is returned in the tape alert log. See “Tape alert flags” on page 197. 8. Replace the tape drive if a hardware failure is indicated. 9. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
				Media is not detected.	<ol style="list-style-type: none"> Clean the tape drive, using the appropriate cleaning media, and insert new media. Run the test again. Clear the error log. Make sure that the drive firmware is at the latest level. For the latest level of drive firmware and software for tape drives and libraries, go to http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES. Run the test again. Replace the tape drive. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.
			Failed	Media error.	<ol style="list-style-type: none"> Clean the tape drive, using the appropriate cleaning media, and insert new media. Run the test again. Make sure that the drive firmware is at the latest level. For the latest level of drive firmware and software for tape drives and libraries, go to http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES. Run the test again. Replace the tape drive. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
			Failed	Drive hardware error.	<ol style="list-style-type: none"> 1. Check the tape drive cabling for loose or broken connections or damage to the cable. Replace the cable if it is damaged. 2. Clean the tape drive, using the appropriate cleaning media, and insert new media. 3. Run the test again. 4. Make sure that the drive firmware is at the latest level. For the latest level of drive firmware and software for tape drives and libraries, go to http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES. 5. Run the test again. 6. Replace the tape drive. 7. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
				Software error: invalid request.	<ol style="list-style-type: none"> 1. If the system has stopped responding, turn off and restart the system. 2. Run the test again. 3. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 4. Run the test again. 5. If the system has stopped responding, turn off and restart the system. 6. Make sure that the drive firmware is at the latest level. For the latest level of drive firmware and software for tape drives and libraries, go to http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES. 7. Run the test again. 8. Clean the tape drive, using the appropriate cleaning media, and insert new media. 9. Replace the tape drive. 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
				Unrecognized error.	<ol style="list-style-type: none"> 1. Clean the tape drive, using the appropriate cleaning media, and insert new media. 2. Run the test again. 3. Make sure that the drive firmware is at the latest level. For the latest level of drive firmware and software for tape drives and libraries, go to http://www.ibm.com/support/docview.wss?uid=psg1TAPE-FILES. 4. Run the test again. 5. Make sure that the DSA code is at the latest level. For the latest level of DSA code, go to http://www.ibm.com/support/docview.wss?uid=psg1SERV-DSA. 6. Run the test again. 7. Make sure that the system firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 8. Run the test again. 9. Replace the tape drive. 10. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
	TPM	Self-test	Failed	Trusted Platform Module self-test failure.	<ol style="list-style-type: none"> Make sure that TPM is enabled in the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318). Make sure that the system BIOS is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Make sure that the TPM firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
			Aborted	The Trusted Platform Module self-test was canceled: failure to communicate with the Trusted Platform Module.	<ol style="list-style-type: none"> 1. Make sure that TPM is enabled in the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318). 2. Make sure that the system BIOS is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 3. Run the test again. 4. Make sure that the TPM firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1MIGR-4JTS2T and select your system to display a matrix of available firmware. 5. Turn off the system, wait 15 seconds, and turn on the system, to make sure that the TPM resets to the cold boot state. 6. Run the test again.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
217-901-xxx	SAS/SATA Hard Drive	Disk Drive Test	Failed		<ol style="list-style-type: none"> 1. Reseat all backplane connections at both ends. 2. Reseat all the drives (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275). 3. Run the test again. 4. Make sure that the firmware is at the latest level. 5. Run the test again. 6. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-901-xxx	BroadCom Ethernet Device	Test Control Registers	Failed		<ol style="list-style-type: none"> 1. Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 2. Run the test again. 3. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. 4. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-901-xxx	BroadCom Ethernet Device	Test MII Registers	Failed		<ol style="list-style-type: none"> 1. Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 2. Run the test again. 3. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. 4. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-902-xxx	BroadCom Ethernet Device	Test EEPROM	Failed		<ol style="list-style-type: none"> 1. Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 2. Run the test again. 3. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. 4. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-903-xxx	BroadCom Ethernet Device	Test Internal Memory	Failed		<ol style="list-style-type: none"> 1. Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 2. Run the test again. 3. Check the interrupt assignments in the PCI Hardware section of the DSA event log. If the Ethernet device is sharing interrupts, if possible, use the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318) to assign a unique interrupt to the device. 4. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. 5. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-904-xxx	BroadCom Ethernet Device	Test Interrupt	Failed		<ol style="list-style-type: none"> Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Check the interrupt assignments in the PCI Hardware section of the DSA event log. If the Ethernet device is sharing interrupts, if possible, use the Configuration/Setup Utility program (see “Using the Configuration/Setup Utility program” on page 318) to assign a unique interrupt to the device. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-906-xxx	BroadCom Ethernet Device	Test Loop back at Physical Layer	Failed		<ol style="list-style-type: none"> 1. Check the Ethernet cable for damage and make sure that the cable type and connection are correct. 2. Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 3. Run the test again. 4. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. 5. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-906-xxx	BroadCom Ethernet Device	Test Loop back at MAC -Layer	Failed		<ol style="list-style-type: none"> 1. Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. 2. Run the test again. 3. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. 4. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Table 7. Diagnostic messages (continued)

<ul style="list-style-type: none"> Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 					
Message number	Component	Test	State	Description	Action
405-907-xxx	BroadCom Ethernet Device	Test LEDs	Failed		<ol style="list-style-type: none"> Make sure that the component firmware is at the latest level. The installed firmware level is shown in the DSA event log in the Firmware/VPD section for this component. For the latest level of firmware, go to http://www.ibm.com/support/docview.wss?uid=psg1_MIGR-4JTS2T and select your system to display a matrix of available firmware. Run the test again. Replace the component that is causing the error. The I/O board contains this component. If the error is caused by an adapter, replace the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). Check the PCI Information and Network Settings information in the DSA event log to determine the physical location of the failing component. If the failure remains, collect the data from the DSA event log and send it to IBM Service. For information about contacting and sending data to IBM Service, see http://www.ibm.com/support/docview.wss?uid=psg1SERVCALL.

Tape alert flags

Tape alert flags are numbered 1 through 64 and indicate a specific media-changer error condition. Each tape alert is returned as an individual log parameter, and its state is indicated in bit 0 of the 1-byte Parameter Value field of the log parameter. When this bit is set to 1, the alert is active.

Each tape alert flag has one of the following severity levels:

- C - Critical
- W - Warning
- I - Information

Different tape drives support some or all of the following flags in the tape alert log:

Flag 2: Library Hardware B (W) This flag is set when an unrecoverable mechanical error occurs.

Flag 4: Library Hardware D (C) This flag is set when the tape drive fails the power-on self-test or a mechanical error occurs that requires a power cycle to recover. This flag is internally cleared when the drive is powered-off.

Flag 13: Library Pick Retry (W) This flag is set when a high retry count threshold is passed during an operation to pick a cartridge from a slot before the operation succeeds. This flag is internally cleared when another pick operation is attempted.

Flag 14: Library Place Retry (W) This flag is set when a high retry count threshold is passed during an operation to place a cartridge back into a slot before the operation succeeds. This flag is internally cleared when another place operation is attempted.

Flag 15: Library Load Retry (W) This flag is set when a high retry count threshold is passed during an operation to load a cartridge into a drive before the operation succeeds. This flag is internally cleared when another load operation is attempted. Note that if the load operation fails because of a media or drive problem, the drive sets the applicable tape alert flags.

Flag 16: Library Door (C) This flag is set when media move operations cannot be performed because a door is open. This flag is internally cleared when the door is closed.

Flag 23: Library Scan Retry (W) This flag is set when a high retry count threshold is passed during an operation to scan the bar code on a cartridge before the operation succeeds. This flag is internally cleared when another bar code scanning operation is attempted.

Recovering from a BIOS update failure

The server has an advanced recovery feature that will automatically switch to a backup BIOS page if the BIOS code in the server has become damaged, such as from a power failure during an update.

The flash memory of the server consists of a primary page and a backup page. If the BIOS code in the primary page is damaged, the baseboard management controller will detect the error and automatically switch to the backup page to start the server. If this happens, a POST message *Booted from backup POST/BIOS image* is displayed. The backup page version might not be the same version as the primary page version.

To recover the BIOS code and restore the server operation to the primary page, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

To recover the BIOS code and restore the server operation to the primary page, complete the following steps:

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.
5. Select and download the flash BIOS update for your operating environment.
6. Update the BIOS code, following the instructions that come with the update file that you downloaded. This automatically restores and updates the primary page.

7. Restart the server.

If that procedure fails, the server might not restart correctly or might not display video. To manually restore the BIOS code, complete the following steps:

1. Read the safety information that begins on page vii and “Handling static-sensitive devices” on page 259.
2. Turn off the server and peripheral devices and disconnect all external cables and power cords; then, remove the cover.
3. Locate the boot recovery jumper (J17 on the microprocessor board) (see “Microprocessor-board jumpers” on page 18).
4. Disconnect the server from the ac power source.
5. Move the J17 jumper to pins 2 and 3 to enable the backup page.
6. Wait 30 seconds; then, connect the server to the ac power source.
7. Insert the BIOS flash diskette into the external diskette drive.
8. Restart the server.
9. When POST starts, select **1 - Update POST/BIOS** from the menu that contains various flash (update) options.
10. When you are asked whether you want to save the current code to a diskette, type N.
11. Type 1 and press Enter to continue.
Attention: Do not restart or turn off the server until the update is completed.
12. When the update is completed, turn off the server.
13. Disconnect the server from the ac power source.
14. Move the J17 jumper back to pins 1 and 2 to return to startup from the primary page.
15. Wait 30 seconds; then, connect the server to the ac power source.
16. Replace the cover; then, restart the server.

System-error log messages

The system-error log can contain messages of three types:

Information	Information messages do not require action; they record significant system-level events, such as when the server is started.
Warning	Warning messages do not require immediate action; they indicate possible problems, such as when the recommended maximum ambient temperature is exceeded.
Error	Error messages might require action; they indicate system errors, such as when a fan is not detected.

Each message contains date and time information, and it indicates the source of the message (POST/BIOS or the service processor).

Note: The BMC log, which you can view through the Configuration/Setup Utility program, also contains many information, error, and warning messages.

In the following example, the system-error log message indicates that the server was turned on at the recorded time.

```

-----
Date/Time: 2002/05/07 15:52:03
DMI Type:
Source: SERVPROC
Error Code: System Complex Powered Up
Error Code:
Error Data:
Error Data:
-----

```

The following table describes the possible system-error log messages and suggested actions to correct the detected problems.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
System-error log message	Action
12V A Bus Fault	<ol style="list-style-type: none"> 1. Reseat VRM 3 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 2. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 3. Replace the power backplane.
12V B Bus Fault	<ol style="list-style-type: none"> 1. Reseat VRM 1 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 2. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 3. Replace the power backplane.
12V C Bus Fault	<ol style="list-style-type: none"> 1. Reseat VRM 2 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 2. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 3. Replace the power backplane.
12V D Bus Fault	<ol style="list-style-type: none"> 1. Reseat VRM 4 (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 2. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 3. Replace the power backplane.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
12V E Bus Fault	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) Memory card 1 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285) Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> Memory card 1 Power backplane (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)
12V F Bus Fault	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) Memory card 2 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285) Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> Memory card 2 Power backplane (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)
12V G Bus Fault	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) Memory card 3 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285) Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> Memory card 3 Power backplane (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
12V H Bus Fault	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) b. Memory card 4 (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285) 2. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Memory card 4 b. Power backplane c. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)
12V I Bus Fault	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Hard disk drives (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275) b. Each adapter in slots 6 and 7 (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266) c. ServeRAID-MR10K (see “Removing the ServeRAID-MR10k SAS controller” on page 303 and “Replacing the ServeRAID-MR10k SAS controller” on page 304) d. I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297) 2. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Hard disk drives b. An adapter in slot 6 c. An adapter in slot 7 d. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) e. ServeRAID-MR10k f. (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
12V J Bus Fault	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297) Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> I/O board shuttle assembly Power backplane
12V K Bus Fault	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) Fans 1, 4, and 6 (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274) Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> Power backplane (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)
12V L Bus Fault	<ol style="list-style-type: none"> Reseat the following components: <ol style="list-style-type: none"> Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) Fans 2, 3, and 5 (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274) Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> Power backplane (Trained service technician only) Microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312)
Application Posted Alert to ASM	Information only

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
CPU %d IERR detected, the system has been restarted	Information only; if the message remains: <ol style="list-style-type: none"> 1. Reseat the microprocessors (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. Reseat the microprocessor VRMs (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 3. (Trained service technician only) Replace the microprocessor.
CPU %d IERR, the CPU has been disabled	Information only; if the message remains: <ol style="list-style-type: none"> 1. Reseat the microprocessors (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. Reseat the microprocessor VRMs (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 3. (Trained service technician only) Replace the microprocessor.
CPU %d critical over temperature fault	<ol style="list-style-type: none"> 1. Make sure that the fans have good airflow and are not obstructed. 2. Reseat the microprocessor heat sink (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
CPU Card CPU PLL Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
CPU Card HSS 2.5V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
CPU Card Vtt 1.2V BC Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat microprocessors 1 and 2 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 3. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 4. (Trained service technician only) Replace the microprocessor.
CPU Card Vtt 1.2V AD Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat microprocessors 3 and 4 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 3. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 4. (Trained service technician only) Replace the microprocessor.
CPU Card Core 1.2V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
CPU Card HSS 1.8V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 4. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
CPU Card EI 1.2V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 2. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
CPU mismatch: CPU unsupported by VRM. CPU nn, where nn is the CPU number.	Replace the VRM (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293).
CPI U removal detected	Informational only; if the message remains: <ol style="list-style-type: none"> 1. Reseat the microprocessors (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. Reseat the microprocessor VRMs (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293).
Eth[0] Link Config: No Link after 10 seconds. PHY Reg 5=0x0000.PHY Reg 6=0x0004. PHY Reg 24=0x0038. Note: The Ethernet port on the RSA II adapter is having problems connecting to the network.	<ol style="list-style-type: none"> 1. Resolve any RSA Ethernet connection problems. 2. Replace the Remote Supervisor Adapter II SlimLine (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289).
Eth[0] Link Config: No Link after 10 seconds. PHY Reg 0=0x10000. PHY Reg 1. Note: The Ethernet port on the RSA II adapter is having problems connecting to the network.	<ol style="list-style-type: none"> 1. Resolve any RSA Ethernet connection problems. 2. Replace the Remote Supervisor Adapter II SlimLine (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289).
ENET[0] IP-Cfg:HstName=3950, IP@=192.168.70.125, GW@=0.0.0.0, NetMsk=255.255.255.0 Note: Successful DHCP or Static RSA II Ethernet connection.	Information only.
Please ensure that the RSA II is flashed with the correct firmware.	Information only.
Ethernet Data Rate modified from <value1> to <value2> by user <USERID>	Information only
Ethernet Duplex setting modified from <value1> to <value1> by user <USERID>	Information only
Ethernet interface <value> by user <USERID>	Information only
Ethernet locally administered MAC address modified from x:x:x:x:x:x	Information only
Ethernet MTU setting modified from x to y by user <USERID>	Information only

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
Fan X Failure (X of 1-6)	<ol style="list-style-type: none"> 1. Make sure that nothing is blocking the fan. 2. Check the physical connection and make sure that the fan is correctly seated. 3. Replace fan X (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274).
Fan X not detected (X of 1-6)	<ol style="list-style-type: none"> 1. Make sure that nothing is blocking the fan or power supply. 2. Check the physical connection and make sure that the fan is correctly seated. 3. Replace fan X (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274).
Front Panel is not plugged in	<ol style="list-style-type: none"> 1. Make sure that the operator information panel cables are correctly connected (verify LED activity). 2. Replace the operator information panel assembly (see “Removing the operator information panel assembly” on page 300 and “Replacing the operator information panel assembly” on page 300).
Hard Drive X Fault	<ol style="list-style-type: none"> 1. Run diagnostics. 2. Reseat the following components: <ol style="list-style-type: none"> a. Hard disk drive (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275) b. SAS backplane (see “Removing the SAS hard disk drive backplane assembly” on page 302 and “Replacing the SAS hard disk drive backplane assembly” on page 303) 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Hard drive X removal detected	Reseat hard disk drive X and restart the server (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275).
Hostname set to <value> by user <USERID>	Information only
Hot-plug card is not plugged in	<ol style="list-style-type: none"> 1. Make sure that the PCI Express cables are correctly connected. 2. Reseat the failing hot-plug cable or adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). 3. Replace the failing hot-plug cable or adapter.
Invalid CPU configuration	Make sure that the microprocessors have been installed in the correct order (see “Microprocessor” on page 305).
Invalid Fan configuration	Replace any missing or failed fans (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274).
IP address of default gateway modified from x.x.x.x	Information only

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
IP address of network interface modified from x.x.x.x	Information only
IP subnet mask of network interface modified from x.x.x.x	Information only
Loader Watchdog Triggered	<ol style="list-style-type: none"> 1. Reconfigure the loader watchdog timer to be a higher value (twice the normal operating-system boot time). 2. Install the Remote Supervisor Adapter II device driver for the operating system. 3. Disable the loader watchdog. 4. Check the integrity of the installed operating system. 5. Reinstall the operating system with the applicable device drivers.
Machine check asserted	<p>Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318.</p> <ol style="list-style-type: none"> 1. Reseat the memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace the memory card.
Machine check asserted - SPINT, North Bridge	Information only. Only an indication of who reported the SPINT first.
Machine check asserted - SPINT, PCI Bridge A	Information only. Only an indication of who reported the SPINT first.
Machine check asserted - SPINT, PCI Bridge B	Information only. Only an indication of who reported the SPINT first.
Machine check asserted - SPINT, Remote CheckStop	Information only. Only an indication of who reported the SPINT first.
Machine check asserted for Card or Link - SPINT, Remote Node, Link 1	Information only. The machine check was reported by the node connected to scalability port 1.
Machine check asserted for Card or Link - SPINT, Remote Node, Link 2	Information only. The machine check was reported by the node connected to scalability port 2.
Machine check asserted for Card or Link - SPINT, Remote Node, Link 3	Information only. The machine check was reported by the node connected to scalability port 3.
Machine check asserted for Card or Link - SPINT, Scalability	<ol style="list-style-type: none"> 1. Reseat the scalability cables and (trained service technician only) microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. Replace the scalability cables. 3. (Trained service technician only) Replace the microprocessor board.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
Machine check asserted for Card or Link - SPINT, Quad Bus A	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat microprocessor 3 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. (Trained service technician only) Replace microprocessor 3. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Machine check asserted for Card or Link - SPINT, Quad Bus B	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat microprocessor 1 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. (Trained service technician only) Replace microprocessor 1. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Machine check asserted for Card or Link - SPINT, Quad Bus C	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat microprocessor 2 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. (Trained service technician only) Replace microprocessor 2. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Machine check asserted for Card or Link - SPINT, Quad Bus D	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat microprocessor 4 (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308). 2. (Trained service technician only) Replace microprocessor 4. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Machine check asserted for Card or Link - SPINT, CPU Card	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat the microprocessors and microprocessor board (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308), and see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. (Trained service technician only) Replace the microprocessor board.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
Machine check asserted for Card or Link - SPINT, I/O Bus Interface	<ol style="list-style-type: none"> 1. Reseat the adapter cards (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). 2. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the adapters. 4. Replace the I/O board shuttle assembly. 5. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Machine check asserted for Card or Link - SPINT, System, PCI Express Card	<ol style="list-style-type: none"> 1. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 2. (Trained service technician only) Replace the microprocessor board.
Machine check asserted for Card or Link - SPINT, System, PCI Express Card, RAID Card	<ol style="list-style-type: none"> 1. Reseat the ServeRAID-MR10k adapter (if installed) (see “Removing the ServeRAID-MR10k SAS controller” on page 303 and “Replacing the ServeRAID-MR10k SAS controller” on page 304). 2. Replace the ServeRAID-MR10k adapter. 3. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 4. Replace the I/O board shuttle assembly.
Machine check asserted for PCI Express Card or Slot X - SPINT	<ol style="list-style-type: none"> 1. Reseat the adapter in slot X (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). 2. Replace the adapter in slot X. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
SPINT reported a Machine Check on Memory Card = X	<ol style="list-style-type: none"> 1. Reseat the memory card X (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace the memory card X. 3. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
SPINT reported a Machine Check on Memory Card X, DIMM Y.	<ol style="list-style-type: none"> 1. Reseat DIMM Y (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. Replace DIMM Y. 3. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 4. Replace memory card X. 5. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).
Memory Card x inserted	Information only; if the message remains: <ol style="list-style-type: none"> 1. Make sure that the memory card lever is securely latched. 2. Reseat the memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
Memory Card x removed	Information only; if the message remains: <ol style="list-style-type: none"> 1. Make sure that the memory card lever is securely latched. 2. Reseat the memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285).
MMIO operation error	Invalid memory access error. <ol style="list-style-type: none"> 1. Check the integrity of the installed operating system. 2. Check that the latest service pack is applied to the operating system. 3. Check that the latest device drivers are installed.
Multiple fan failures	Replace any missing or failed fans or power supplies (see “Removing the hot-swap fan” on page 274 and “Replacing the hot-swap fan” on page 274 and see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277).
PCI Card I/O Controller Core Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card 1.5V Core Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card Aux. 1.0V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
PCI Card Mgmt. 1.0V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card Main 1.0V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card PCI Bridge 2.5V HSSIB Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card PCI Bridge 2.5V PLL Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card PCI Bridge 0 HSSIB 1.8V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card 5V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card 3.3V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289). 2. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the I/O board shuttle assembly.
PCI Card SAS 1.5V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card SAS 1.8V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
PCI Card Elliot Key 1.8V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the ServeRAID-MR10k (see “Removing the ServeRAID-MR10k SAS controller” on page 303 and “Replacing the ServeRAID-MR10k SAS controller” on page 304).. 2. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 3. Replace the I/O board shuttle assembly.
PCI Card PCI Bridge Core 1.5V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
PCI Card PCI Bridge 1 HSSIB 1.8V Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297). 2. Replace the I/O board shuttle assembly.
POST Watchdog Triggered	<ol style="list-style-type: none"> 1. Reconfigure the POST watchdog timer to be a higher value (consistent with the time it takes to complete POST) (see “Using the Configuration/Setup Utility program” on page 318). 2. Disable the POST watchdog.
Power Good Fault detected by memory card %d.	<ol style="list-style-type: none"> 1. Reseat the memory cards (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Reseat the DIMMs (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 3. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 4. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 5. (Trained service technician only) Replace the microprocessor board .
Power Supply %d Temperature Warning	<ol style="list-style-type: none"> 1. Make sure that the power supply fans have good airflow and are not obstructed. 2. Make sure the room temperature is within the recommended range (see “Environment” at “Features and specifications” on page 7). 3. Replace the power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
Power supply current exceeded max spec value	<ol style="list-style-type: none"> 1. Install another power supply (if possible) and make sure that ac power cords are correctly connected (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). 2. Remove devices that consume an extraordinary amount of power. 3. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302).
Power Supply X 12V Over Current Fault	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277) b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) 2. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Power supply b. Power backplane
Power Supply X 12V Over Voltage Fault	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277) b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) 2. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Power supply b. Power backplane
Power Supply X 12V Under Voltage Fault	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277) b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) 2. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Power supply b. Power backplane

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
System-error log message	Action
Power Supply X AC Power Removed	<ol style="list-style-type: none"> 1. Connect the ac power cord to power supply X. 2. Replace power supply X (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277).
Power Supply X Current Fault	<ol style="list-style-type: none"> 1. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277) b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) 2. Replace the following components one at a time, in the order shown, restarting the server each time: <ol style="list-style-type: none"> a. Power supply b. Power backplane
Power Supply X DC Good Fault	<ol style="list-style-type: none"> 1. If the power-on LED is lit, reduce the server to the minimum configuration (see page 240) and replace components one at a time to isolate the fault. 2. Reseat the following components: <ol style="list-style-type: none"> a. Power supply (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277) b. Power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302) 3. Replace the components listed in step 2 one at a time, in the order shown, restarting the server each time.
Power Supply X Removed	<ol style="list-style-type: none"> 1. Reseat power supply X (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). 2. Replace power supply X. 3. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302).
Power Supply X Temperature Fault	<ol style="list-style-type: none"> 1. Make sure that the fan air intake areas are clear and well ventilated. 2. Make sure that all fans are installed and functioning. 3. Reseat power supply X (see “Removing the hot-swap power supply” on page 275 and “Replacing the hot-swap power supply” on page 277). 4. Replace power supply X.
Remote Login Successful. Login ID:	Information only

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

System-error log message	Action
Resetting system due to an unrecoverable error	Check the following light path diagnostics LEDs for faults: Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318. <ol style="list-style-type: none"> 1. Microprocessors 2. DIMMs 3. Memory card 4. Microprocessor board
Single fan failure	Replace any missing or failed fans or power supplies.
SMI reported a Machine Check on Memory Card = %d	Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318. <ol style="list-style-type: none"> 1. Reseat the memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. Replace the memory card.
SMI reported a Machine Check on Memory Card %d, DIMM %d	Note: Make sure you re-enable the memory in the Configuration/Setup Utility program. See “Using the Configuration/Setup Utility program” on page 318. <ol style="list-style-type: none"> 1. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. Reseat the memory card (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 3. Replace the DIMM. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
Software NMI	Make sure that the system software is operating correctly and does not conflict with other software; the system software has created a software NMI.
System Approaching Maximum Power Consumption	<ol style="list-style-type: none"> 1. Install another power supply (if possible) and make sure that the ac power cords are correctly connected (see “Replacing the hot-swap power supply” on page 277). 2. Remove devices that consume an extraordinary amount of power. 3. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302).
System Boot Failed	<ol style="list-style-type: none"> 1. Check the POST/BIOS boot checkpoint indicator and see the applicable documentation. 2. Make sure that the memory card and DIMMs are correctly connected and seated and that they are functional (see “Memory cards and memory modules (DIMM)” on page 279). 3. Attempt to start the server from the backup BIOS page.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
System-error log message	Action
System Complex Powered Down	Information only
System Complex Powered Up	Information only
System-error log full	Clear the event log.
System log 75% full	Information only
System Memory Error	<ol style="list-style-type: none"> 1. Reseat the memory card and DIMMs (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285 and see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. Replace the memory. 3. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
System Running Nonredundant Power	<ol style="list-style-type: none"> 1. Install another power supply (if possible) and make sure that the ac power cords are correctly connected (see “Replacing the hot-swap power supply” on page 277). 2. Remove devices that consume an extraordinary amount of power. 3. Replace the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302).
User <USERID> attempting to power/reset server	Information only
VRM X Power Good Fault	<ol style="list-style-type: none"> 1. Reseat the VRMs (see “Removing the VRM” on page 292 and “Replacing the VRM” on page 293). 2. Reseat the power backplane (see “Removing the power backplane” on page 301 and “Replacing the power backplane” on page 302). 3. Replace the VRMs. 4. (Trained service technician only) Replace the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312).

POST and SMI error messages

BIOS can log two types of error messages in the system-error log: POST events, which occur during system startup, and SMI events, which are generally run time errors detected by hardware. The following table describes the possible POST and SMI error messages and suggested actions to correct the detected problems.

Note: The Scalable Complex Management page of the Scalable Partition Web interface provides a cross-reference between the chassis number provided on the

SMI error messages and the serial number of each node. You can use the serial number to identify the node associated with the SMI error message.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
POST reporting Processor Event: Processor mismatch detected. Chassis Number = X. Processor Number = Y.	<ol style="list-style-type: none"> 1. Make sure that the BIOS code is at the latest level. 2. Make sure that all microprocessors have the same part number. 3. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
POST reporting Processor Event: POST does not support current stepping of processor. Chassis Number = X, Processor Number = Y.	<ol style="list-style-type: none"> 1. Make sure that the BIOS code is at the latest level. 2. Make sure that all microprocessors have the same part number. 3. (Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
POST reporting Processor Event: Unable to apply microcode (patch) update. Chassis Number = X. Processor Number = Y.	(Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
POST reporting Processor Event: Processor failed BIST. Chassis Number= X. Processor Number = Y.	(Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
POST reporting memory event: North Bridge Uncorrectable memory error occurred. Chassis Number = X. Memory Card = Y. Memory DIMM = Z.	<ol style="list-style-type: none"> 1. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. If the DIMM was disabled by the user, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 3. Replace the DIMM. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
POST reporting memory event: North Bridge Correctable memory threshold occurred. Chassis Number = X. Memory Card = Y. Memory DIMM = Z. Failing Symbol = 0xcb.	<ol style="list-style-type: none"> 1. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 3. Replace the DIMM. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
POST reporting memory event: DIMM Disabled - Failed POST/BIOS Memory Test. Chassis Number = X. Memory Card = Y. Memory DIMM = Z.	<ol style="list-style-type: none"> 1. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 3. Replace the DIMM. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
POST reporting memory event: Memory card disabled. Chassis number=0. Memory card=4.	<ol style="list-style-type: none"> 1. Reseat the DIMM or memory card (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 or “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. If the DIMM was disabled by the user, run the Configuration/Setup Utility program and enable the DIMM 3. If possible, find the defective DIMM and replace it. 4. Replace the memory card.
Unknown SERR/PERR detected on PCI bus Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Address of special cycle DPE on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Master read parity error on PCI primary Chassis#=4 Slot#=2 Bus#=3 Dev.ID=0xaa99 Vend.ID=0xccbb Status=0xeedd DevFun#=0xff	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
Received target parity error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Master write parity error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Device signaled SERR on PCI primary. Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Slave signaled parity error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Signaled target abort on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
Additional correctable ECC error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	Informational only; if the message remains: 1. If the slot number is greater than 0, complete the following steps: a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Received Master Abort on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	1. If the slot number is greater than 0, complete the following steps: a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Additional uncorrectable ECC error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	1. If the slot number is greater than 0, complete the following steps: a. Reseat the adapter. b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle.
Split completion discarded on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	1. If the slot number is greater than 0, complete the following steps: a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Correctable ECC error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	Informational only; if the message remains: 1. If the slot number is greater than 0, complete the following steps: a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
Unexpected split completion on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Uncorrectable ECC error on PCI primary Chassis#=4 Slot#=2 Bus#=3 Dev.ID=0xaa99 Vend.ID=0xccbb Status=0xeedd DevFun#=0xff	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Received split completion error on PCI primary Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Address of special cycle DPE Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Master read parity error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI-PCI bridge secondary: Received target parity error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Master write parity error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Device signaled SERR Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Slave signaled parity error. Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Signaled target abort Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI-PCI bridge secondary: Additional correctable ECC error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	Informational only; if the message remains: <ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Received master abort Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Additional uncorrectable ECC error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Split completion discarded Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Correctable ECC error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	Informational only; if the message remains: <ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI-PCI bridge secondary: Unexpected split completion Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Uncorrectable ECC error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI-PCI bridge secondary: Received split completion error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI ECC Error (Corrected) Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<p>Informational only; if the message remains:</p> <ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Address Parity Error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus Data Parity Error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
SERR# asserted Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PERR Received by PCI Bridge on a PCIX split completion Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Invalid Address Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus TCE Extent error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus Page Fault Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Unauthorized Access Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Parity error in DMA read data buffer Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus timeout Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus DMA delay read timeout Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
Internal error on PCIX split completion Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus DMA read reply (RIO) timeout Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Internal RAM error on DMA write Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus MVE index invalid Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus MVE valid bit off Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus ECC Error (Corrected) Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus SERR# Detected Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus data parity error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus No DEVSEL# Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus timeout Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus Retry count expired Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Target Abort. Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Invalid size Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Access not enabled Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Internal RAM error on MMIO Store Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus Split response received Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCIX split completion error status received Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
Unexpected PCIX split completion received Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCIX split completion timeout Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Recoverable error summary bit Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus CSR error summary bit Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Internal RAM error on MMIO load Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Bad command Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Length field invalid Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Load greater than 8 and no write buffer enabled Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCIX Discontiguous byte enable error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus 4K address boundary crossing error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Store wrap state machine check Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Target state machine check Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Invalid transaction PM/DW Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI Bus Invalid transaction PM/DR Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus Invalid transaction PS/DW Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Bus DMA write command FIFO parity error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Secondary Status Register Dump Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
PCI Secondary Status Register Dump Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
PCI to PCI Bridge Discard Timer Error Chassis#=X Slot#=Y Bus#=Z Dev.ID=0xSSSS Vend.ID=0xTTTT Status=0xUUUU DevFun#=0xVV	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
SMI handler reporting Memory Mirroring Failover Occurred. Running from mirrored image. Note: This message immediately follows an uncorrectable memory error.	<ol style="list-style-type: none"> 1. Reseat the DIMM or memory card (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 or see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 3. Replace the DIMM or memory card. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
SMI handler reporting Processor Event: Unrecoverable error. Chassis Number=X. Processor ID=Y Notes: <ol style="list-style-type: none"> 1. Chassis number = X indicates the number of the failing chassis. The chassis are numbered from 1 to 3. 2. Processor ID = Y indicates the number of the failing microprocessor. The microprocessors are numbered from 1 to 4. For more information about microprocessor numbers and connectors, see “Internal LEDs, connectors, and jumpers” on page 15.	(Trained service technician only) Replace the microprocessor (see “Removing a microprocessor and heat sink” on page 307 and “Installing a microprocessor and heat sink” on page 308).
SMI handler has reported an uncorrectable memory error on node X, memory card=Y, DIMM=Z	<ol style="list-style-type: none"> 1. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 3. Replace the DIMM. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
SMI handler has reported a correctable memory error PFA limit exceeded on node X, memory card=Y , DIMM=Z	<ol style="list-style-type: none"> 1. Reseat the DIMM (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286). 2. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318. 3. Replace the DIMM. 4. If the DIMM was disabled, run the Configuration/Setup Utility program and enable the DIMM. See “Using the Configuration/Setup Utility program” on page 318.
<p>SMI handler reporting Memory ProteXion enabled. Memory copying started. Failed Row = X.</p> <p>Note: Failed Row = X indicates failing chip select or rank. DIMMs 1 and 3 are connected to chip select 0 and 1. DIMMs 2 and 4 are connected to chip select 2 and 3.</p>	<ol style="list-style-type: none"> 1. Reseat the DIMM or memory card (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 or see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. If the DIMM was disabled by the user, run the Configuration/Setup Utility program and enable the DIMM. 3. Replace the DIMM or memory card. 4. If the DIMM was disabled by the user, run the Configuration/Setup Utility program and enable the DIMM.
<p>SMI handler has reported a correctable memory error, DIMM=X.</p> <p>Note: DIMM = X indicated the number of the failing DIMM.</p>	<ol style="list-style-type: none"> 1. Reseat the DIMM or memory card (see “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286 or see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). 2. If the DIMM was disabled by the user, run the Configuration/Setup Utility program and enable the DIMM. 3. Replace the DIMM or memory card. 4. If the DIMM was disabled by the user, run the Configuration/Setup Utility program and enable the DIMM. <p>Note: X can be from 1 to 48. X = 0 is used when DIMMs cannot be isolated, (for example as in the case of an uncorrectable error in mirrored mode).</p> <ul style="list-style-type: none"> • X = 1 to 4 ⇒ Chassis #1, Card #1, DIMMs 1 to 4 • X = 5 to 8 ⇒ Chassis #1, Card #2, DIMMs 1 to 4 • X = 9 to 12 ⇒ Chassis #1, Card #3, DIMMs 1 to 4 • X = 13 to 16 ⇒ Chassis #1, Card #4, DIMMs 1 to 4 • X = 17 to 20 ⇒ Chassis #2, Card #1, DIMMs 1 to 4 • X = 21 to 24 ⇒ Chassis #2, Card #2, DIMMs 1 to 4 • X = 25 to 28 ⇒ Chassis #2, Card #3, DIMMs 1 to 4 • X = 29 to 32 ⇒ Chassis #2, Card #4, DIMMs 1 to 4 • X = 33 to 36 ⇒ Chassis #3, Card #1, DIMMs 1 to 4 • X = 37 to 40 ⇒ Chassis #3, Card #2, DIMMs 1 to 4 • X = 41 to 44 ⇒ Chassis #3, Card #3, DIMMs 1 to 4 • X = 45 to 48 ⇒ Chassis #3, Card #4, DIMMs 1 to 4 <p>For more information about DIMM numbers and connectors, see “Internal LEDs, connectors, and jumpers” on page 15.</p>

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU).
- If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician.

Error message	Action
SMI reporting Scalability Event: Link kill. Chassis#=X Port Number=Y	<ol style="list-style-type: none"> 1. Reseat the scalability cables. 2. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the scalability cables. 4. (Trained service technician only) Replace the microprocessor board.
SMI reporting Scalability Event: Link Invalid Node. Chassis#=X Port Number=Y	<ol style="list-style-type: none"> 1. Reseat the scalability cables. 2. Make sure that the scalability cables are connected to the correct ports.
SMI reporting Scalability Event: Link Invalid Port. Chassis#=X Port Number=Y	<ol style="list-style-type: none"> 1. Reseat the scalability cables. 2. Make sure that the scalability cables are connected to the correct ports.
SMI reporting Scalability Event: Link PFA. Chassis#=X Port Number=Y	<ol style="list-style-type: none"> 1. Reseat the scalability cables. 2. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the scalability cables. 4. (Trained service technician only) Replace the microprocessor board.
SMI reporting Scalability Event: Double Wide Link Down. Chassis # =X Port Number=Y	<ol style="list-style-type: none"> 1. Reseat the scalability cables. 2. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the scalability cables. 4. (Trained service technician only) Replace the microprocessor board.
SMI reporting Scalability Event: Link Down. Chassis# =X Port Number=Y	<ol style="list-style-type: none"> 1. Reseat the scalability cables. 2. (Trained service technician only) Reseat the microprocessor board (see “Removing the microprocessor-board assembly” on page 310 and “Replacing the microprocessor-board assembly” on page 312). 3. Replace the scalability cables. 4. (Trained service technician only) Replace the microprocessor board.

<ul style="list-style-type: none"> • Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine which components are customer replaceable units (CRU) and which components are field replaceable units (FRU). • If an action step is preceded by “(Trained service technician only),” that step must be performed only by a trained service technician. 	
Error message	Action
SMI handler has reported a PCI SERR.	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).
SMI handler has reported a PCI PERR.	<ol style="list-style-type: none"> 1. If the slot number is greater than 0, complete the following steps: <ol style="list-style-type: none"> a. Reseat the adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266). b. Replace the adapter. 2. If the slot number is 0, replace the I/O board shuttle (see “Removing the I/O board shuttle” on page 297 and “Replacing the I/O board shuttle” on page 297).

Solving power problems

Power problems can be difficult to solve. For example, a short circuit can exist anywhere on any of the power distribution buses. Usually, a short circuit will cause the power subsystem to shut down because of an overcurrent condition. To diagnose a power problem, use the following general procedure:

1. Turn off the server and disconnect all ac power cords.
2. Check for loose cables in the power subsystem. Also check for short circuits, for example, if a loose screw is causing a short circuit on a circuit board.
3. Remove the adapters (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266) and disconnect the cables and power cords to all internal and external devices until the server is at the minimum configuration that is required for the server to start (see “Solving undetermined problems” on page 239 for the minimum configuration).
4. Reconnect all ac power cords and turn on the server. If the server starts successfully, replace the adapters and devices one at a time until the problem is isolated.

If the server does not start from the minimum configuration, replace the components in the minimum configuration one at a time until the problem is isolated.

Solving Ethernet controller problems

The method that you use to test the Ethernet controller depends on which operating system you are using. See the operating-system documentation for information about Ethernet controllers, and see the Ethernet controller device-driver readme file.

Try the following procedures:

- Make sure that the correct device drivers are installed in the server and are at the latest level.
- Make sure that the Ethernet cable is installed correctly.
 - The cable must be securely attached at all connections. If the cable is attached but the problem remains, try a different cable.
 - If you set the Ethernet controller to operate at 100 Mbps or higher, you must use Category 5 cabling.
 - If you directly connect two servers (without a hub), or if you are not using a hub with X ports, use a crossover cable. To determine whether a hub has an X port, check the port label. If the label contains an X, the hub has an X port.
- Determine whether the hub supports auto-negotiation. If it does not, try configuring the integrated Ethernet controller manually to match the speed and duplex mode of the hub.
- Check the Ethernet controller LEDs on the rear panel of the server. These LEDs indicate whether there is a problem with the connector, cable, or hub.
 - The Ethernet link status LED is lit when the Ethernet controller receives a link pulse from the hub. If the LED is off, there might be a defective connector or cable or a problem with the hub.
 - The Ethernet transmit/receive activity LED is lit when the Ethernet controller sends or receives data over the Ethernet network. If the Ethernet transmit/receive activity light is off, make sure that the hub and network are operating and that the correct device drivers are installed.
- Check the LAN activity LED on the rear of the server. The LAN activity LED is lit when data is active on the Ethernet network. If the LAN activity LED is off, make sure that the hub and network are operating and that the correct device drivers are installed.
- Check for operating-system-specific causes of the problem.
- Make sure that the device drivers on the client and server are using the same protocol.

If the Ethernet controller still cannot connect to the network but the hardware appears to be working, the network administrator must investigate other possible causes of the error.

Solving undetermined problems

If the diagnostic tests did not diagnose the failure or if the server is inoperative, use the information in this section.

If you suspect that a software problem is causing failures (continuous or intermittent), see “Software problems” on page 85.

Damaged data in CMOS memory or damaged BIOS code can cause undetermined problems. To reset the CMOS data, use the password override jumper to override the power-on password and clear the CMOS memory; see “I/O-board jumpers” on page 21. If you suspect that the BIOS code is damaged, see “Recovering from a BIOS update failure” on page 198.

Damaged memory-card connector pins or incorrectly installed memory cards can prevent the server from starting or might cause a POST checkpoint halt. For example, a memory card that is not completely installed or has bent connector pins might cause the server to continually restart or display an F2 checkpoint halt. Remove and inspect all memory-card connector pins for bent or damaged interface pins (see “Removing a memory card” on page 284 and “Replacing the memory card” on page 285). Replace all memory cards that have damaged pins and make sure that each card is completely latched into place.

A jumper installed on the force BMC update jumper block (see “Microprocessor-board jumpers” on page 18) disables normal baseboard management controller operation and can cause undetermined problems.

Check the LEDs on all the power supplies (see “Power-supply LEDs” on page 97). If the LEDs indicate that the power supplies are working correctly, complete the following steps:

1. Turn off the server.
2. Make sure that the server is cabled correctly.
3. Remove or disconnect the following devices, one at a time, until you find the failure. Turn on the server and reconfigure it each time.
 - Any external devices.
 - Surge-suppressor device (on the server).
 - Modem, printer, mouse, and non-IBM devices.
 - Each adapter (see “Removing an adapter” on page 266 and “Replacing the adapter” on page 266).
 - Hard disk drives (see “Removing the hot-swap hard disk drive” on page 275 and “Replacing the hot-swap hard disk drive” on page 275).
 - Memory modules. The minimum configuration requirement is 2 GB (two 1 GB DIMMs). (See “Removing a DIMM” on page 285 and “Replacing a DIMM” on page 286.)
 - Service processor (see “Removing the Remote Supervisor Adapter II” on page 289 and “Replacing the Remote Supervisor Adapter II” on page 289).

The following minimum configuration is required for the server to turn on:

- I/O board
 - Power supply
 - Power backplane
 - Power cord
 - Microprocessor board
 - One microprocessor and VRM
 - Two 1 GB DIMMs on one memory card
4. Turn on the server. If the problem remains, suspect the following components in the following order:
 - a. Power backplane
 - b. Memory card
 - c. Microprocessor board

If the problem is solved when you remove an adapter from the server but the problem recurs when you reinstall the same adapter, suspect the adapter; if the problem recurs when you replace the adapter with a different one, suspect the microprocessor board.

If you suspect a networking problem and the server passes all the system tests, suspect a network cabling problem that is external to the server.

Problem determination tips

Because of the variety of hardware and software combinations that you can encounter, use the following information to assist you in problem determination. If possible, have this information available when you request assistance from IBM.

- Machine type and model
- Microprocessor and hard disk drive upgrades
- Failure symptoms
 - Does the server fail the diagnostic tests?
 - What occurs? When? Where?
 - Does the failure occur on a single server or on multiple servers?
 - Is the failure repeatable?
 - Has this configuration ever worked?
 - What changes, if any, were made before the configuration failed?
 - Is this the original reported failure?
- Diagnostic program type and version level
- Hardware configuration (print screen of the system summary)
- BIOS code level
- Operating-system type and version level

You can solve some problems by comparing the configuration and software setups between working and nonworking servers. When you compare servers to each other for diagnostic purposes, consider them identical only if all the following factors are exactly the same in all the servers:

- Machine type and model
- BIOS level
- Adapters and attachments, in the same locations
- Address jumpers, terminators, and cabling
- Software versions and levels
- Diagnostic program type and version level
- Configuration option settings
- Operating-system control-file setup

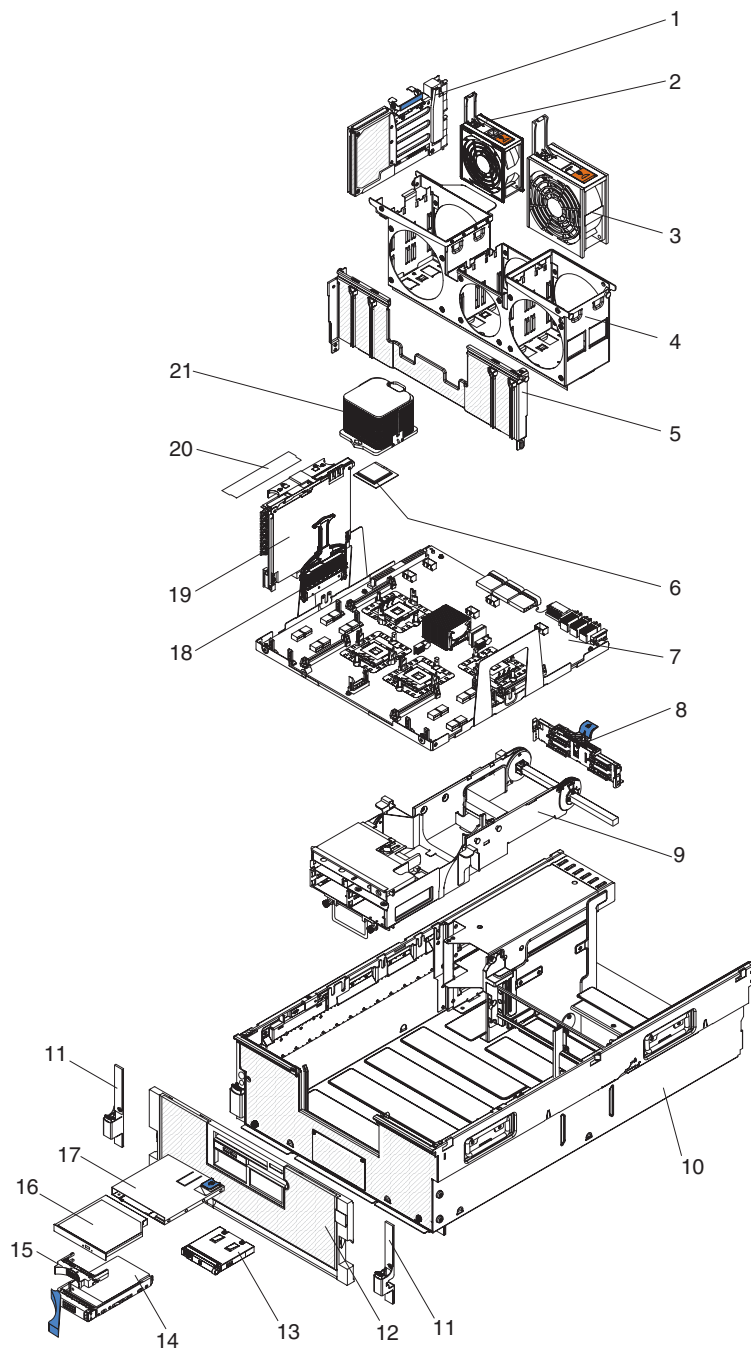
See Appendix A, “Getting help and technical assistance,” on page 339 for information about calling IBM for service.

Chapter 4. Parts listing, Types 7141, 7233, 7144 and 7234

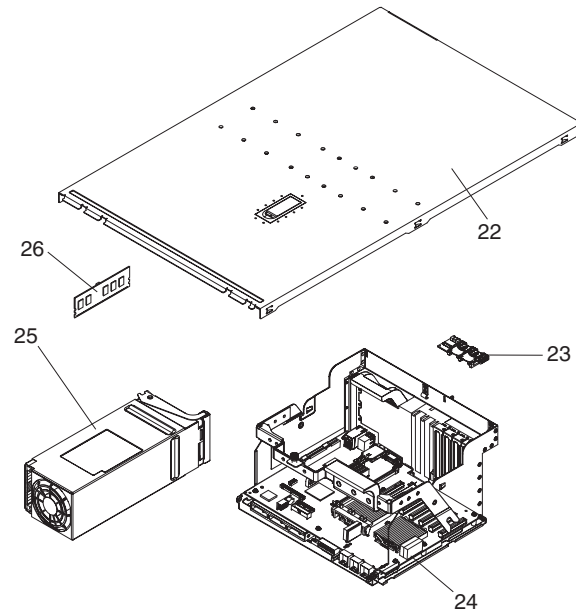
The following replaceable components are available for the System x3850 M2 and System x3950 M2 Types 7141, 7233, 7144 and 7234 except as specified otherwise in Table 8 on page 245. For an updated parts listing on the Web, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Publications lookup**.
4. From the **Product family** menu, select **System x3850 M2** or **System x3950 M2** and click **Continue**.



continued



Replaceable server components

Replaceable components are of three types:

- **Consumable parts:** Purchase and replacement of consumable parts(components, such as batteries and printer cartridges, that have depletable life) is your responsibility. If IBM acquires or installs a consumable part at your request, you will be charged for the service.
- **Tier 1 customer replaceable unit (CRU):** Replacement of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.
- **Tier 2 customer replaceable unit:** You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **Field replaceable unit (FRU):** FRUs must be installed only by trained service technicians.

Table 8. Parts listing, Type 7141, 7233 and 7234

Index	Description	CRU part number (Tier 1)	CRU part number (Tier 2)	FRU part number
1	Power backplane (all models)		43W8673	
2	Fan (92 mm) (all models)	43W9578		
3	Fan (120 mm) (all models)	44E4563		
4	Fan cage (all models)	44E4576		
5	Memory-card guide (all models)	44E4575		
6	Microprocessor, 2.40 GHz (dual core) (MT 7141, 7144) (models 1Lx, 1Rx)			44E4558
6	Microprocessor, 1.60 GHz (quad core) (MT 7141, 7144) (models 2Lx 1Sx, F1x S1x)			44W2782

Table 8. Parts listing, Type 7141, 7233 and 7234 (continued)

Index	Description	CRU part number (Tier 1)	CRU part number (Tier 2)	FRU part number
6	Microprocessor, 1.86 GHz (quad core) (MT 7141, 7144) (optional)			44E4513
6	Microprocessor, 2.13 GHz (quad core) (MT 7141, 7144) (model 2Rx)			44E4557
6	Microprocessor, 2.40 GHz (quad core) (MT 7141, 7144) (models 3Ax, 3Bx, 3Dx, 3Ex, 3Hx, 3Rx, 3Sx, F3x, S3x)			44E4556
6	Microprocessor, 2.93 GHz (dual core) (MT 7141, 7144) (optional)			44E4538
6	Microprocessor, 2.93 GHz (quad core) (MT 7141, 7144) (models 4Ax, 4Bx, 4Dx, 4Ex, 4Rx, 4Sx, F4x, S4x)			44E4555
6	Microprocessor, 2.13 GHz, 50W (quad core) (MT 7233, 7234) (models 7Rx, 7Sx)			44E4516
6	Microprocessor, 2.13 GHz, 65W (six core) (MT 7233, 7234) (models 1Rx, 1Sx)			44E4478
6	Microprocessor, 2.13 GHz, 90W, 8M (quad core) (MT 7233, 7234) (models 1Lx, 2Lx, 2Mx, 2Rx, 2Sx)			44E4479
6	Microprocessor, 2.13 GHz, 90W, 12M (MT 7233, 7234) (quad core) (models 3Rx, 3Sx)			44E4480
6	Microprocessor, 2.4 GHz, 90W (quad core) (MT 7233, 7234) (models 4Hx, 4Lx, 4Mx, 4Rx, 4Sx)			44E4481
6	Microprocessor, 2.4 GHz, 90W (six core) (MT 7233, 7234) (models 5Lx, 5Mx, 5Rx, 5Sx)			44E4482
6	Microprocessor, 2.67 GHz, 130 W (six core) (MT 7233, 7234) (models 6Lx, 6Mx, 6Rx, 6Sx)			44E4483
7	Microprocessor-board assembly (MT 7233, 7234)			44E4488
7	Microprocessor-board assembly (MT 7141, 7144)			43W8670
8	SAS hard disk drive backplane (all models)		44W2728	
9	Media-hood assembly (MT 7233, 7234) (all models)			46M3511
9	Media-hood assembly (MT 7141, 7144) (all models)			44E4574
10	Chassis assembly (MT 7233, 7234) (all models)			46M3510
10	Chassis assembly (MT 7141, 7144) (all models)			44E4573
11	EIA mounting bracket (right and left) (all models)	44E4570		
12	x3850 M2 bezel (MT 7233, 7234) (models 1Lx, 1Rx, 2Lx, 2Rx, 3Rx, 4Hx, 4Lx, 4Rx, 5Lx, 5Rx, 6Lx, 6Rx, 7Rx) (MT 7141, 7144) (models 1Lx, 1Rx, 2Lx, 2Rx, 3Hx, 3Rx, 4Rx)	44E4564		
12	x3950 M2 bezel (MT 7233, 7234) (models 1Sx, 2Mx, 2Sx, 3Sx, 4Mx, 4Sx, 5Mx, 5Sx, 6Mx, 6Sx, 7Sx) (MT 7141, 7144) (models 1Sx, 3Ax, 3Bx, 3Dx, 3Ex, 3Sx, 4Ax, 4Bx, 4Dx, 4Ex, 4Sx)	44W4314		
13	Operator information panel assembly (all models)		44E4372	
14	Hard disk drive, 73 GB 15K (optional)	43X0839		
14	Hard disk drive, 73 GB 10K (optional)	39R7366		
14	Hard disk drive, 146 GB 10K (optional)	43X0825		
15	Hard disk drive filler (all models)	26K8680		

Table 8. Parts listing, Type 7141, 7233 and 7234 (continued)

Index	Description	CRU part number (Tier 1)	CRU part number (Tier 2)	FRU part number
16	DVD/CD-RW Drive, SATA (MT 7233, 7234)	44W3255		
16	DVD SATA multi-burner (MT 7233, 7234) (optional)	44W3256		
16	CD-RW/DVD drive (MT 7141, 7144) (all models except 1Lx, 2Lx)	43W4603		
16	DVD drive (MT 7141, 1744) (all models)	43W4605		
16	DVD-RW drive (MT 7141, 7144) (optional)	43W4607		
16	DVD-RW drive (MT 7141, 7144) (optional)	43W4609		
16	Ultra slim DVD drive (MT 7141, 7144) (optional)	43W4619		
17	DVD housing with interposer card assembly (MT 7141, 7144) (all models)		44E4552	
17	SATA DVD housing (MT 7233, 7234) (all models)		44E4529	
18	Microprocessor VRM (all models)	44E4553		
19	Memory card (all models)	46M2379		
20	Memory, 1 GB PC2-5300 ECC (MT 7233, 7234) (models 1Rx, 1Sx, 2Rx, 2Sx, 3Rx, 3Sx, 4Rx, 4Sx, 5Rx, 5Sx, 6Rx, 6Sx, 7Rx, 7Sx) (MT 7141, 7144) (models 1Rx, 2Rx, 1Sx, 3Ax, 3Bx, 3Dx, 3Ex, 3Rx, 3Sx, 4Ax, 4Bx, 4Dx, 4Ex, 4Rx, 4Sx, S1x, S3x, S4x)	41Y2761		
20	Memory, 2 GB PC2-5300 ECC (MT 7233, 7234) (models 1Lx, 2Lx, 2Mx, 4Hx, 4Lx, 4Mx, 4Hx, 5Lx, 5Mx, 6Lx, 6Mx) (MT 7141, 7144) (models 1Lx, 2Lx, 3Hx, F1x, F3x, F4x)	41Y2770		
20	Memory, 2 GB PC2-5300 ECC (optional)	41Y2764		
20	Memory, 4 GB PC2-5300 ECC (optional)	41Y2851		
20	Memory, 8 GB PC2-5300 ECC (optional)	43V7355		
21	Heat sink (all models)			43W9559
22	Top cover (all models)	44E4572		
23	PCI switch-card assembly (all models)			44E4373
24	I/O board shuttle assembly (MT 7141, 7144)		43W8671	
24	I/O board shuttle assembly (MT 7233, 7234)		44E4485	
25	Power supply, 1440 W (all models)	39Y7355		
26	ServerRAID-MR10k controller (optional)	43W4282		
	Battery, 3.0 volt (all models)	33F8354		
	x3850 M2 cable management arm kit (MT 7233, 7234) (models 1Lx, 1Rx, 2Lx, 2Rx, 3Rx, 4Hx, 4Lx, 4Rx, 5Lx, 5Rx, 6Lx, 6Rx, 7Rx) (MT 7141, 7144) (all models except 1Sx, 3Ax, 3Bx, 3Dx, 3Ex, 3Sx, 4Ax, 4Bx, 4Dx, 4Ex, 4Sx, F1x, F3x, F4x, S1x, S3x, S4x)		40K6556	
	x3950 M2 cable management arm kit (MT 7233, 7234) (models 1Sx, 2Mx, 2Sx, 3Sx, 4Mx, 4Sx, 5Mx, 5Sx, 6Mx, 6Sx, 7Sx) (MT 7141, 7144) (models 1Sx, 3Ax, 3Bx, 3Dx, 3Ex, 3Sx, 4Ax, 4Bx, 4Dx, 4Ex, 4Sx)		44E4566	

Table 8. Parts listing, Type 7141, 7233 and 7234 (continued)

Index	Description	CRU part number (Tier 1)	CRU part number (Tier 2)	FRU part number
	Cable kit (MT 7233, 7234) (all models) contents: Remote Supervisor Adapter II to I/O board 200 mm (7.9 in.) SAS power to I/O board 475 mm (18.7 in.) Hot-swap PCI switch to I/O board 150 mm (5.9 in.) Dual USB ports to I/O board 595 mm (23.4 in.) Media interposer card to I/O board 475 mm (18.7 in.) SAS 4x signal to I/O board 475 mm (18.7 in.) Front panel/light path diagnostics to I/O board 565 mm (22.2 in.) SATA DVD cable	44E4530		
	Cable kit (MT 7141, 76144 (all models)	44E4568		
	DVD/CD bay filler (MT 7233, 7234) (models 1Lx, 2Lx, 2Mx, 4Lx, 4Mx, 5Lx, 5Mx, 6Lx, 6Mx) (MT 7141, 7144) (models 1Lx, 2Lx)	44E4585		
	DVD filler, SATA (MT 7233, 7234) (optional)	44E4528		
	ServeRAID-MR10k key card w/o battery (optional)	46M0827		
	Power supply filler	49Y0665		
/	2 GB Hypervisor flash device	42D0545		
/	Hypervisor	46M9238		
	Line cord (all models)	39M5377		
	Miscellaneous hardware parts (all models) contents: M6 screws for slide rails (4x), RSA II knob, and left and right shipping brackets		44E4587	
	Miscellaneous plastic parts (all models) contents: SAS backplane handle, VRM handle, heat sink filler, PCI divider (2x), PCI divider with RAID controller battery holder, PCI retention bracket, media hood air baffle (2x), memory bulkhead sliders (2x), rear I/O shuttle handle and associated screws, and M3.5 screws for PCI adapters (2x) (all models except 2Mx, 4Mx, 5Mx, 6Mx)	44W4321		
	NetXtreme II Adapter (optional)	49Y4222		
	NetXtreme II 10 GigE Express Fiber SR Adapter (MT 7141, 7144) (optional)	42C1792		
	PCI retainer bracket (all models)	44E4581		
	Qlogic 10 GB Ethernet/FCOCCE dual port converged network adapter (optional)	42C1802		
	Dual port Ethernet (MT 7233, 7234) (all models) (MT 7141, 7144) (optional)	49Y4205		
	Qlogic 10 GB SFP+SR optical transceiver (optional)	42C1816		
	Rear I/O shuttle (all models)			54Y2680
	Remote Supervisor Adapter II (all models)	46M5968		
	Scalable cable button (MT 7233, 7234) (models 1Sx, 2Sx, 3Sx, 4Sx, 5Sx, 6Sx, 7Sx) (MT 7141, 7144) (models 1Sx 3Sx 4Sx 3Ax 3Bx 3Dx 3Ex 4Ax 4Bx 4Dx 4Ex)	46M3512		

Table 8. Parts listing, Type 7141, 7233 and 7234 (continued)

Index	Description	CRU part number (Tier 1)	CRU part number (Tier 2)	FRU part number
	Scaling cable assembly 3.26m (optional)	44E4584		
	ScaleXpander cable, 3.0 m (9.8 foot) (MT 7233, 7234) (models 1Sx 2Mx 2Sx 3Sx 4Mx 4Sx 5Mx 5Sx 6Mx 6Sx 7Sx) (MT 7141, 7144) (models 1Sx, 3Ax, 3Bx, 3Dx, 3Ex, 3Sx, 4Ax, 4Bx, 4Dx, 4Ex, 4Sx, F1x, F3x, F4x, S1x, S3x, S4x)	44E4565		
	ScaleXpander key	44E4653		
	ServeRAID-MR10k battery pack (MT 7141, 7144) (for MT 7233, 7234 see Table 9 Consumable parts)	43W4283		
	Slide kit (all models)	42D3062		
	Label kit (all models) contents: I/O board/RSA II label, system service label, FRU list label, and memory card label	44E4499		
	Label kit (MT 7141, 7144) (all models)	44E4567		
	Internal 4GB flash memory (MT 7141, 7144) (model 3Hx) (MT 7233, 7234) (model 4Hx)	44E4380		
	PCI-E adapter (MT 7233, 7233) (optional)	39R6526		
	Alcohol wipe, Canada			41Y8746
	Alcohol wipe, Brazil/Mexico			41Y8747
	Alcohol wipe, Taiwan/Japan			41Y8748
	Alcohol wipe, China/Malaysia			41Y8749
	Alcohol wipe, Australia/UK			41Y8750
	Alcohol wipe, Korea			41Y8751
	Alcohol wipe, Hungary			41Y8753
	Alcohol wipe, Latin America			41Y8754
	Alcohol wipe, China			41Y8757
	Alcohol wipe, Hong Kong			41Y8758
	Alcohol wipe, India			41Y8759
	Alcohol wipe, Singapore			41Y8760
	Alcohol wipe, other countries			41Y8752

Consumable parts are not covered by the IBM Statement of Limited Warranty. The following consumable parts are available for purchase from the retail store.

Table 9. Consumable parts

Description	Part number
ServeRAID-MR10k battery pack (MT 7233, 7234)	43W4283

To order a consumable part, complete the following steps:

1. Go to <http://www.ibm.com>.
2. From **Products** menu, click **Upgrades, accessories & parts**.

3. Click **Obtain maintenance parts**; then, follow the instructions to order the component from the retail store.

If you need help with your order, call the toll-free number that is listed on the retail parts page, or contact your local IBM representative for assistance.

Product recovery CDs

Table 10 describes the product recovery CD CRUs.

Table 10. Product recovery CDs

Description	CRU part number
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, U.S. English (MT 7141, 7144)	44W4046
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, French (MT 7141, 7144)	44W4047
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, Italian (MT 7141, 7144)	44W4048
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, German (MT 7141, 7144)	44W4049
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, Spanish (MT 7141, 7144)	44W4050
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, Traditional Chinese (MT 7141, 7144)	44W4051
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, Japanese (MT 7141, 7144)	44W4052
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, Simplified Chinese (MT 7141, 7144)	44W4053
Microsoft Windows Server 2003 R2 Standard Edition 32-bit w/SP2 1-4 microprocessors, Korean (MT 7141, 7144)	44W4054
Microsoft Windows Server 2003 R2 Standard Edition 64-bit w/SP2 1-4 microprocessors, U.S. English (MT 7141, 7144)	44W4055
Microsoft Windows Server 2003 R2 Standard Edition 64-bit w/SP2 1-4 microprocessors, Japanese (MT 7141, 7144)	44W4056
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, U.S. English (MT 7141, 7144)	44W4057
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, French (MT 7141, 7144)	44W4058
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, German (MT 7141, 7144)	44W4059
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, Spanish (MT 7141, 7144)	44W4060
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, Simplified Chinese (MT 7141, 7144)	44W4061
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, Traditional Chinese (MT 7141, 7144)	44W4062

Table 10. Product recovery CDs (continued)

Description	CRU part number
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, Japanese (MT 7141, 7144)	44W4063
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-2 microprocessors, Korean (MT 7141, 7144)	44W4064
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, U.S. English (MT 7141, 7144)	44W4065
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, French (MT 7141, 7144)	44W4066
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, Italian (MT 7141, 7144)	44W4067
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, German (MT 7141, 7144)	44W4068
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, Spanish (MT 7141, 7144)	44W4069
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, Simplified Chinese (MT 7141, 7144)	44W4070
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, Traditional Chinese (MT 7141, 7144)	44W4071
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, Japanese (MT 7141, 7144)	44W4072
Microsoft Windows Server 2003 R2 Enterprise Edition 32-bit w/SP2 1-8 microprocessors, Korean (MT 7141, 7144)	44W4073
Microsoft Windows Server 2003 R2 Enterprise Edition 64-bit w/SP2 1-2 microprocessors, U.S. English (MT 7141, 7144)	44W4074
Microsoft Windows Server 2003 R2 Enterprise Edition 64-bit w/SP2 1-2 microprocessors, Japanese (MT 7141, 7144)	44W4075
Microsoft Windows Server 2003 R2 Enterprise Edition 64-bit w/SP2 1-2 microprocessors, Italian (MT 7141, 7144)	44W4078
Microsoft Windows Server 2003 R2 Enterprise Edition 64-bit w/SP2 1-8 microprocessors, U.S.English (MT 7141, 7144)	44W4076
Microsoft Windows Server 2003 R2 Enterprise Edition 64-bit w/SP2 1-8 microprocessors, Japanese (MT 7141, 7144)	44W4077
Microsoft Windows Server 2003 Datacenter Edition Unlimited Virtualization, 32-bit, U.S. English (models 3Dx, 4Dx)	44R5145
Microsoft Windows Server 2003 Datacenter x64 Edition Unlimited Virtualization, U.S. English (models 3Ex, 4Ex)	44R5146
Microsoft Windows Server 2003 Datacenter Edition Unlimited Virtualization with High Availability Program, 32-bit, U.S. English (models 3Ax, 4Ax)	44R5147
Microsoft Windows Server 2003 Datacenter x64 Edition Unlimited Virtualization with High Availability Program, U.S. English (models 3Bx, 4Bx)	44R5148
Microsoft Windows Server 2003 Datacenter Edition Unlimited Virtualization, 32-bit, Japanese (JP) (models 3Dx, 4Dx)	44R5149
Microsoft Windows Server 2003 Datacenter x64 Edition Unlimited Virtualization, Japanese (JP) (models 3Ex, 4Ex)	44R5150

Table 10. Product recovery CDs (continued)

Description	CRU part number
Microsoft Windows Server 2003 Datacenter Edition Unlimited Virtualization with High Availability Program, 32-bit, Japanese (models 3Ax, 4Ax)	44R5151
Microsoft Windows Server 2003 Datacenter x64 Edition Unlimited Virtualization with High Availability Program, Japanese (models 3Bx, 4Bx)	44R5152
Microsoft Windows Server 2008 Datacenter 64/64 Bit, Multilingual	49Y0222
Microsoft Windows Server 2008 Datacenter 64/64 Bit, Simplified Chinese	49Y0223
Microsoft Windows Server 2008 Datacenter 64/64 Bit, Traditional Chinese	49Y0224
Microsoft Windows Server 2008 SP Datacenter 32/64 Bit, Multilingual	60Y1760
Microsoft Windows Server 2008 Datacenter R2, Multilingual	59Y7332
Microsoft Windows Server 2008 Datacenter R2, Simplified Chinese	59Y7333
Microsoft Windows Server 2008 Datacenter R2, Traditional Chinese	59Y7334
Microsoft Windows Server 2008 Standard Edition 32/64 Bit 1-4 microprocessors, Multilingual	49Y0892
Microsoft Windows Server 2008 Standard Edition 32/64 Bit 1-4 microprocessors, Simplified Chinese	49Y0893
Microsoft Windows Server 2008 Standard Edition 32/64 Bit 1-4 microprocessors, Traditional Chinese	49Y0894
Microsoft Windows Server 2008 Enterprise Edition 32/64 Bit 1-8 microprocessors, Multilingual	49Y0895
Microsoft Windows Server 2008 Enterprise Edition 32/64 Bit 1-8 microprocessors SP2, Simplified Chinese	49Y0896
Microsoft Windows Server 2008 Enterprise Edition 32/64 Bit 1-8 microprocessors, Traditional Chinese	49Y0897
Microsoft Windows Server 2008 HPS 1-8 microprocessors, English	68Y9455
Microsoft Windows Server 2008 HPS 1-8 microprocessors, Japanese	68Y9456
Microsoft Windows Server 2008 HPS 1-8 microprocessors, Simplified Chinese	68Y9457
Microsoft Windows Server 2008 R2 Foundation, English	81Y2001
Microsoft Windows Server 2008 R2 Foundation, French	81Y2002
Microsoft Windows Server 2008 R2 Foundation, German	81Y2003
Microsoft Windows Server 2008 R2 Foundation, Spanish	81Y2004
Microsoft Windows Server 2008 R2 Foundation, Italian	81Y2005
Microsoft Windows Server 2008 R2 Foundation, Brazilian	81Y2006
Microsoft Windows Server 2008 R2 Foundation, Polish	81Y2007
Microsoft Windows Server 2008 R2 Foundation, Russian	81Y2008
Microsoft Windows Server 2008 R2 Foundation, Turkish	81Y2009

Table 10. Product recovery CDs (continued)

Description	CRU part number
Microsoft Windows Server 2008 R2 Foundation, Japanese	81Y2010
Microsoft Windows Server 2008 R2 Foundation, Simplified Chinese	81Y2011
Microsoft Windows Server 2008 R2 Foundation, Traditional Chinese	81Y2012
Microsoft Windows Server 2008 R2 Foundation, Korean	81Y2013
Microsoft Windows Server 2008 R2 Foundation, Czech	81Y2014
Microsoft Windows Server 2008 R2 Standard Edition 1-4 microprocessors, Multilingual	81Y2015
Microsoft Windows Server 2008 R2 Standard Edition 1-4 microprocessors, Simplified Chinese	81Y2016
Microsoft Windows Server 2008 R2 Standard Edition 1-4 microprocessors, Traditional Chinese	81Y2017
Microsoft Windows Server 2008 Enterprise Edition R2 1-8 microprocessors 10 users, Multilingual	81Y2018
Microsoft Windows Server 2008 Enterprise Edition R2 1-8 microprocessors 10 users, Simplified Chinese	81Y2019
Microsoft Windows Server 2008 Enterprise Edition R2 1-8 microprocessors 10 users, Traditional Chinese	81Y2020
Microsoft Windows Server 2008 Enterprise Edition R2 1-8 microprocessors 25 users, Multilingual	81Y2021
Microsoft Windows Server 2008 Enterprise Edition R2 1-8 microprocessors 25 users, Simplified Chinese	81Y2022
Microsoft Windows Server 2008 Enterprise Edition R2 1-8 microprocessors 25 users, Traditional Chinese	81Y2023
VMware ESX Server i3 Recovery Tools CDs	46D0762
VMware ESX Server i3 Version 3.5 Update 2	46M9236
VMware ESX Server i3 Version 3.5 Update 3	46M9237
VMware ESX Server i3 version 3.5 Update 4	46M9238
VMware ESX Server i3.5 Update 5	68Y9633
VMware ESX Server i4 SW	49Y8747
VMware ESX Server i4 Update 1	68Y9634
VMware vSphere ESX i4.1 w/o usb key	81Y2028

Power cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

IBM power cords for a specific country or region are usually available only in that country or region.

IBM power cord part number	Used in these countries and regions
39M5206	China
39M5102	Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea
39M5123	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Cote D'Ivoire (Ivory Coast), Croatia (Republic of), Czech Republic, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Guyana, French Polynesia, Germany, Greece, Guadeloupe, Guinea, Guinea Bissau, Hungary, Iceland, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Laos (People's Democratic Republic of), Latvia, Lebanon, Lithuania, Luxembourg, Macedonia (former Yugoslav Republic of), Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova (Republic of), Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Reunion, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia (Republic of), Somalia, Spain, Suriname, Sweden, Syrian Arab Republic, Tajikistan, Tahiti, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna, Yugoslavia (Federal Republic of), Zaire
39M5130	Denmark
39M5144	Bangladesh, Lesotho, Macao, Maldives, Namibia, Nepal, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda
39M5151	Abu Dhabi, Bahrain, Botswana, Brunei Darussalam, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dominica, Gambia, Ghana, Grenada, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar (Burma), Nigeria, Oman, Polynesia, Qatar, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania (United Republic of), Trinidad and Tobago, United Arab Emirates (Dubai), United Kingdom, Yemen, Zambia, Zimbabwe
39M5158	Liechtenstein, Switzerland
39M5165	Chile, Italy, Libyan Arab Jamahiriya

IBM power cord part number	Used in these countries and regions
39M5172	Israel
39M5095	220 - 240 V Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, Caicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Taiwan, United States of America, Venezuela
39M5081	110 - 120 V Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Caicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Thailand, Taiwan, United States of America, Venezuela
39M5219	Korea (Democratic People's Republic of), Korea (Republic of)
39M5199	Japan
39M5068	Argentina, Paraguay, Uruguay
39M5226	India
39M5233	Brazil

Chapter 5. Removing and replacing server components

Replaceable components are of three types:

- **Tier 1 customer replaceable unit (CRU):** Replacement of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.
- **Tier 2 customer replaceable unit:** You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **Field replaceable unit (FRU):** FRUs must be installed only by trained service technicians.

See Chapter 4, “Parts listing, Types 7141, 7233, 7144 and 7234,” on page 243 to determine whether a component is a Tier 1 CRU, Tier 2 CRU, or FRU.

For information about the terms of the warranty and getting service and assistance, see the *Warranty Information* document that came with your server.

Installation guidelines

Before you remove or replace a component, read the following information:

- Read the safety information that begins on page vii, “Working inside the server with the power on” on page 259, and the guidelines in “Handling static-sensitive devices” on page 259. This information will help you work safely.
- When you install your new server, take the opportunity to download and apply the most recent firmware updates. This step will help to ensure that any known issues are addressed and that your server is ready to function at maximum levels of performance. To download firmware updates for your server, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.

For additional information about tools for updating, managing, and deploying firmware, see the System x and xSeries Tools Center at <http://publib.boulder.ibm.com/infocenter/toolsctr/v1r0/index.jsp>.

- Before you install optional hardware devices, make sure that the server is working correctly. Start the server, and make sure that the operating system starts, if an operating system is installed, or that a 19990305 error code is displayed, indicating that an operating system was not found but the server is otherwise working correctly. If the server is not working correctly, see Chapter 3, “Diagnostics,” on page 23 for diagnostic information.
- Observe good housekeeping in the area where you are working. Place removed covers and other parts in a safe place.
- If you must start the server while the cover is removed, make sure that no one is near the server and that no tools or other objects have been left inside the server.

- Do not attempt to lift an object that you think is too heavy for you. If you have to lift a heavy object, observe the following precautions:
 - Make sure that you can stand safely without slipping.
 - Distribute the weight of the object equally between your feet.
 - Use a slow lifting force. Never move suddenly or twist when you lift a heavy object.
 - To avoid straining the muscles in your back, lift by standing or by pushing up with your leg muscles.
- Make sure that you have an adequate number of properly grounded electrical outlets for the server, monitor, and other devices.
- Back up all important data before you make changes to disk drives.
- Have a small flat-blade screwdriver available.
- You do not have to turn off the server to install or replace hot-swap power supplies, hot-swap fans, hot-plug adapters, or hot-plug Universal Serial Bus (USB) devices. However, you must turn off the server before you perform any steps that involve removing or installing adapter cables.
- Blue on a component indicates touch points, where you can grip the component to remove it from or install it in the server, open or close a latch, and so on.
- Orange on a component or an orange label on or near a component indicates that the component can be hot-swapped, which means that if the server and operating system support hot-swap capability, you can remove or install the component while the server is running. (Orange can also indicate touch points on hot-swap components.) See the instructions for removing or installing a specific hot-swap component for any additional procedures that you might have to perform before you remove or install the component.
- When you are finished working on the server, reinstall all safety shields, guards, labels, and ground wires.
- For a list of supported optional devices for the server, see <http://www.ibm.com/servers/eserver/serverproven/compat/us/>.

System reliability guidelines

To help ensure proper cooling and system reliability, make sure that:

- Each of the drive bays has a drive or a filler panel installed in it.
- There is adequate space around the server to allow the server cooling system to work properly. Leave approximately 50 mm (2 in.) of open space around the front and rear of the server. Do not place objects in front of the fans. For proper cooling and airflow, replace the server cover before you turn on the server. Operating the server for extended periods of time (more than 30 minutes) with the server cover removed might damage server components.
- You have followed the cabling instructions that come with optional adapters.
- You have replaced a failed fan within 48 hours.
- You have replaced a hot-swap drive within 2 minutes of removal.
- For redundant and hot-swappable power supply operation, the power supplies are connected to 200-240 V ac.
- Microprocessor socket 2 always contains either a heat-sink blank or a microprocessor and heat sink.

Note: Microprocessor temperature, hard disk drive temperature, and planar voltage sensing is not supported.

Working inside the server with the power on

Attention: Static electricity that is released to internal server components when the server is powered-on might cause the server to halt, which might result in the loss of data. To avoid this potential problem, always use an electrostatic-discharge wrist strap or other grounding system when you work inside the server with the power on.

The server supports hot-swap devices and is designed to operate safely while it is turned on and the cover is removed. Follow these guidelines when you work inside a server that is turned on:

- Avoid wearing loose-fitting clothing on your forearms. Button long-sleeved shirts before working inside the server; do not wear cuff links while you are working inside the server.
- Do not allow your necktie or scarf to hang inside the server.
- Remove jewelry, such as bracelets, necklaces, rings, and loose-fitting wrist watches.
- Remove items from your shirt pocket, such as pens and pencils, that might fall into the server as you lean over it.
- Avoid dropping any metallic objects, such as paper clips, hairpins, and screws, into the server.

Handling static-sensitive devices

Attention: Static electricity can damage the server and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of damage from electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- The use of a grounding system is recommended. For example, wear an electrostatic-discharge wrist strap, if one is available. Always use an electrostatic-discharge wrist strap or other grounding system when you work inside the server with the power on.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal part on the outside of the server for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it directly into the server without setting down the device. If it is necessary to set down the device, put it back into its static-protective package. Do not place the device on the server cover or on a metal surface.
- Take additional care when you handle devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Returning a device or component

If you are instructed to return a device or component, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

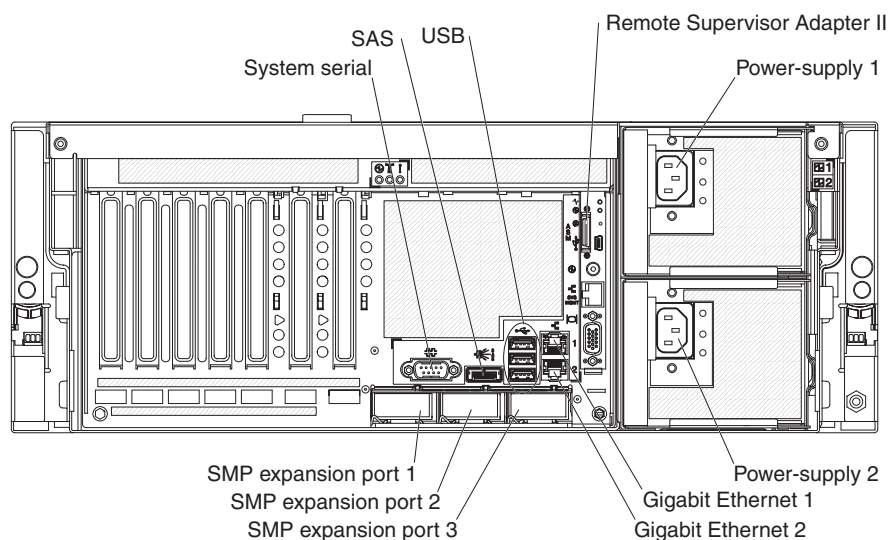
Connecting the cables

See the documentation that comes with optional devices for additional cabling instructions. It might be easier for you to route cables before you install certain devices.

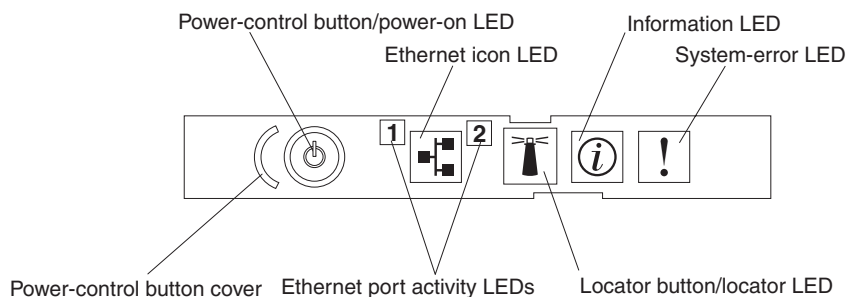
When available, you can install one or more optional SMP Expansion kits to interconnect the SMP Expansion ports of two or more servers.

The following illustrations show the locations of the input and output connectors on the server. Detailed cabling instructions are in the *Rack Installation Instructions* that come with the server.

Rear view



Front view



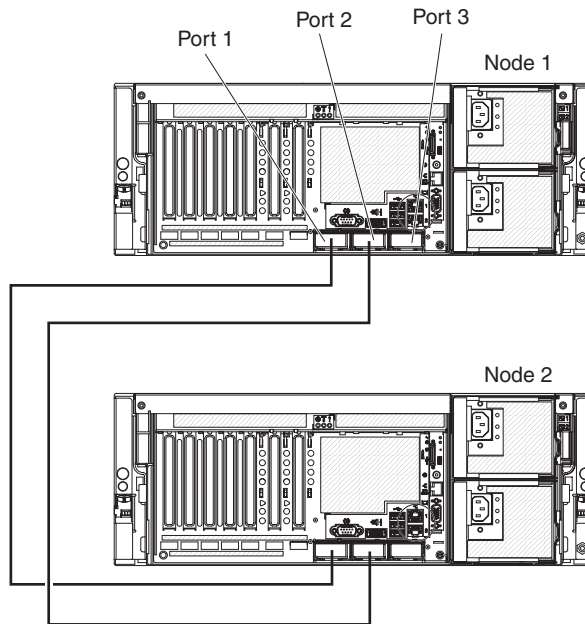
SMP Expansion cabling

(Requires scalability enablement) The cabling information in this section is for multi-node configurations that consist of two, three, or four servers, for up to a 16-socket operation. A node is a server that is interconnected with other servers or nodes through the SMP Expansion Ports to share system resources.

Two-node configuration

A two-node configuration requires two 3.0 m (9.8-foot) ScaleXpander cables. To cable a two-node configuration for up to an eight-socket operation, complete the following steps:

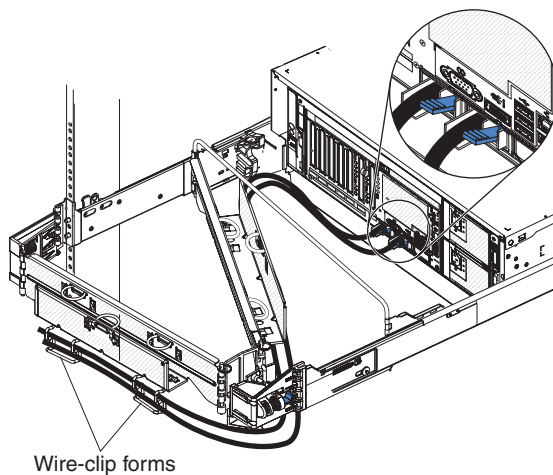
1. Label each end of each ScaleXpander cable according to where it will be connected to each server.



2. Connect the ScaleXpander cables:

Note: Do not squeeze the blue cable tabs when connecting the cables. Use the blue tabs only when disconnecting the cables from the server.

- a. Connect one end of a ScaleXpander cable to port 1 on node 1; then, connect the other end of the cable to port 1 on node 2.
- b. Connect one end of the second ScaleXpander cable to port 2 on node 1; then, connect the other end of the cable to port 2 on node 2.



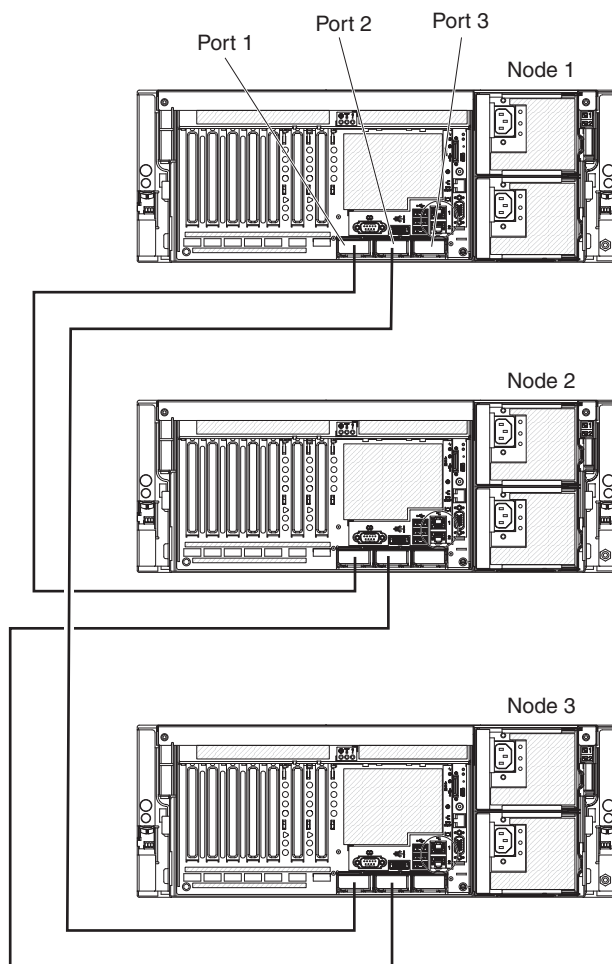
3. Route the ScaleXpander cables through the cable-management arm. Be sure to route each cable through the wire-form clip that is associated with the server to which it is connected.

Note: When disconnecting the cables from the server, carefully push down on the blue tabs, then pull the cables out of the connectors.

Three-node configuration

A three-node configuration requires three 3.0 m (9.8-foot) ScaleXpander cables. To cable a three-node configuration for up to a 12-socket operation, complete the following steps:

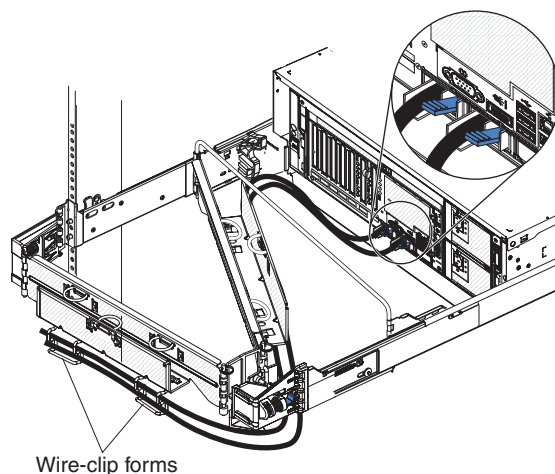
1. Label each end of each ScaleXpander cable according to where it will be connected to each server.



2. Connect the ScaleXpander cables:

Note: Do not squeeze the blue cable tabs when connecting the cables. Use the blue tabs only when disconnecting the cables from the server.

- a. Connect one end of a ScaleXpander cable to port 1 on node 1; then, connect the other end of the cable to port 1 on node 2.
- b. Connect one end of the second ScaleXpander cable to port 2 on node 1; then, connect the other end of the cable to port 2 on node 3.
- c. Connect one end of the third ScaleXpander cable to port 2 on node 2; then, connect the other end of the cable to port 2 on node 3.



3. Route the ScaleXpander cables through the cable-management arm. Be sure to route each cable through the wire-form clip that is associated with the server to which it is connected.

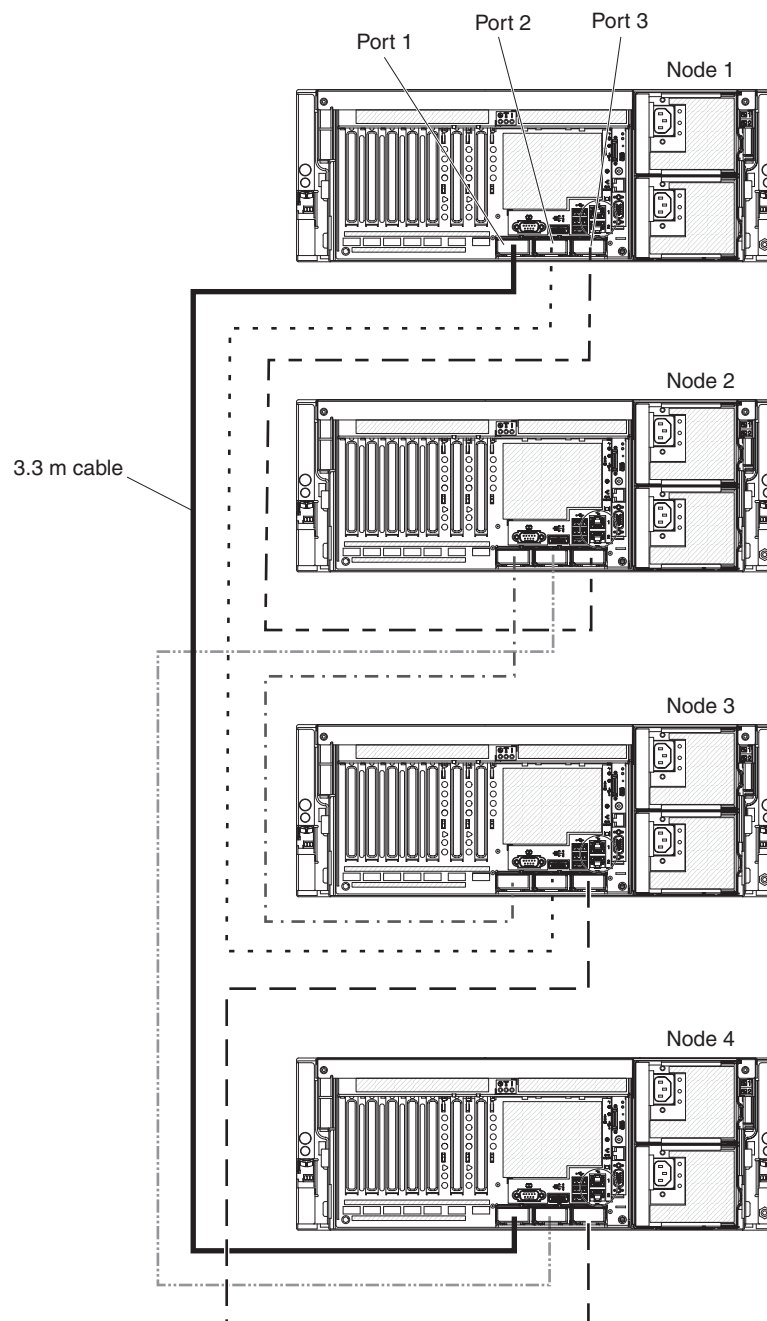
Note: When disconnecting the cables from the server, carefully push down on the blue tabs, then pull the cables out of the connectors.

Four-node configuration

A four-node configuration requires five 3.0 m (9.8-foot) ScaleXpander cables, one 3.3 m (10.8-foot) ScaleXpander cable, four scalability cable-management arms, four scalability keys, and four System x3950 M2 bezels. The Scalability Cable Option kit contains one of the 3.0 m (9.8-foot) ScaleXpander cables and a 3.3 m (10.8-foot) ScaleXpander cable. If you have System x3950 M2 servers, the Scalability Cable Option kit contains all the parts that you need to configure a 4-node system. If you have System x3850 M2 servers, you must purchase four ScaleXpander Option Kits (to obtain the additional four 3.0 m cables, scalability cable-management arms, scalability keys, and the System x3950 bezels) in addition to the Scalability Cable Option kit.

To cable a four-node configuration for up to a 16-socket operation, complete the following steps:

1. Label each end of each ScaleXpander cable according to where it will be connected to each server.

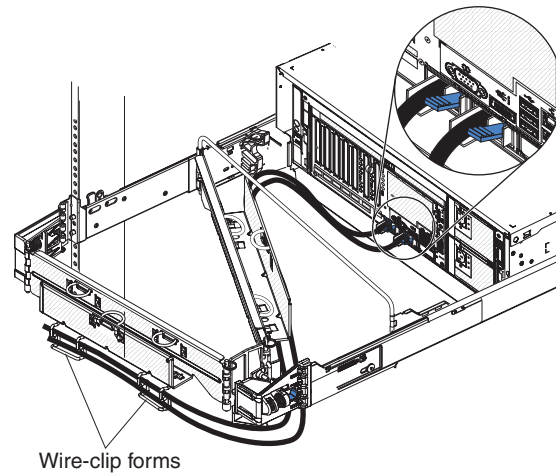


2. Connect the ScaleXpander cables:

Note: Do not squeeze the blue cable tabs when connecting the cables. Use the blue tabs only when disconnecting the cables from the servers.

- Connect one end of the 3.3 m (10.8-foot) ScaleXpander cable to port 1 on node 1; then, connect the other end to port 1 on node 4.
- Connect one end of a 3.0 m (9.8-foot) ScaleXpander cable to port 2 on node 1; then, connect the other end to port 2 on node 3.
- Connect one end of a 3.0 m (9.8-foot) ScaleXpander cable to port 3 on node 1; then, connect the other end to port 3 on node 2.
- Connect one end of a 3.0 m (9.8-foot) ScaleXpander cable to port 1 on node 2; then, connect the other end to port 1 on node 3.

- e. Connect one end of a 3.0 m (9.8-foot) ScaleXpander cable to port 2 on node 2; then, connect the other end to port 2 on node 4.
- f. Connect one end of a 3.0 m (9.8-foot) ScaleXpander cable to port 3 on node 3; then, connect the other end to port 3 of node 4.



3. Route the ScaleXpander cables through the cable-management arm. Be sure to route each cable through the wire-form clip that is associated with the server to which it is connected.

Note: When disconnecting the cables from the server, carefully push down on the blue tabs, then pull the cables out of the connectors.

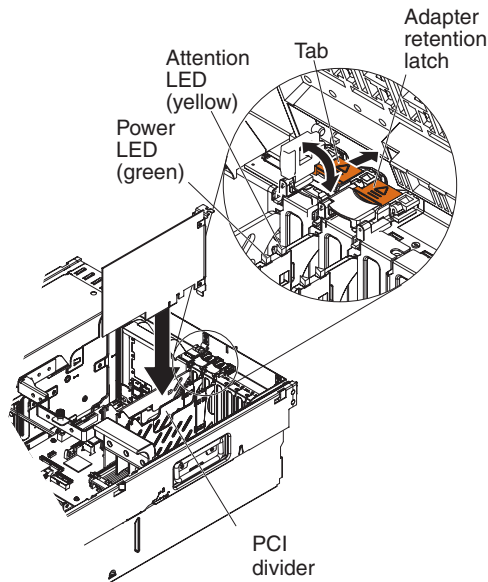
Removing and replacing Tier 1 CRUs

Replacement of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

The illustrations in this document might differ slightly from your hardware.

Removing an adapter

To remove a PCI Express adapter, complete the following steps.



Note: The adapter-retention bracket is not shown in the illustration.

1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. If the adapter is not hot-pluggable, turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to remove or install the adapter.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Disconnect any cables from the adapter.
5. Rotate the adapter-retention bracket to the open position.
6. If you are removing the adapter from slot 1 through slot 5, remove the expansion-slot screw, if present.
7. If you are removing the adapter from slot 6 or slot 7, push the orange adapter retention latch toward the rear of the server and open the tab. The power LED for the slot turns off.
8. Carefully grasp the adapter by its top edge or upper corners, and pull the adapter from the server.
9. If you are instructed to return the adapter, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the adapter

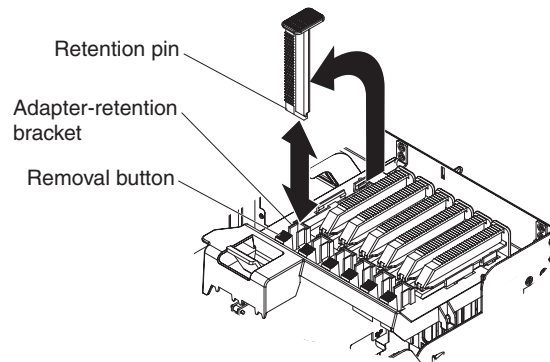
To install the replacement PCI Express adapter, complete the following steps:

1. See the documentation that comes with the adapter for instructions for setting jumpers or switches and for cabling.

Note: Route adapter cables before you install the adapter.

2. Carefully grasp the adapter by its top edge or upper corners, and align it with the connector on the I/O board.
3. Press the adapter firmly into the adapter connector.

4. Optionally, if you are installing the adapter in slot 1 through slot 5, install the expansion-slot screw to secure the adapter.
5. If you are installing the adapter in slot 6 or slot 7, close the tab; then, push down on the orange adapter retention latch until it clicks into place, securing the adapter.
6. Rotate the adapter-retention bracket to the closed position.
7. If you are installing a low-profile adapter, install a ratchet pin in the adapter-retention bracket to secure the adapter. Press the ratchet pin so that it touches the top edge of the adapter.

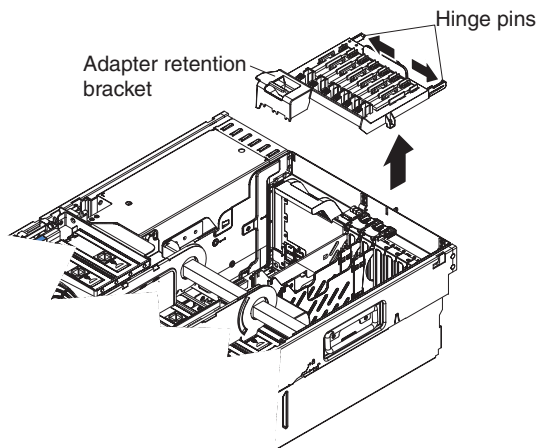


Note: Press the removal button and pull up on the ratchet pin to remove the ratchet pin from the adapter-retention bracket.

8. Connect any required cables to the adapter.
9. Install the top cover (see “Removing the top cover and bezel” on page 290).
10. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
11. Turn on all attached devices and the server.

Removing the adapter-retention bracket

To remove the adapter-retention bracket, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).

4. Release the bracket from the hinge points and remove the bracket from the server.
5. If you are instructed to return the adapter-retention bracket, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the adapter-retention bracket

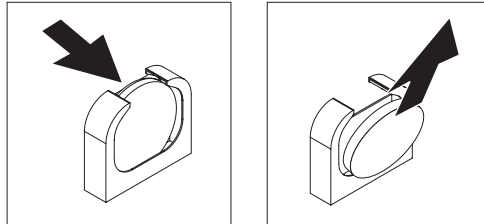
To install the replacement adapter-retention bracket, complete the following steps:

1. Install the bracket on the hinge points and rotate the bracket to the closed position.
2. Install the top cover (see “Removing the top cover and bezel” on page 290).
3. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
4. Turn on all attached devices and the server.

Removing the battery

To remove the battery, complete the following steps:

1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Locate the battery (see “Internal I/O board connectors” on page 19).
5. Remove the battery:
 - a. Use one finger to push the battery horizontally out of its housing.
 - b. Lift the battery from the socket.



6. Dispose of the battery as required by local ordinances or regulations. See “Battery return program” on page 346 for information about disposing of the battery).

Replacing the battery

The following notes describe information that you must consider when you replace the battery in the server:

- You must replace the battery with a lithium battery of the same type from the same manufacturer.
- After you replace the battery, you must reconfigure the server and reset the system date and time.
- To avoid possible danger, read and follow the following safety statement.

Statement 2:



CAUTION:

When replacing the lithium battery, use only IBM Part Number 15F8409 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

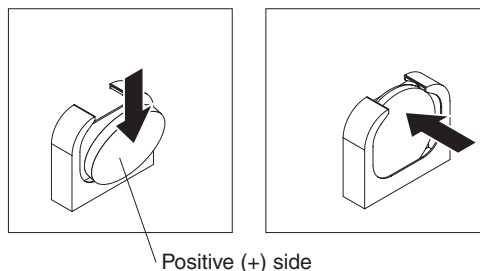
Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

To install the replacement battery, complete the following steps:

1. Follow any special handling and installation instructions that come with the replacement battery.
2. Locate the battery connector (see “Internal I/O board connectors” on page 19).
3. Insert the new battery:
 - a. Position the battery so that the positive (+) symbol is facing you.
 - b. Place the battery into its socket, and press the battery toward the housing until it snaps into place.



4. Install the top cover (see “Removing the top cover and bezel” on page 290).
5. Reconnect the external cables; then, reconnect the power cords and turn on the peripheral devices and the server.

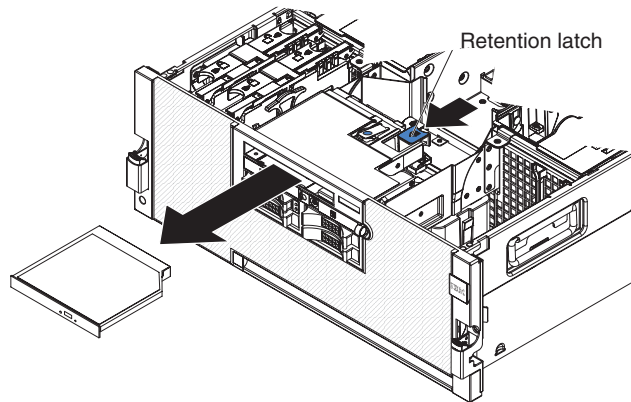
Note: You must wait approximately 20 seconds after you connect the power cord of the server to an electrical outlet before the power-control button becomes active.

6. Start the Configuration/Setup Utility program and reset the configuration:
 - Set the system date and time.
 - Set the power-on password.
 - Reconfigure the server.

See “Using the Configuration/Setup Utility program” on page 318 for details.

Removing the DVD drive

To remove the DVD drive, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Push the blue retention latch forward and pull the DVD drive out of the server.
5. If you are instructed to return the DVD drive, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

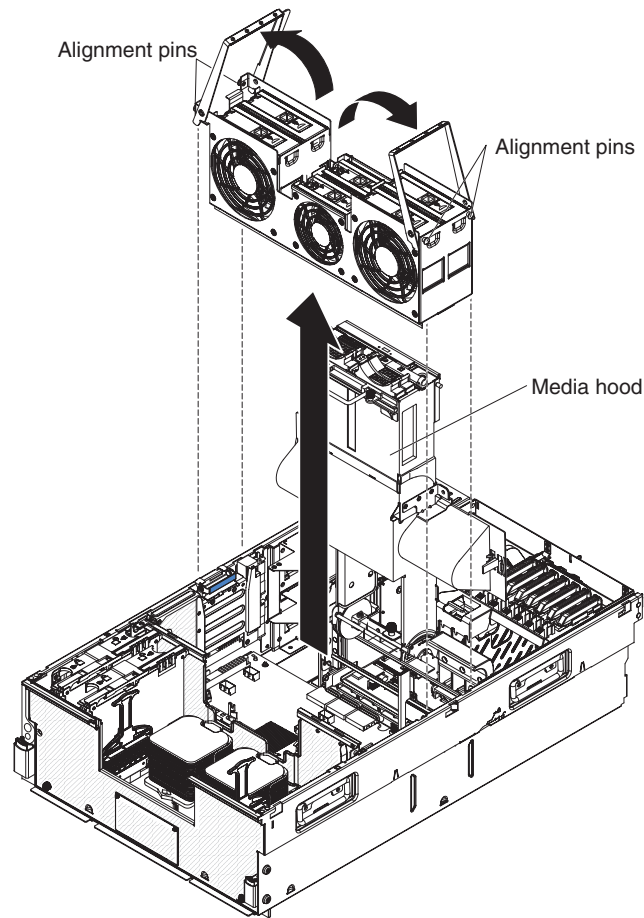
Replacing the DVD drive

To install the replacement DVD drive, complete the following steps:

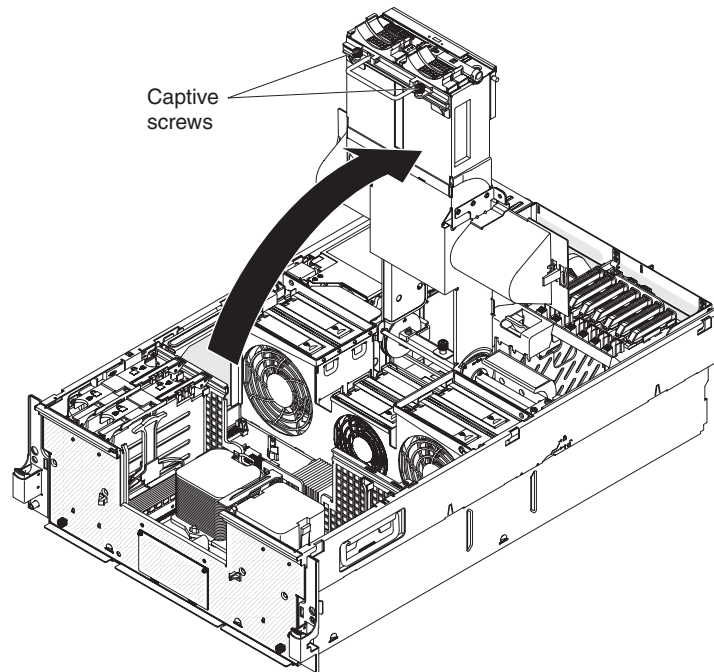
1. Slide the DVD drive into the server until it engages the interposer card or the SATA cable.
2. Install the top cover (see “Removing the top cover and bezel” on page 290).
3. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
4. Turn on all attached devices and the server.

Removing the fan cage

To remove the fan cage, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Loosen the two captive screws and open the media hood.



5. Pull up on the cage handles and remove the cage from the server.
6. If necessary, remove all fans.
7. If you are instructed to return the fan cage, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

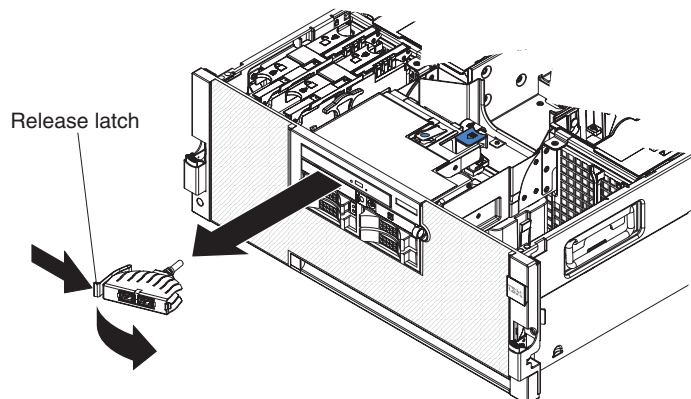
Replacing the fan cage

To install the replacement fan cage, complete the following steps:

1. Open the cage handles, and position the alignment pins over the matching slots on the chassis.
2. Press the cage into place, and rotate the handles to the closed position to secure the shuttle.
3. Close the media hood and tighten the captive screws.
4. Install the top cover and bezel (see "Removing the top cover and bezel" on page 290).
5. Connect the cables and power cords (see "Connecting the cables" on page 260 for cabling instructions).
6. Turn on all attached devices and the server.

Removing the front USB assembly

To remove the front USB assembly, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Disconnect the front USB cable from the I/O board and remove the cable from the cable channel (see “Cabling the I/O board shuttle internal connectors” on page 298).
5. Press on the release latch on the side of the USB mounting bracket and rotate the mounting bracket away from the server.
6. Pull the USB cable through the opening.
7. If you are instructed to return the front USB assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

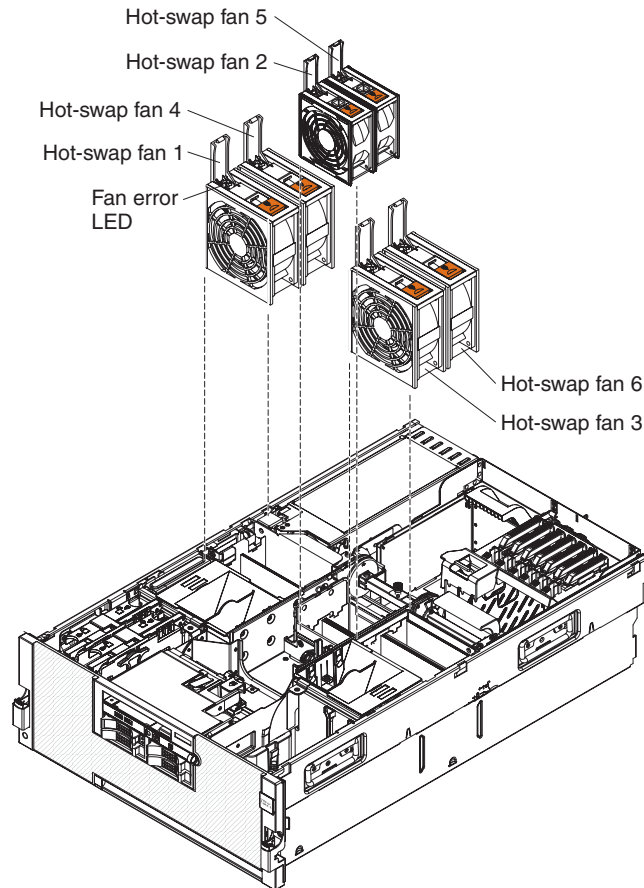
Replacing the front USB assembly

To install the replacement front USB assembly, complete the following steps:

1. Thread the USB cable through the opening.
2. Insert the tab at the opening, and rotate the bracket until it snaps in place.
3. Connect the USB cable to the USB connector on the I/O board and route the cable through the cable channel (see “Cabling the I/O board shuttle internal connectors” on page 298).
4. Install the top cover (see “Removing the top cover and bezel” on page 290).
5. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
6. Turn on all attached devices and the server.

Removing the hot-swap fan

To remove a hot-swap fan, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Remove the top cover (see “Removing the top cover and bezel” on page 290).
Attention: To ensure proper cooling and airflow, do not operate the server for more than 2 minutes with the top cover removed.
3. Open the fan-locking handle by sliding the orange release latch in the direction of the arrow.
4. Pull upward on the free end of the handle to lift the fan out of the server.
5. If you are instructed to return the fan, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

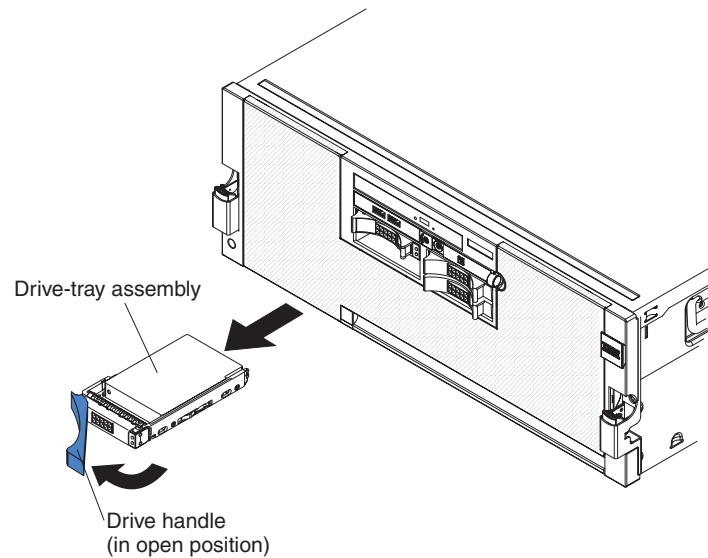
Replacing the hot-swap fan

To install the replacement hot-swap fan, complete the following steps:

1. Open the fan-locking handle on the replacement fan.
2. Lower the fan into the socket, and close the handle to the locked position.
3. Install the top cover (see “Removing the top cover and bezel” on page 290).
4. Make sure that the fan error LED on the replacement fan is off.

Removing the hot-swap hard disk drive

To remove the hot-swap hard disk drive, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Open the drive handle and pull the hard disk drive out of the server.
3. If you are instructed to return the hot-swap hard disk drive, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the hot-swap hard disk drive

To install the replacement hot-swap hard disk drive, complete the following steps:

1. Touch the static-protective package that contains the hard disk drive to any unpainted surface on the outside of the server; then, remove the hard disk drive from the package.
2. Make sure that the tray handle is open; then, install the hard disk drive into the hot-swap bay.
3. Check the hard disk drive status LEDs to make sure that the hard disk drive is operating correctly.

Removing the hot-swap power supply

When you remove or install a hot-swap power supply, observe the following precautions.

Statement 8:



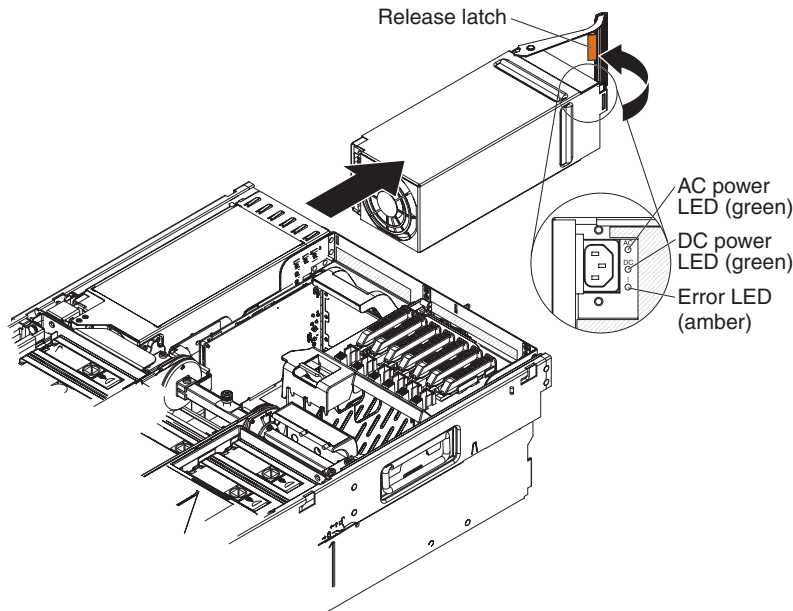
CAUTION:

Never remove the cover on a power supply or any part that has the following label attached.



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

To remove the hot-swap power supply, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.

Note: If your server has only one power supply installed, you must power off the server before you remove the power supply.

2. Disconnect the power cord from the connector on the back of the power supply.
3. Pull the orange release latch on the handle and pull the handle to the open position.
4. Pull the power supply out of the bay.
5. If you are instructed to return the hot-swap power supply, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the hot-swap power supply

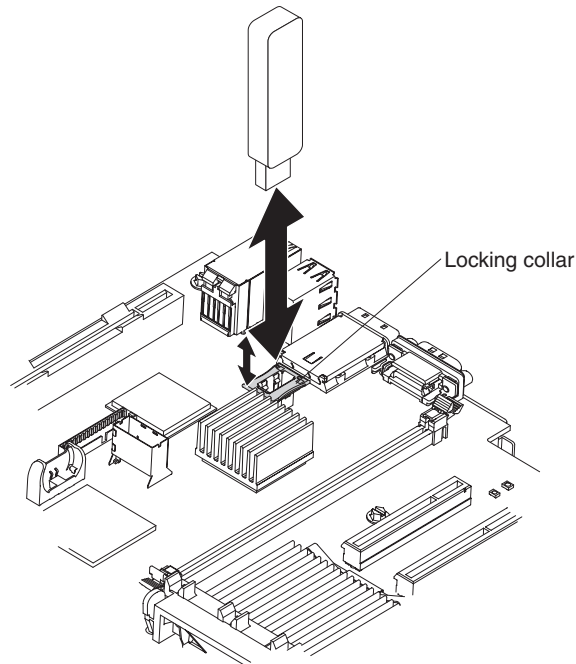
To install the replacement hot-swap power supply, complete the following steps:

1. Press the orange release latch on the handle and pull the handle to the open position.
2. Place the power supply into the bay and fully close the locking handle.
3. Connect one end of the power cord for the new power supply into the ac inlet on the back of the power supply, and connect the other end of the power cord into a properly grounded electrical outlet.
4. If the server is powered off, turn the server on now.
5. Make sure that the ac power LED on the power supply is lit, indicating that the power supply is operating correctly. If the server is turned on, make sure that the dc power LED on the top of the power supply is lit also.

Removing the internal flash memory

To remove the internal flash memory (or hypervisor key), complete the following steps.

1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Remove the top cover (see “Removing the top cover and bezel” on page 290).
3. Push down on the locking lever to unlock the internal flash memory.



4. Lift the internal flash memory out of the connector.
5. If you are instructed to return the internal flash memory, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the internal flash memory

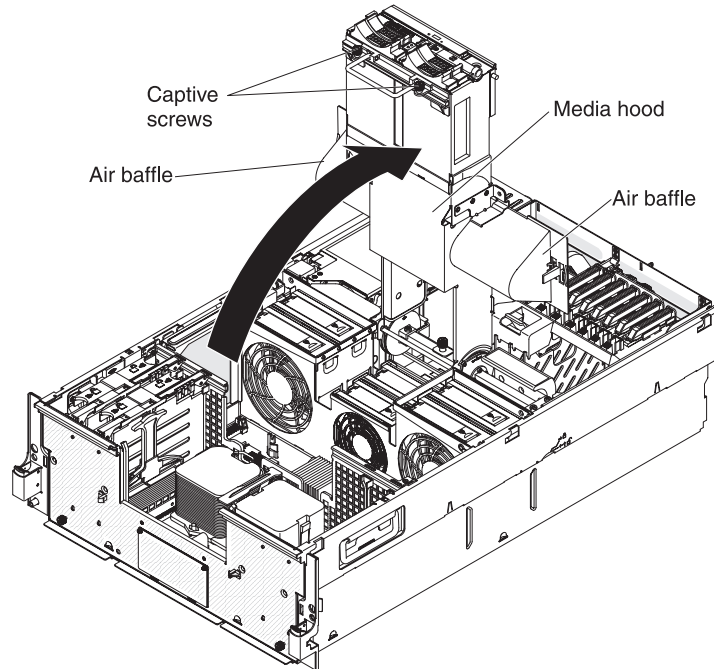
To install the replacement internal flash memory (or hypervisor key), complete the following steps:

1. Insert the internal flash memory into the connector.
2. Pull up on the locking lever to lock the internal flash memory in place.

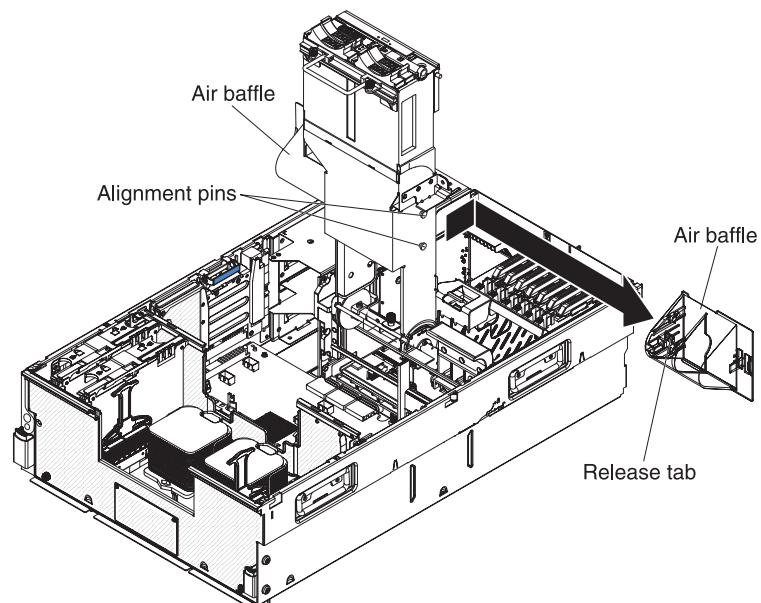
3. Install the top cover (see “Removing the top cover and bezel” on page 290).

Removing a media hood air baffle

There are two air baffles connected to the media hood. To remove one or both of the media hood air baffles, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Loosen the two captive screws and open the media hood.



5. Slide the air baffle off the retention pins and remove the air baffle from the server.
6. If you are instructed to return the media hood air baffle, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the media hood air baffle

To install the replacement media hood air baffle, complete the following steps:

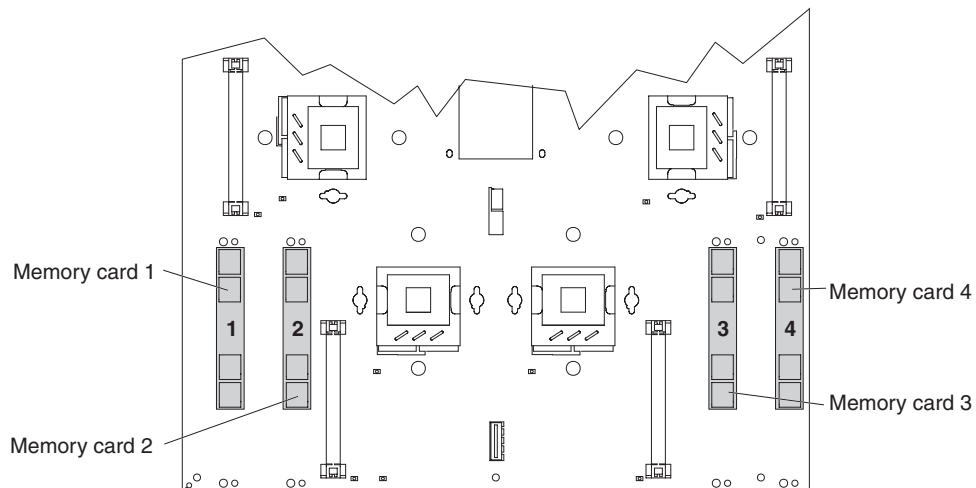
1. Position the air baffle on the retention pins and slide the air baffle into place.
2. Close the media hood and tighten the captive screws.
3. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
5. Turn on all attached devices and the server.

Memory cards and memory modules (DIMM)

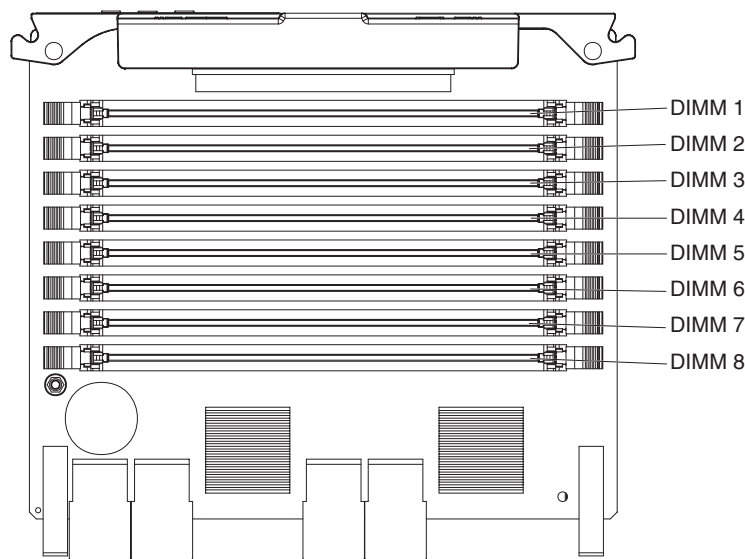
The following notes describe the types of dual inline memory modules (DIMMs) that the server supports and other information that you must consider when you install DIMMs:

- The server supports 1.8 V, 240-pin, PC2-5300 double data-rate (DDR) II, registered synchronous dynamic random-access memory (SDRAM) with error correcting code (ECC) DIMMs. These DIMMs must be compatible with the latest PC2-5300 SDRAM Registered DIMM specifications. For a list of the supported optional devices for the server, see <http://www.ibm.com/servers/eserver/serverproven/compat/us/>.
- The server supports up to four memory cards. Each memory card holds up to eight DIMMs.
- At least one memory card with one pair of DIMMs must be installed for the server to operate.
- When you install additional DIMMs on a memory card, be sure to install them in pairs.
- You do not have to save new configuration information to the BIOS when you install or remove DIMMs. The only exception is if you replace a DIMM that was designated as **Disabled** in the **Memory Settings** menu. In this case, you must re-enable the row in the Configuration/Setup Utility program or reload the default memory settings.
- The following notes describe information that you must consider when you hot-add DIMMs and memory cards:
 - The server must contain a minimum of 4 GB of memory.
 - You must enable hot-add memory in the Configuration/Setup Utility program:
 1. Turn on the server.
 2. When the prompt Press F1 for Configuration/Setup is displayed, press F1.
 3. From the Configuration/Setup Utility main menu, select **Advanced Setup**.
 4. Select **Memory Settings**.
 5. Enable the hot-add setting from within this window.
 6. Save the settings and exit the Configuration/Setup Utility program.
 - The operating system must support the hot-add feature.

- If a single memory card is installed in memory-card connector 1, you can hot-add a memory card only in memory-card connector 2.
- If a single memory card is installed in memory-card connector 3, you can hot-add a memory card only in memory-card connector 4.
- If two memory cards are installed in memory-card connectors 1 and 3, you can hot-add two memory cards only in memory-card connectors 2 and 4.
- When you restart the server after you add or remove a DIMM, the server displays a message that the memory configuration has changed.
- Populate the memory-card connectors in numeric order, starting with connector 1. The following illustration shows the locations of the memory-card connectors.



- The following illustration shows the DIMM connectors on the memory card.



- Install the DIMMs on each memory card in the order shown in the following tables, depending on which memory configuration you want to use. You must install at least one pair of DIMMs on each memory card.

Table 11. Low-cost memory-card installation sequence

DIMM pair installation order	Memory card	Connector numbers
First	1	1 and 5

Table 11. Low-cost memory-card installation sequence (continued)

DIMM pair installation order	Memory card	Connector numbers
Second	2	1 and 5
Third	1	2 and 6
Fourth	2	2 and 6
Fifth	1	3 and 7
Sixth	2	3 and 7
Seventh	1	4 and 8
Eighth	2	4 and 8
Ninth	3	1 and 5
Tenth	4	1 and 5
Eleventh	3	2 and 6
Twelfth	4	2 and 6
Thirteenth	3	3 and 7
Fourteen	4	3 and 7
Fifteenth	3	4 and 8
Sixteenth	4	4 and 8

Table 12. High-performance memory-card installation sequence

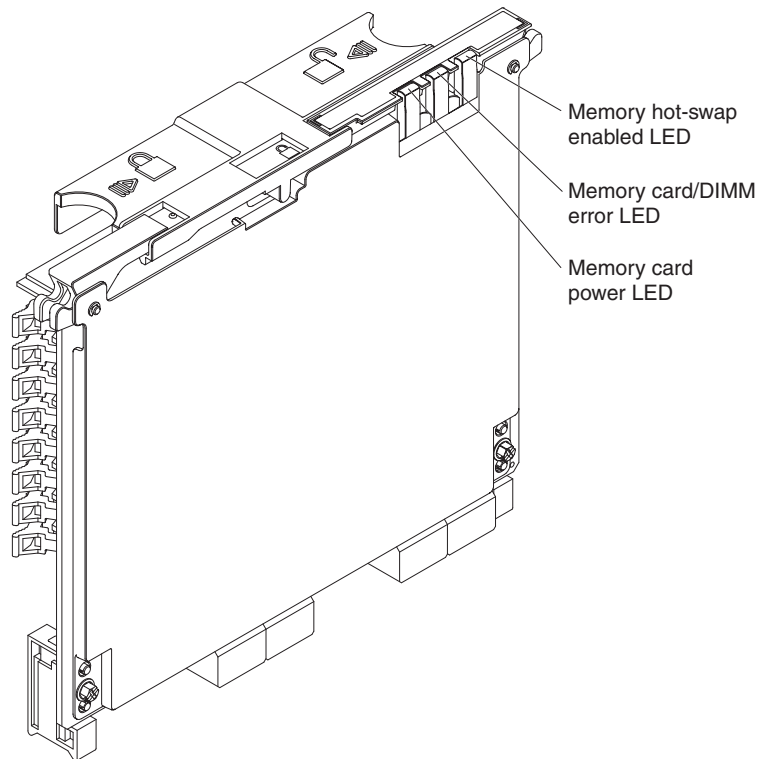
DIMM pair installation order	Memory card	Connector numbers
First	1	1 and 5
Second	2	1 and 5
Third	3	1 and 5
Fourth	4	1 and 5
Fifth	1	2 and 6
Sixth	2	2 and 6
Seventh	3	2 and 6
Eighth	4	2 and 6
Ninth	1	3 and 7
Tenth	2	3 and 7
Eleventh	3	3 and 7
Twelfth	4	3 and 7
Thirteenth	1	4 and 8
Fourteen	2	4 and 8
Fifteenth	3	4 and 8
Sixteenth	4	4 and 8

Table 13. Memory-card installation sequence for memory-mirroring configuration

DIMM pair installation order	Memory card	Connector numbers
First	1	1 and 5
	2	1 and 5
Second	3	1 and 5
	4	1 and 5
Third	1	2 and 6
	2	2 and 6
Fourth	3	2 and 6
	4	2 and 6
Fifth	1	3 and 7
	2	3 and 7
Sixth	3	3 and 7
	4	3 and 7
Seventh	1	4 and 8
	2	4 and 8
Eighth	3	4 and 8
	4	4 and 8

- There are four memory power buses, which are split among the four memory cards.
- For memory mirroring, you must install DIMMs in sets of four, one pair in each memory card. All DIMMs in each set must be the same size and type. Memory cards 1 and 2 mirror each other, and memory cards 3 and 4 mirror each other.
- If a problem with a DIMM is detected, light path diagnostics will light the system-error LED on the front of the server, indicating that there is a problem and guiding you to the defective DIMM. When this occurs, first identify the defective DIMM; then, remove and replace the DIMM.

The following illustration shows the LEDs that are visible on top of the memory card.



Memory hot-swap enabled LED: When this LED is lit, it indicates that hot-swap memory is enabled.

Memory card/DIMM error LED: When this LED is lit, it indicates that a memory card or DIMM has failed.

Memory card power LED: When this LED is off, it indicates that power is removed from the card and that you can remove the memory card and replace a failed DIMM. This LED also turns off when the release levers are opened.

Active Memory

Active Memory™ is an IBM technology that improves the reliability of the DIMMs through the memory mirroring, memory scrubbing, and Memory ProteXion™ features.

The following notes describe the Active Memory features:

- Memory mirroring enables you to improve the reliability of the memory in your server by creating a mirror of the data in memory port 1 and storing it in memory port 2.

Note: For memory mirroring to work, DIMMs of the same size and clock speed must be installed in both memory ports.

To enable memory mirroring, complete the following steps:

1. Install DIMMs of the same size and clock speed in the two memory ports.
2. Enable memory mirroring in the Configuration/Setup Utility program:
 - a. Turn on the server.
 - b. When the prompt Press F1 for Configuration/Setup is displayed, press F1.
 - c. From the Configuration/Setup Utility main menu, select **Advanced Setup**.
 - d. Select **Memory Settings**.

- e. Select **Memory Mirroring Settings**.
- f. Enable the memory mirroring setting from within this window.
- g. Save the settings and exit the Configuration/Setup Utility program.

When memory mirroring is enabled, the data that is written to memory is stored in two locations. One copy is stored in the memory port 1 DIMMs, while a second copy is stored in the memory port 2 DIMMs. During a read operation, the data is read from the DIMM with the fewest reported memory errors through memory scrubbing.

If memory scrubbing determines that a DIMM is damaged beyond use, read and write operations are redirected to the remaining good DIMMs. Memory scrubbing then reports the damaged DIMM and light path diagnostics displays the error. After the damaged DIMM is replaced, memory mirroring then copies the mirrored data back into the new DIMM.

- Memory scrubbing is an automatic daily test of all the system memory that detects and reports memory errors that might be developing before they cause a server outage.

Note: Memory scrubbing and Memory ProteXion technology work with each other and do not require that memory mirroring be enabled.

When an error is detected, memory scrubbing determines whether the error is recoverable. If it is recoverable, Memory ProteXion is enabled, and the data that was stored in the damaged locations is rewritten to a new location. The Memory ProteXion event is logged for informational purposes. Provided that there are enough good locations to enable the correct operation of the server, no further action is taken other than recording the event in the error logs.

If the error is not recoverable, memory scrubbing sends an error message to light path diagnostics, which lights LEDs to guide you to the damaged DIMM. If memory mirroring is enabled, the mirrored copy of the data in the mirrored DIMM is used to refresh the new DIMM after it is installed.

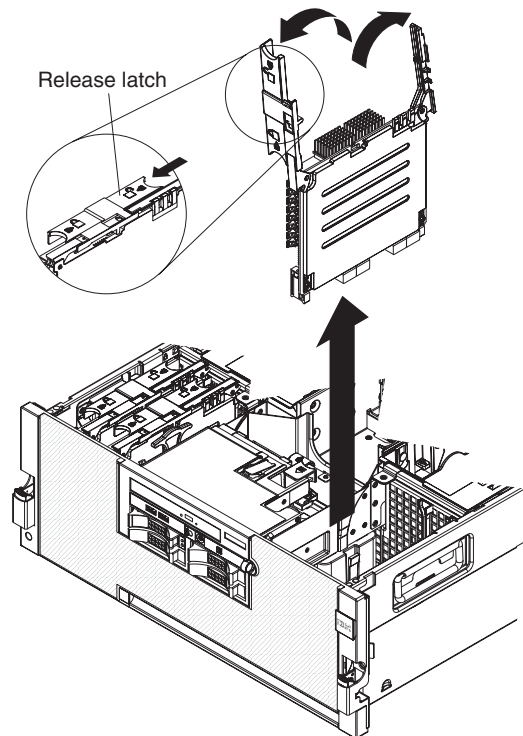
- Memory ProteXion reassigns memory bits to new locations within memory when recoverable errors have been detected.

When a recoverable error is found by memory scrubbing, the Memory ProteXion feature writes the data that was to be stored in the damaged memory locations to spare memory locations within the same DIMM.

Removing a memory card

At least one memory card with one pair of DIMMs must be installed for the server to operate correctly.

To remove a memory card, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. If you are not hot-swapping a memory card, turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
Attention: To ensure proper cooling and airflow, do not operate the server for more than 2 minutes with the top cover removed.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
Attention: To avoid loss of data, make sure that the memory port power LED is off before you remove the memory card.
4. Slide the orange release latch to the unlocked position and open the retention levers; then, lift the memory card out of the server.
5. If necessary, remove all DIMMs.
6. If you are instructed to return the memory card, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the memory card

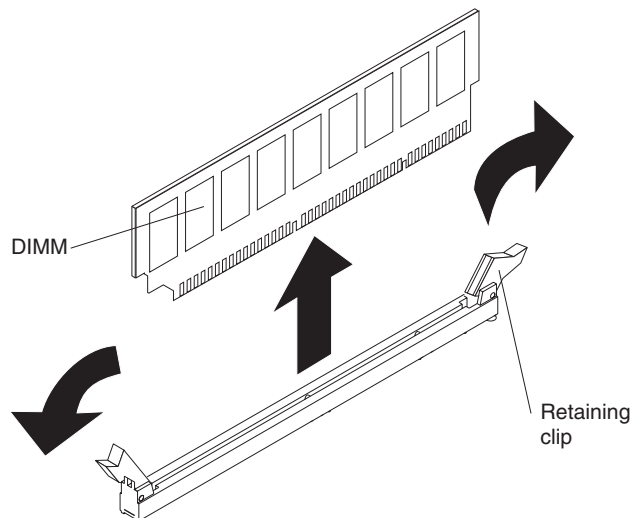
To install the replacement memory card, complete the following steps:

1. Insert the memory card into the memory-card connector. As you press the memory card into the connector, both retention latches will lock into place.
2. Wait 2 seconds; then, slide the orange release latch to the locked position.
3. Install the top cover (see “Removing the top cover and bezel” on page 290).

Removing a DIMM

DIMMs must be installed in pairs of the same type and speed. To use the memory mirroring feature, all the DIMMs that are installed in the server must be of the same type and speed, and the operating system must support memory mirroring.

To remove a DIMM, complete the following steps.

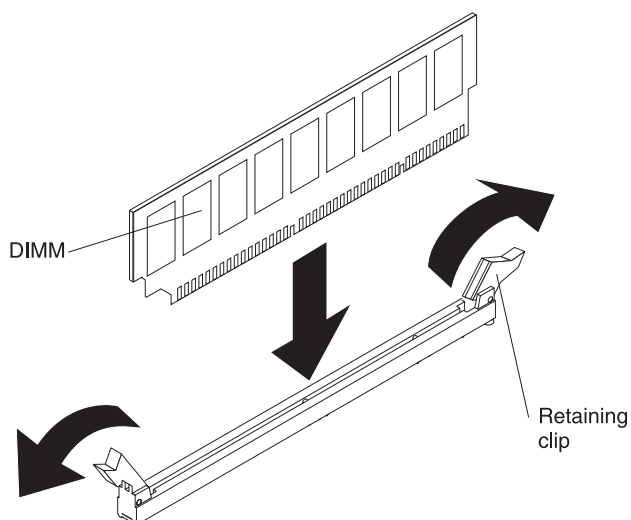


1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. If you are not hot-swapping a DIMM, turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
Attention: To ensure proper cooling and airflow, do not operate the server for more than 2 minutes with the top cover removed.
4. Remove the memory card (see “Removing a memory card” on page 284).
5. Place the memory card on a flat static-protective surface, with the DIMM connectors facing up.
Attention: To avoid breaking the DIMM retaining clips or damaging the DIMM connectors, open and close the clips gently.
6. Open the retaining clip on each end of the DIMM connector and remove the DIMM from the connector.
7. If you are instructed to return the DIMM, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing a DIMM

To install the replacement DIMM, complete the following steps:

1. Open the retaining clip on each end of the DIMM connector.
2. Touch the static-protective package that contains the DIMM to any unpainted metal surface on the server. Then, remove the DIMM from the package.
3. Turn the DIMM so that the DIMM keys align correctly with the slot.



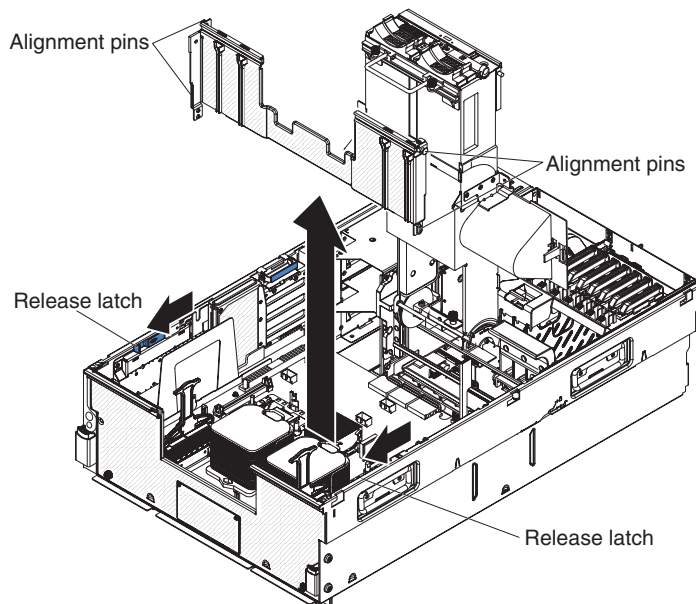
4. Insert the DIMM into the connector by aligning the edges of the DIMM with the slots at the ends of the DIMM connector. Firmly press the DIMM straight down into the connector by applying pressure on both ends of the DIMM simultaneously. The retaining clips snap into the locked position when the DIMM is firmly seated in the connector.

Important: If there is a gap between the DIMM and the retaining clips, the DIMM has not been correctly inserted; open the retaining clips, remove the DIMM, and then reinsert it.

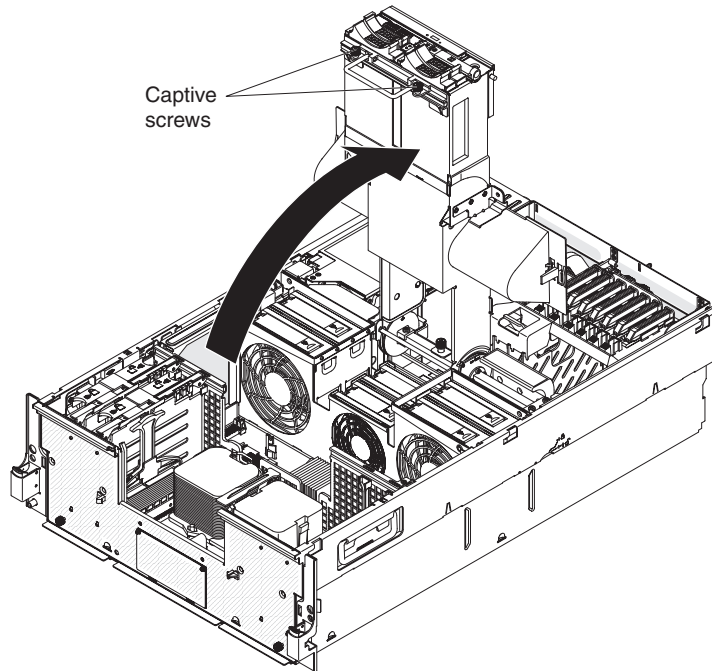
5. Reinstall the memory card (see “Removing a memory card” on page 284).
6. Install the top cover (see “Removing the top cover and bezel” on page 290).
7. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
8. If you turned off the server to replace the DIMM, turn on all attached devices and the server.

Removing the memory-card guide

To remove the memory-card guide, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Loosen the two captive screws and open the media hood.



5. Remove the memory cards (see “Removing a memory card” on page 284).
6. Slide the release latches toward the front of the server to disengage the latches.
7. Pull the guide up and remove the guide from the server.
8. If you are instructed to return the memory card guide, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the memory-card guide

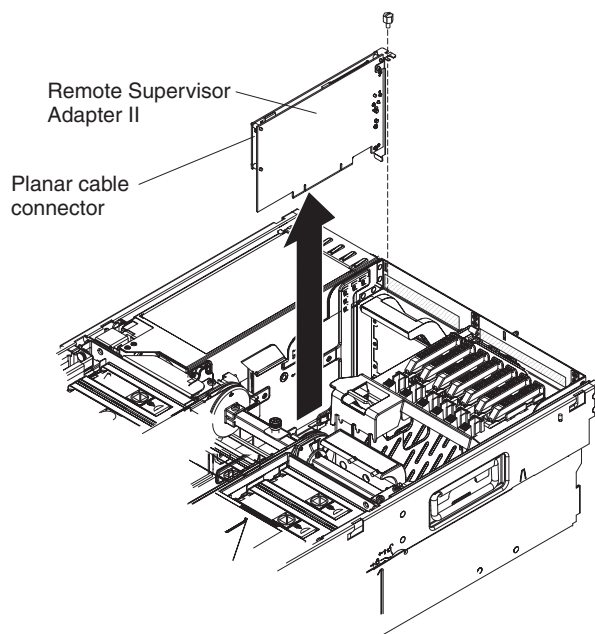
To install the replacement memory-card guide, complete the following steps:

1. Use the alignment guides to position the memory-card guide and slide the guide into the server.
2. Slide the release latches toward the rear of the server.
3. Reinstall the memory cards (see “Replacing the memory card” on page 285).
4. Close the media hood and tighten the captive screws.
5. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
6. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
7. Turn on all attached devices and the server.

Removing the Remote Supervisor Adapter II

The Remote Supervisor Adapter II must be installed in its dedicated connector on the I/O board.

To remove the Remote Supervisor Adapter II, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Loosen the retention screw on the chassis and remove the screw from the server.
5. Disconnect the planar cable from the Remote Supervisor Adapter II.
6. Remove the Remote Supervisor Adapter II from the server.
7. If you are instructed to return the Remote Supervisor Adapter II, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

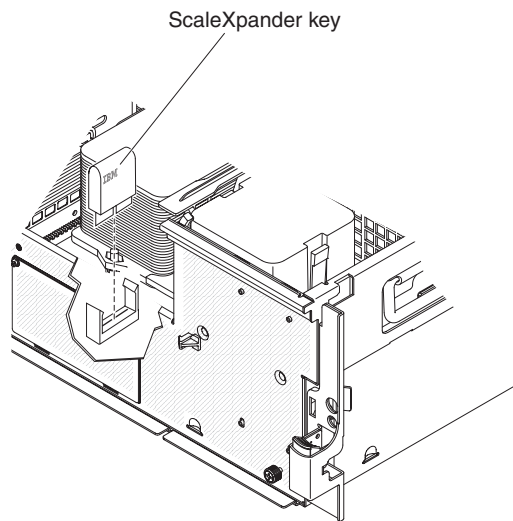
Replacing the Remote Supervisor Adapter II

To install the replacement Remote Supervisor Adapter II, complete the following steps:

1. Connect the planar cable to the Remote Supervisor Adapter II.
2. Press the Remote Supervisor Adapter II firmly into the connector.
3. Install the retention screw on the chassis.
4. Install the top cover (see “Removing the top cover and bezel” on page 290).
5. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
6. Turn on all attached devices and the server.
7. See the *Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* on the IBM System x Documentation CD for information about setting up and cabling the Remote Supervisor Adapter II.

Removing the ScaleXpander key

To remove the ScaleXpander key, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel”).
4. Lift the ScaleXpander key out of the connector.
5. If you are instructed to return the ScaleXpander key, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the ScaleXpander key

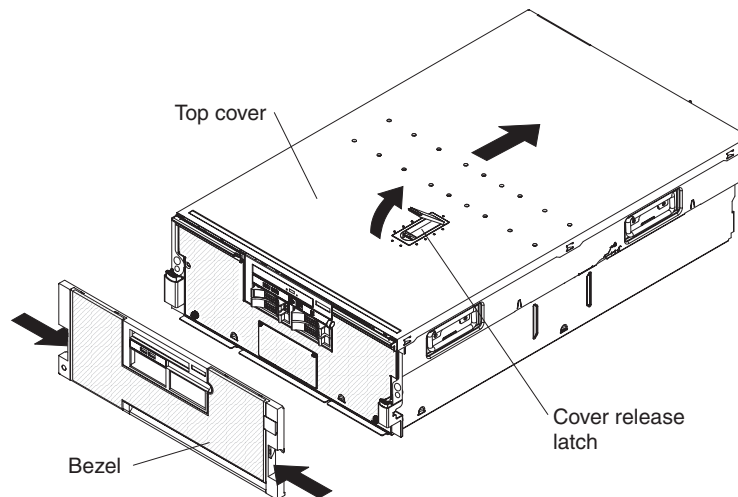
To install the replacement ScaleXpander key, complete the following steps:

1. Turn the ScaleXpander key so that the keys align with the slot.
2. Insert the ScaleXpander key into the connector and firmly press the ScaleXpander key straight down into the connector.
3. Install the top cover and bezel (see “Removing the top cover and bezel”).
4. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
5. Turn on all attached devices and the server.

Removing the top cover and bezel

Attention: Operating the server for more than 2 minutes with the top cover removed might damage server components. For proper cooling and airflow, replace the top cover before turning on the server.

To remove the top cover, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. If you are installing or replacing a non-hot-swap component, turn off the server and all peripheral devices, and disconnect the power cords and all external cables.
3. Slide the server out of the rack until the slide rails lock into place.
4. Lift the cover-release latch. The cover slides to the rear approximately 13 mm (0.5 inch). Lift the cover off the server.
5. If you are instructed to return the cover, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

To remove the bezel, complete the following steps:

1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Press on the bezel retention tabs at the sides of the bezel, and pull the bezel from the server.
3. If you are instructed to return the bezel, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Attention: Do not use the media hood handle to lift the server. Damage to the server might result. Only use the lift handles on each side of the chassis to lift the server.

Replacing the top cover and bezel

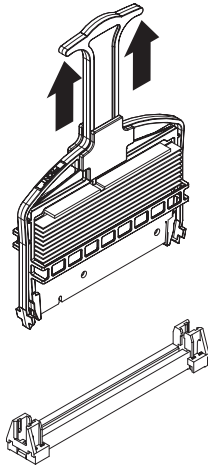
To install the top cover, complete the following steps:

1. Make sure that all internal cables are correctly routed.
2. Set the cover on top of the server so that approximately 13 mm (0.5 inch) extends from the rear.
3. Make sure that the cover-release latch is up.
4. Slide the top cover forward and into position, pressing the release latch closed.
5. Slide the server into the rack.

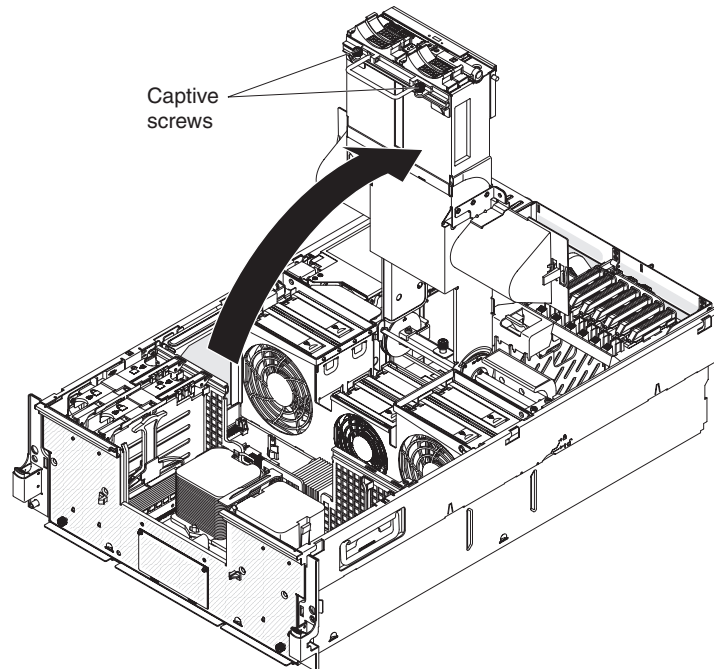
To install the bezel, align the studs with the matching holes; then, snap the bezel into place.

Removing the VRM

To remove the VRM, complete the following steps. See “Microprocessor-board connectors” on page 16 for the location of the VRM connectors.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Loosen the captive screws and rotate the media hood to the open position.

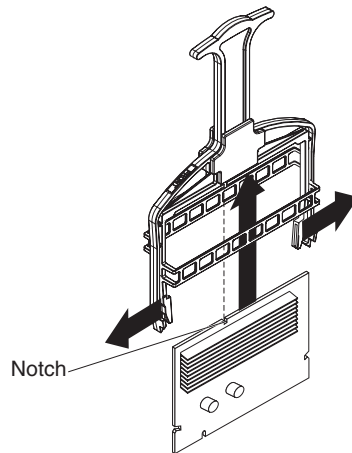


5. Pull on the VRM handle and remove the VRM from the server.
6. If you are instructed to return the VRM, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the VRM

To install the replacement VRM, complete the following steps:

1. If necessary, install the handle on the VRM.



2. Turn the VRM so that the keys align with the slot.
3. Insert the VRM into the connector by aligning the edges of the VRM with the slots at the end of the VRM connector. Firmly press the VRM straight down into the connector.

Note: Make sure that the “Front” label on the VRM is facing the front of the server.

4. Rotate the media hood to the closed position and tighten the captive screws.
5. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
6. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
7. Turn on all attached devices and the server.

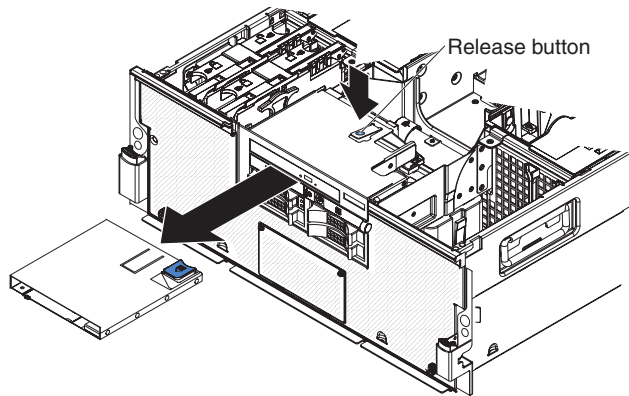
Removing and replacing Tier 2 CRUs

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your server.

The illustrations in this document might differ slightly from your hardware.

Removing the DVD housing with IDE interposer card assembly

To remove the DVD housing with an IDE interposer card assembly, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Remove the DVD drive (see “Removing the DVD drive” on page 270).
5. Remove the DVD drive backplane cable from the connector on the interposer card.
6. Press the blue release button above the assembly and push the assembly out of the server.
7. If you are instructed to return the DVD housing with interposer card assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

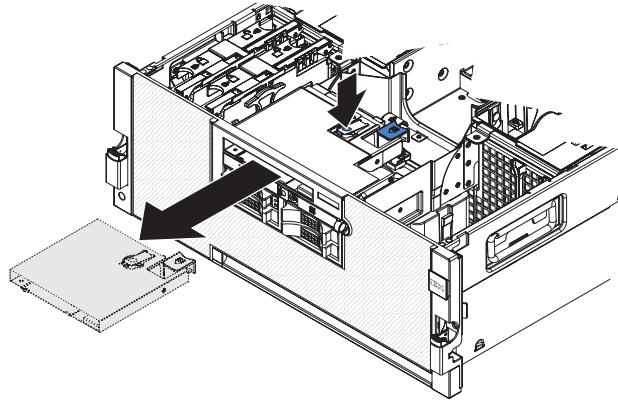
Replacing the DVD housing with IDE interposer card assembly

To install the replacement DVD housing with an IDE interposer card assembly, complete the following steps:

1. Insert the assembly into the server through the front.
2. Connect the DVD drive backplane cable.
3. Reinstall the DVD drive (see “Replacing the DVD drive” on page 270).
4. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
5. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
6. Turn on all attached devices and the server.

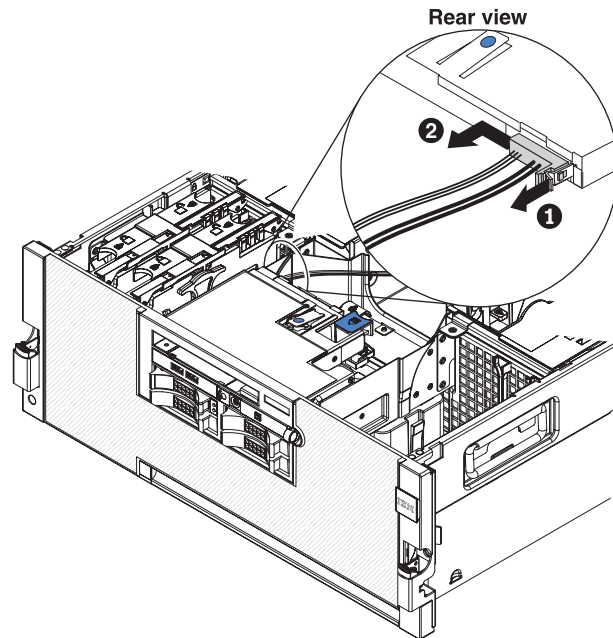
Removing the DVD housing with SATA cable

To remove the DVD housing, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Push the blue retention latch forward and pull the DVD drive out of the server.

5. Remove the SATA cable from the rear of the DVD housing.



- a. Pull out the cable retention latch.
 - b. Slide the cable connector slightly to the right to disengage it from the housing.
 - c. Pull out the cable to remove it from the DVD housing.
6. Push down on the tab on the top of DVD housing, then slide the housing out of the server.
 7. If you are instructed to return the DVD housing, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the DVD housing with SATA cable

To replace the DVD housing, complete the following steps:

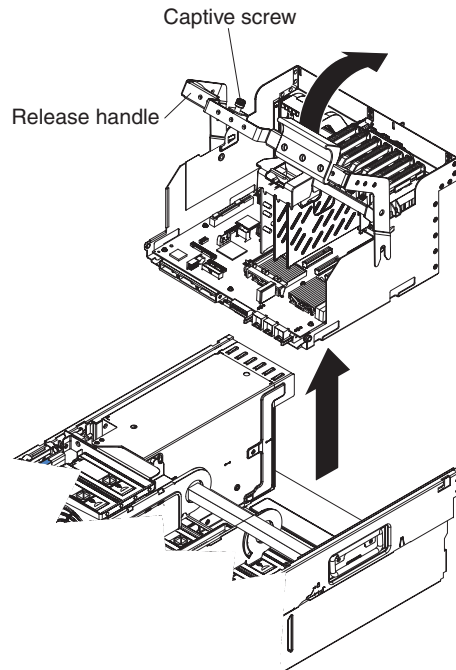
1. Slide the DVD housing into the server.
2. Connect the SATA cable to the rear of the DVD housing. Make sure the retention latch is fully engaged.
3. Slide the DVD drive into the DVD housing.
4. Install the top cover (see "Removing the top cover and bezel" on page 290).
5. Connect the cables and power cords (see "Connecting the cables" on page 260 for cabling instructions).
6. Turn on all attached devices and the server.

I/O board shuttle

The following describes the steps to remove, replace, and cable the I/O board shuttle.

Removing the I/O board shuttle

To remove the I/O board shuttle, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Note where each cable is connected, and then disconnect all cables from the I/O board.
5. Note where each adapter is installed and remove all adapters and adapter dividers. Place the adapters on a static-protective surface (see “Removing an adapter” on page 266).
6. Remove the ServeRAID-MR10k controller, if one is present (see “Removing the ServeRAID-MR10k SAS controller” on page 303).

Note: To avoid loss of data stored on the ServeRAID controller, keep the battery connected to the controller while the controller is removed from the server.

7. Remove the divider that contains the battery holder.
8. Remove the Remote Supervisor Adapter II (see “Removing the Remote Supervisor Adapter II” on page 289).
9. Loosen the captive screw on the shuttle and pull the release handle toward the rear of the server.
10. Lift the shuttle out of the server.
11. If you are instructed to return the I/O board shuttle, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

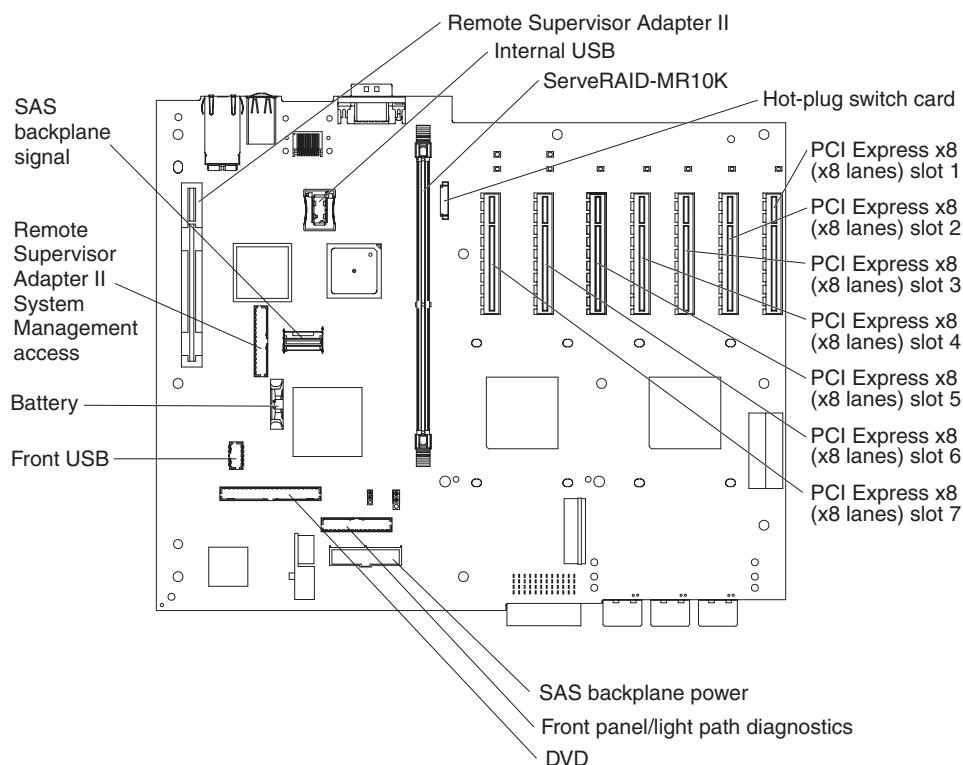
Replacing the I/O board shuttle

To install the replacement I/O board shuttle, complete the following steps:

1. Lower the shuttle into the server, using the alignment guides, and push the handle toward the front of the server.
2. Tighten the captive screw.
3. Connect all cables to the internal connectors on the I/O board.
4. Reinstall the adapter-retention bracket (see “Replacing the adapter-retention bracket” on page 268).
5. Reinstall the Remote Supervisor Adapter II (see “Replacing the Remote Supervisor Adapter II” on page 289).
6. Reinstall the divider that contains the battery holder.
7. Reinstall the ServeRAID-MR10k controller (see “Replacing the ServeRAID-MR10k SAS controller” on page 304).
8. Reinstall the adapters and adapter dividers (see “Replacing the adapter” on page 266).
9. Install the top cover (see “Removing the top cover and bezel” on page 290).
10. Connect the internal cables (see “Cabling the I/O board shuttle internal connectors” for cabling instructions).
11. Connect the power cords and external cables (see “Connecting the cables” on page 260 for cabling instructions).
12. Turn on all attached devices and the server.

Cabling the I/O board shuttle internal connectors

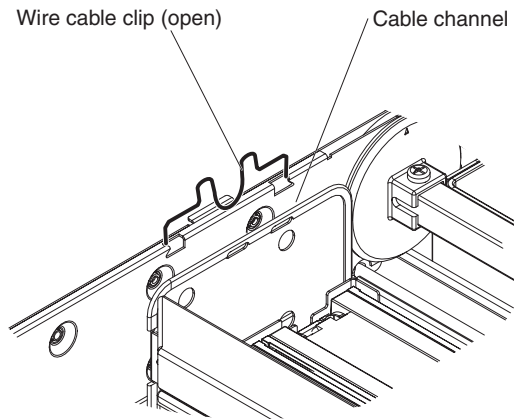
The following illustration shows the internal connectors on the I/O board.



To cable the I/O board shuttle internal connectors, complete the following steps.

Important:

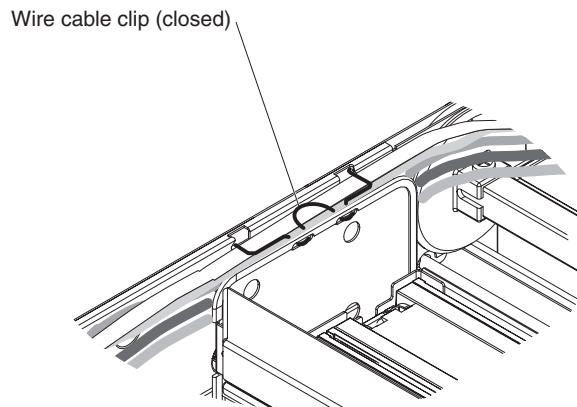
- For ease of installation, always route the cable through the cable channel before you attach the cable to its connector.



- To minimize cabling problems, layer the cables in the cable channel in the order listed in these instructions.
 - To prevent cable tension from accidentally disconnecting the cables, be sure to maintain sufficient slack in each cable before and after the cable clamp.
1. Make sure that the PCI switch card ribbon cable is attached to the I/O board and the hot-swap switch card.
 2. After you install the Remote Supervisor Adapter II, connect the planar cable to the I/O board.

Note: For ease of installation, connect the planar cable to the Remote Supervisor Adapter II and install the Remote Supervisor Adapter II; then, connect the planar cable to the I/O board.

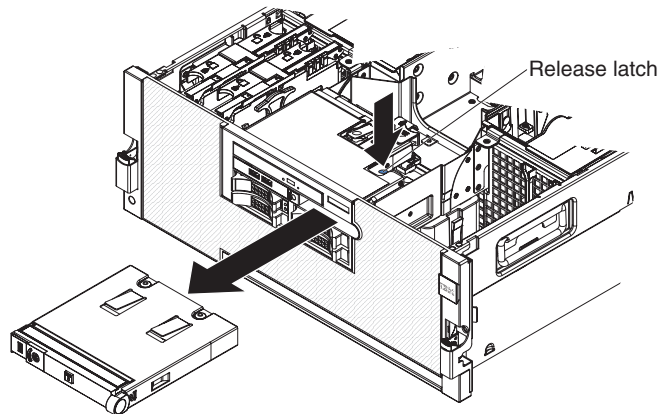
3. In the order listed, route the following cables through the cable channel; then, connect the cables to the I/O board.
 - a. SAS power cable
 - b. SAS 4x signal cable
 - c. Operator information panel cable
 - d. Dual USB ports cable
 - e. DVD cable
4. Close the wire cable clip.



Note: Open and close the media hood to make sure that all cables have sufficient slack to prevent accidental disconnection.

Removing the operator information panel assembly

To remove the operator information panel assembly, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Disconnect the operator information panel ribbon cable from the assembly.
5. Press the blue release button above the assembly and pull the assembly out of the server.
6. If you are instructed to return the operator information panel assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

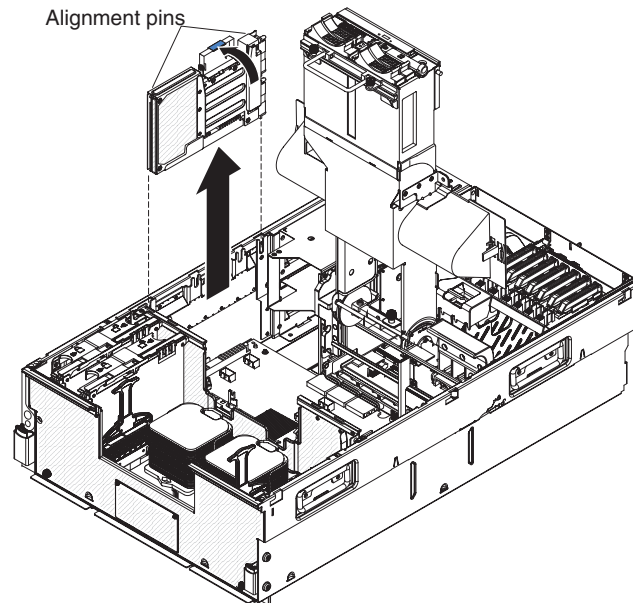
Replacing the operator information panel assembly

To install the replacement operator information panel assembly, complete the following steps:

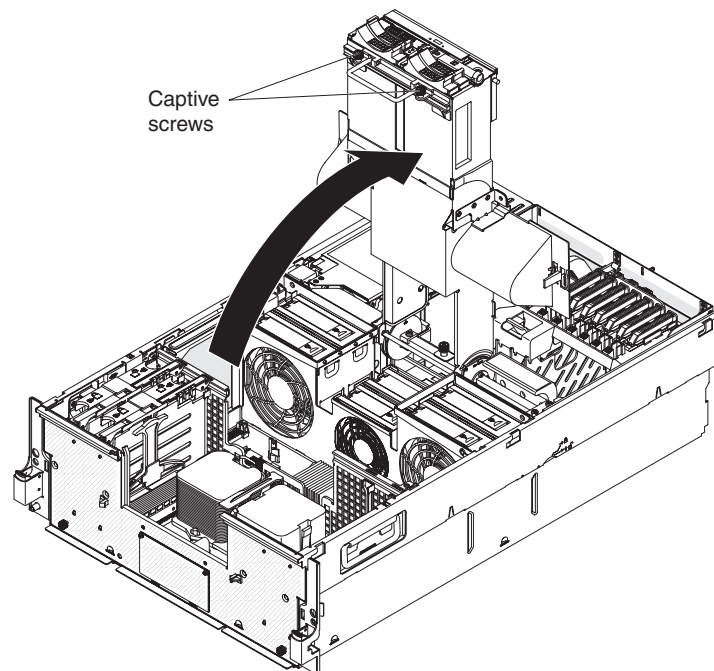
1. Insert the assembly into the server through the front.
2. Connect the operator information panel ribbon cable to the assembly.
3. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
5. Turn on all attached devices and the server and check the server for normal operation.

Removing the power backplane

To remove the power backplane, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Loosen the two captive screws and open the media hood.



5. Remove the fan cage (see “Removing the fan cage” on page 271).
6. Pull the power supplies out of the server slightly to disengage them from the power backplane.

7. Pull the blue handle to release the power backplane and remove the backplane from the server.
8. If you are instructed to return the power backplane, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

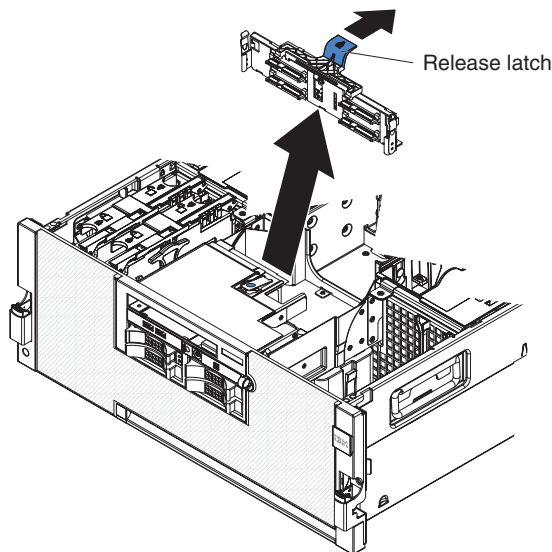
Replacing the power backplane

To install the replacement power backplane, complete the following steps:

1. Position the alignment pins over the matching slots and lower the power backplane into place.
2. Close the blue handle to secure the backplane.
3. Reinstall the fan cage (see “Replacing the fan cage” on page 272).
4. Slide the power supplies back into the server.
5. Close the media hood and tighten the captive screws.
6. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
7. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
8. Turn on all attached devices and the server.

Removing the SAS hard disk drive backplane assembly

To remove the SAS hard disk drive backplane assembly, complete the following steps.



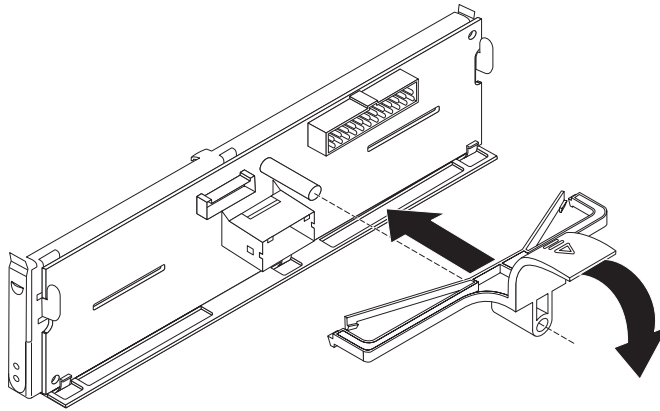
1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Pull the hard disk drives out of the server slightly to disengage them from the SAS backplane.

5. Pull the DVD housing with interposer card assembly out of the server slightly (see “Removing the DVD housing with IDE interposer card assembly” on page 293 for instructions to release the DVD housing assembly).
6. Move the front USB cable away from the SAS hard disk drive backplane assembly.
7. Disconnect the SAS signal cable and SAS power cable from the backplane.
8. Pull the handle toward the rear of the server to release the assembly; then, pull the assembly up from the server along the card guides.
9. If you are instructed to return the SAS hard disk drive backplane assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the SAS hard disk drive backplane assembly

To install the replacement SAS hard disk drive backplane assembly, complete the following steps:

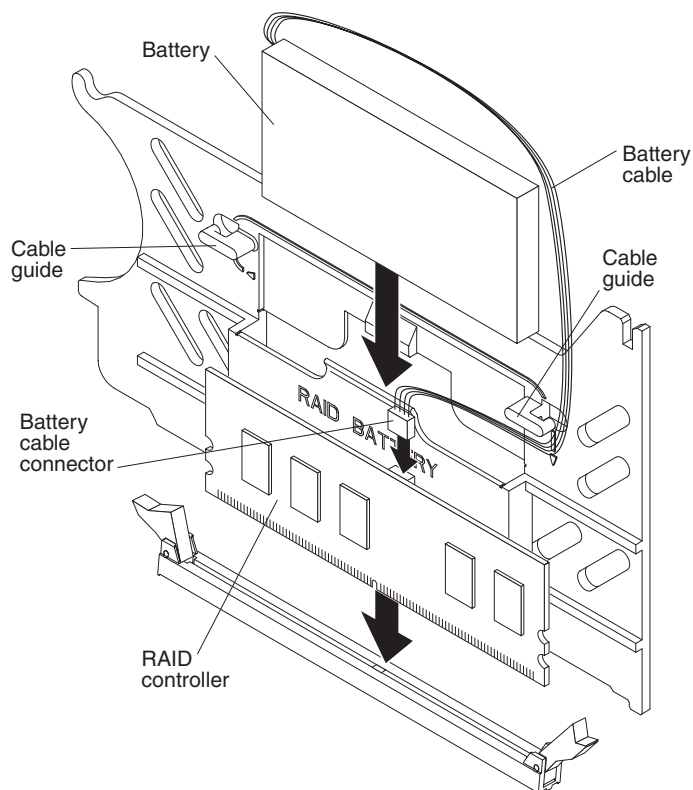
1. If necessary, install the handle on the backplane.



2. Slide the assembly into the card guides and press the handle forward to engage the assembly.
3. Reconnect the SAS signal cable and SAS power cable to the backplane.
4. Reinstall the hard disk drives and DVD housing with interposer card assembly.
5. Install the top cover (see “Removing the top cover and bezel” on page 290).
6. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
7. Turn on all attached devices and the server.

Removing the ServeRAID-MR10k SAS controller

To remove the ServeRAID-MR10k SAS controller, complete the following steps. See “Internal I/O board connectors” on page 19 for the location of the ServeRAID controller connector.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Disconnect the battery from the controller; then, lift the battery out of the mounting bracket on the PCI divider and remove the battery from the server.
5. Open the retaining clip on each end of the connector and remove the controller from the connector.
6. If you are instructed to return the ServeRAID-MR10k SAS controller, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the ServeRAID-MR10k SAS controller

To install the replacement ServeRAID-MR10k SAS controller, complete the following steps:

1. Remove the divider that contains the battery holder from the server.
2. Open the retaining clip on each end of the connector.
3. Touch the static-protective package that contains the ServeRAID-MR10k SAS controller to any unpainted metal surface on the outside of the server; then, remove the controller from the package.
4. Turn the controller so that the keys align correctly with the slot (see “Internal I/O board connectors” on page 19 for the location of the ServeRAID controller connector).
5. Insert the controller into the connector by aligning the edges of the controller with the slots at the ends of the connector.

Attention: Incomplete insertion might cause damage to the server or the ServeRAID-MR10k SAS controller.

6. Firmly press the controller straight down into the connector by applying pressure on both ends simultaneously. The retaining clips snap into the locked position when the controller is seated in the connector.
7. Install the battery in the divider that contains the battery holder.
8. Connect the battery cable to the ServeRAID-MR10k SAS controller.
9. Install the divider that contains the battery holder in the server.
10. Route the battery cable through the cable routing guides on the divider to the controller.
11. Install the top cover (see “Removing the top cover and bezel” on page 290).
12. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
13. Turn on all attached devices and the server.

Removing and replacing FRUs

FRUs must be installed only by trained service technicians.

Microprocessor

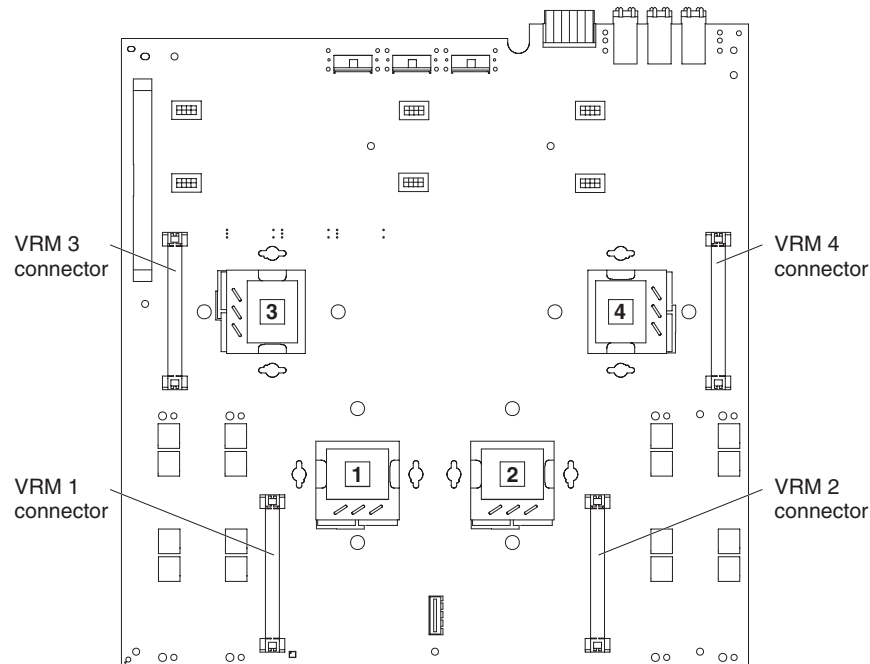
The following notes describe the type of microprocessor that the server supports and other information that you must consider when you replace a microprocessor:

- For a list of supported optional devices for the server, see <http://www.ibm.com/servers/eserver/serverproven/compat/us/>.
- The server supports up to four Intel Xeon microprocessors. If you are installing two or more microprocessors, they must be the same cache size and type, and the same clock speed.
- The server can operate as a symmetric multiprocessing (SMP) server. With SMP, certain operating systems and application programs can distribute the processing load among the microprocessors. This enhances performance for database and point-of-sale applications, integrated manufacturing solutions, and other applications.
- The voltage regulators that come with the optional microprocessor must be installed on the microprocessor board.
- Read the documentation that comes with the microprocessor to determine whether you have to update the basic input/output system (BIOS) code. To download the most current level of BIOS code for the server, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

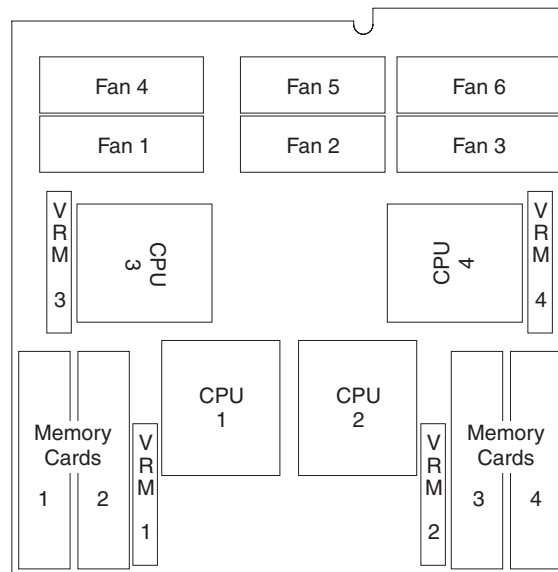
1. Go to <http://www.ibm.com/systems/support/>.
 2. Under **Product support**, click **System x**.
 3. Under **Popular links**, click **Software and device drivers**.
 4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.
- Obtain an SMP-capable operating system. For a list of supported operating systems, see <http://www.ibm.com/servers/eserver/serverproven/compat/us/>.
 - You can use the Configurations/Setup utility program to determine the specific type of microprocessor in the server.

- Populate the microprocessor sockets in numeric order, starting with socket 1. The following illustration shows the locations of the microprocessor sockets and VRM connectors on the microprocessor board.



Notes:

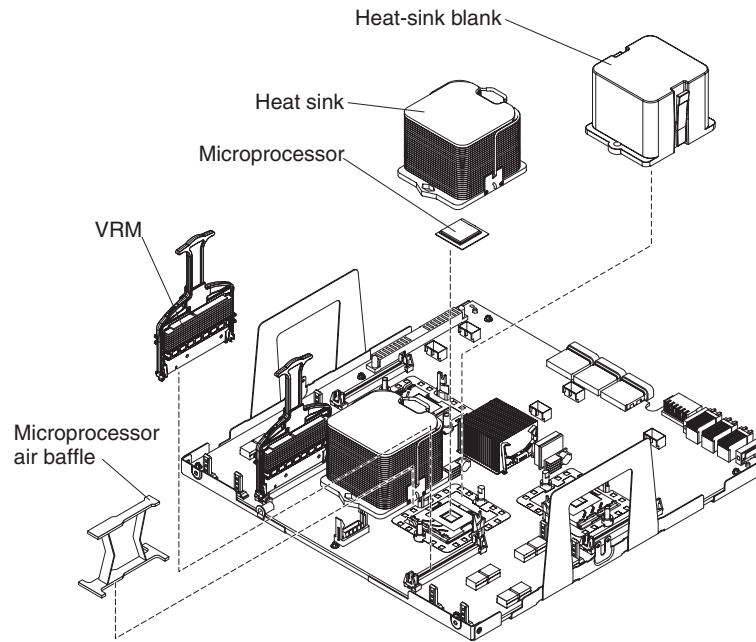
1. Microprocessor sockets 3 and 4 are mounted on the microprocessor board with the microprocessor-release levers on opposite sides. These sockets are oriented 180° from each other on the microprocessor board. Be sure to verify the orientation of the socket before you install the microprocessor in either of these sockets. The following illustration shows the orientation of the microprocessor sockets.



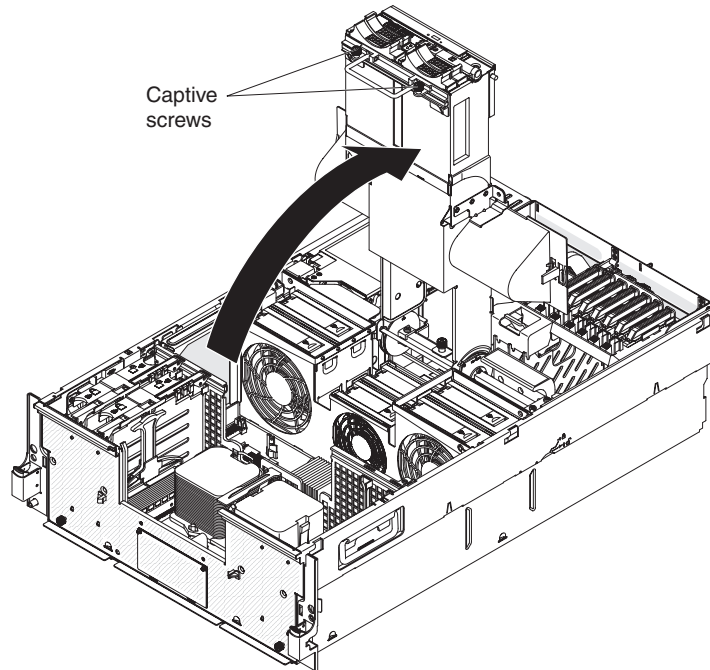
2. Microprocessor socket 2 must always contain either a heat-sink blank or a microprocessor and heat sink.
3. The microprocessor air-baffle must always be installed between microprocessor socket 1 and socket 2.

Removing a microprocessor and heat sink

To remove a microprocessor and heat sink, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Loosen the captive screws and rotate the media hood to the open position.



5. If necessary, remove the microprocessor air baffle from between socket 1 and socket 2.

6. Open the heat sink-release lever and remove the heat sink.

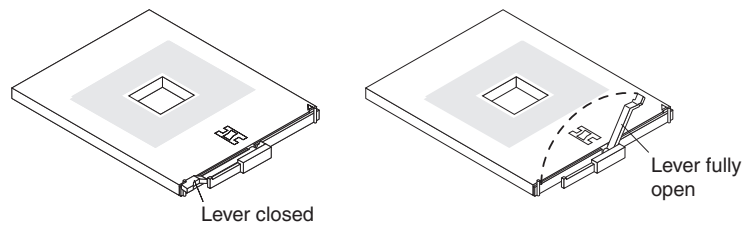
Note: The thermal adhesive material that secures the heat sink to the microprocessor might have formed a strong bond. Gently rotate the heat sink back and forth to help break this bond. When the heat sink moves back and forth easily, the bond is broken.

7. Open the microprocessor-release lever and remove the microprocessor from the microprocessor socket.
8. If you are instructed to return the microprocessor board and microprocessor, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Installing a microprocessor and heat sink

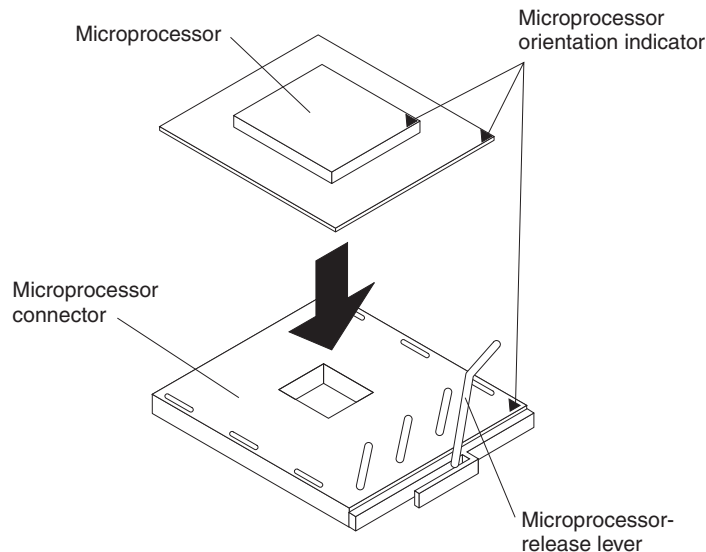
To install the replacement microprocessor and heat sink, complete the following steps:

1. Lift the microprocessor-release lever to the fully open position (approximately 135° angle).

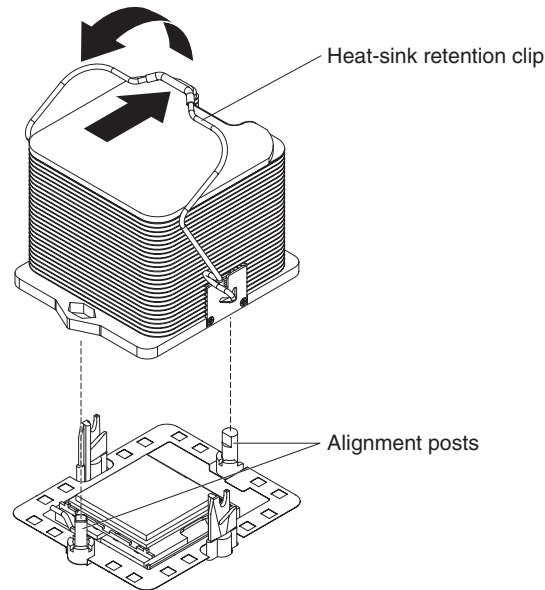


Attention: To avoid bending the pins on the microprocessor, do not use excessive force when you press it into the socket.

2. Position the microprocessor over the microprocessor socket as shown in the following illustration. Carefully press the microprocessor into the socket.



3. Close the microprocessor-release lever to secure the microprocessor.
4. Make sure that the heat-sink retaining clip is open.



5. If you are installing a new heat sink, remove the cover from the bottom of the heat sink. If you are reinstalling a heat sink that was previously removed, see “Thermal grease” for instructions on replacing the contaminated or missing thermal grease; then, return to this procedure and continue with step 6.
6. If necessary, remove the cover from the bottom of the heat sink.
7. Position the heat sink above the microprocessor and align the heat sink with the alignment posts; then, press on the top of the heat sink, rotate the heat-sink release lever, and move the lever to the locked position.
8. Install a VRM in the connector (see “Replacing the VRM” on page 293).
9. Replace the microprocessor air baffle between socket 1 and socket 2, if you removed it.
10. Rotate the media hood to the closed position and tighten the captive screws.
11. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
12. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
13. Turn on all attached devices and the server.

Thermal grease

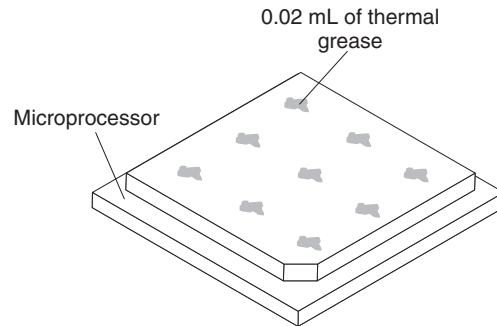
The thermal grease must be replaced whenever the heat sink has been removed from the top of the microprocessor and is going to be reused or when debris is found in the grease.

To replace damaged or contaminated thermal grease on the microprocessor and heat sink, complete the following steps:

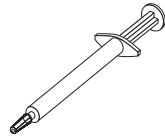
1. Place the heat sink on a clean work surface.
2. Remove the cleaning pad from its package and unfold it completely.
3. Use the cleaning pad to wipe the thermal grease from the bottom of the heat sink.

Note: Make sure that all of the thermal grease is removed.

4. Use a clean area of the cleaning pad to wipe the thermal grease from the microprocessor; then, dispose of the cleaning pad after all of the thermal grease is removed.



5. Use the thermal-grease syringe to place 9 uniformly spaced dots of 0.02 mL each on the top of the microprocessor. The outermost dots must be within 5 mm of the edge.



Note: 0.01mL is one tick mark on the syringe. If the grease is properly applied, approximately half of the grease will remain in the syringe.

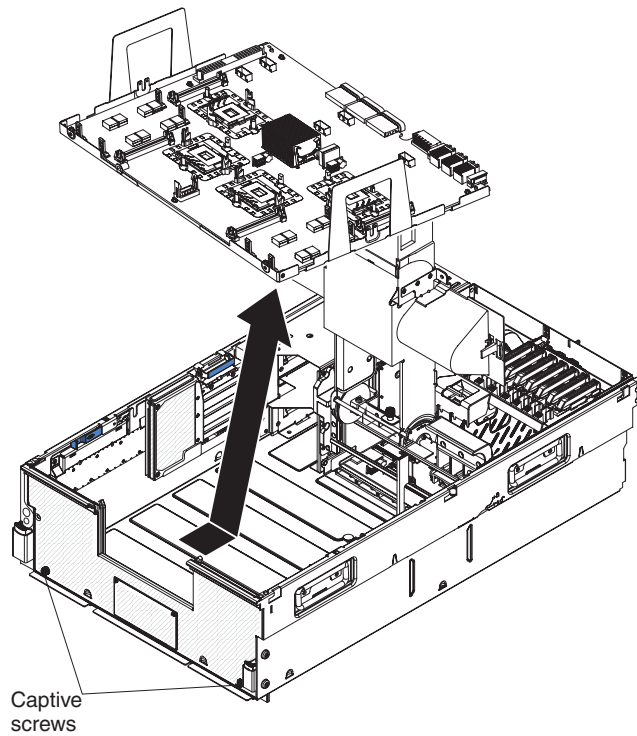
6. Install the heat sink onto the microprocessor as described in “Removing a microprocessor and heat sink” on page 307.

Removing the microprocessor-board assembly

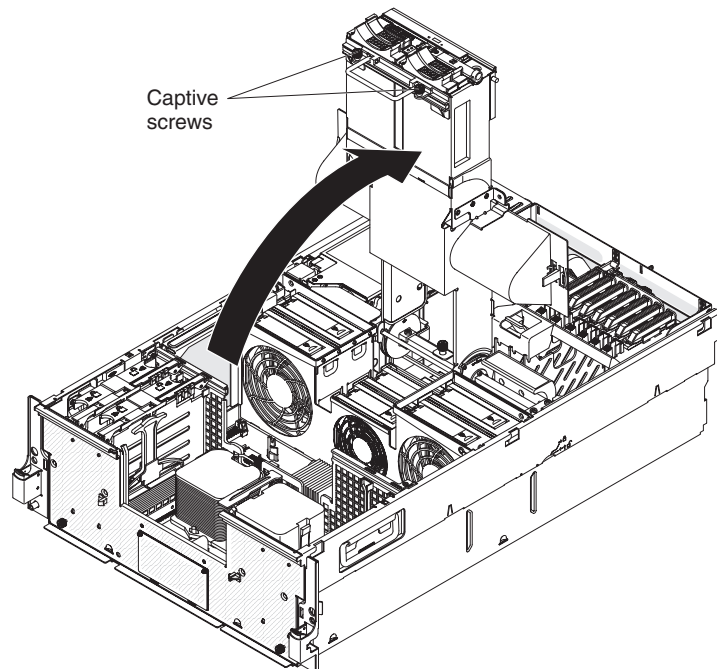
The following notes describe information that you must consider when replacing the microprocessor-board assembly:

Note: The partition data is stored on the microprocessor-board assembly and is lost when the microprocessor-board assembly is replaced. If the server is assigned to a multi-node configuration, you must reconfigure the scalable partition.

To remove the microprocessor-board assembly, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Disengage the I/O board shuttle from the microprocessor-board assembly.
5. Loosen the two captive screws and open the media hood.



6. Remove the ScaleXpander key, if one is installed (see “Removing the ScaleXpander key” on page 290).
7. Remove the memory cards (see “Removing a memory card” on page 284).
8. Remove the microprocessors (see “Removing a microprocessor and heat sink” on page 307).
9. Remove the VRMs (see “Removing the VRM” on page 292).
10. Remove the memory-card guide (see “Removing the memory-card guide” on page 287).
11. Remove the fan cage (see “Removing the fan cage” on page 271).
12. Remove the power backplane (see “Removing the power backplane” on page 301).
13. Loosen the captive screws on the front of the server.
14. Slide the assembly back slightly toward the rear of the server; then, lift the assembly out at an angle.
15. If you are instructed to return the microprocessor-board assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the microprocessor-board assembly

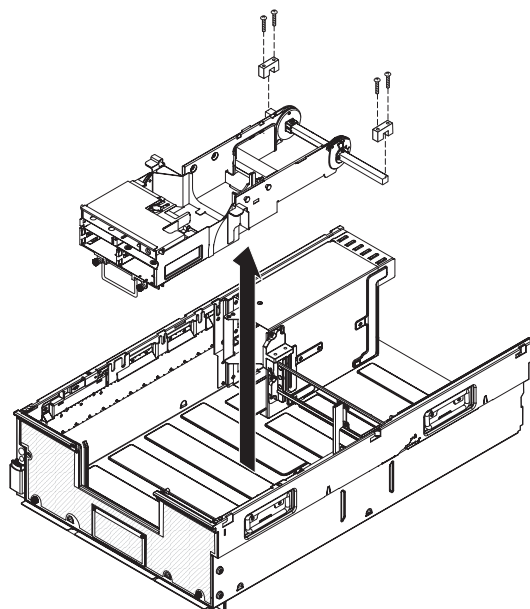
To install the replacement microprocessor-board assembly, complete the following steps.

1. Insert the assembly in the server at an angle; then, slide the assembly forward toward the front of the server.
2. Tighten the captive screws.
3. Reinstall the power backplane (see “Replacing the power backplane” on page 302).
4. Reinstall the fan cage (see “Replacing the fan cage” on page 272).
5. Reinstall the memory-card guide (see “Replacing the memory-card guide” on page 288).
6. Reinstall the microprocessors (see “Installing a microprocessor and heat sink” on page 308).
7. Reinstall the VRMs (see “Replacing the VRM” on page 293).
8. Reinstall the memory cards (see “Replacing the memory card” on page 285).
9. Reinstall the ScaleXpander key, if necessary (see “Replacing the ScaleXpander key” on page 290).
10. Close the media hood and tighten the captive screws.
11. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
12. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
13. Turn on all attached devices and the server.

Removing the media hood assembly

To remove the media hood assembly, complete the following steps.

Note: You must have a Philips screwdriver available to remove and replace the media hood assembly.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover and bezel (see “Removing the top cover and bezel” on page 290).
4. Pull the hard disk drives out of the server.
5. Remove the front USB assembly (see “Removing the front USB assembly” on page 273).
6. Remove the operator information panel assembly (see “Removing the operator information panel assembly” on page 300).
7. Remove the DVD housing with interposer card assembly and the DVD drive (see “Removing the DVD housing with IDE interposer card assembly” on page 293).
8. Remove the SAS hard disk drive backplane (see “Removing the SAS hard disk drive backplane assembly” on page 302).
9. Note where each cable is connected, then disconnect each cable in the cable channel.
10. Disengage but do not remove the I/O board shuttle assembly (see “Removing the I/O board shuttle” on page 297).
11. Loosen the captive screws on the front of the media hood.
12. Remove the media hood air baffles (see “Removing a media hood air baffle” on page 278).
13. Remove the four screws and two brackets on the pivot arm of the media hood.

Notes:

- a. Only remove the four screws when the assembly is flat in the chassis.
 - b. You might find it helpful to lift the fan cage handle slightly to access the screws.
14. Support the front and back of the media hood and lift the assembly out of the server.

15. If you are instructed to return the media hood assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the media hood assembly

To install the replacement media hood assembly, complete the following steps:

1. Lower the media hood assembly into the chassis and make sure that the assembly is level with the chassis.
2. Seat the pivot arm on the support castings and make sure that the assembly is seated at the front of the chassis.

Note: Check the following for proper installation:

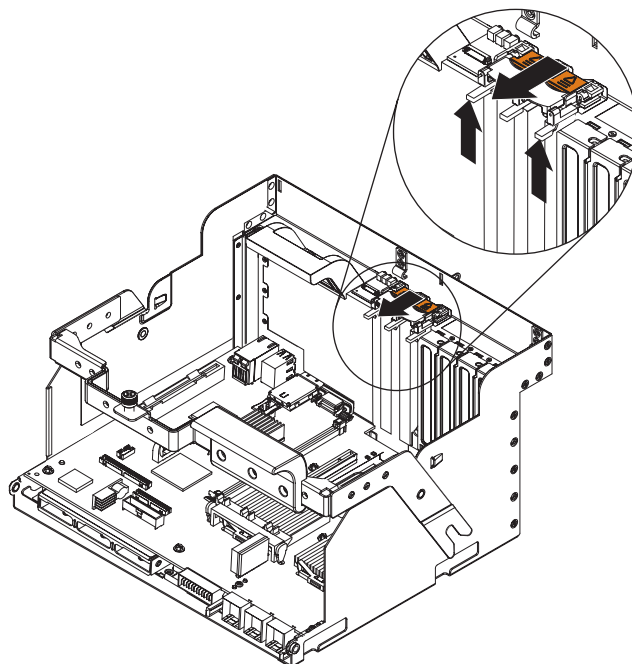
- The front of the chassis is not pushed out and that the assembly is aligned correctly.
 - The pivot arm is not rotated and that it is resting flat on the supports.
3. Install the two brackets and four screws on the pivot arm. Do not over tighten the screws.
 4. Raise and lower the assembly to make sure that it is aligned correctly and not interfering with the chassis front.

Note: If the assembly is misaligned, loosen the four screws and realign the assembly.

5. Install the media hood air baffles (see “Replacing the media hood air baffle” on page 279).
6. Install the SAS hard disk drive backplane (see “Replacing the SAS hard disk drive backplane assembly” on page 303).
7. Install the DVD housing with interposer card (see “Replacing the DVD housing with IDE interposer card assembly” on page 294).
8. Install the operator information panel assembly (see “Replacing the operator information panel assembly” on page 300).
9. Install the front USB assembly (see “Replacing the front USB assembly” on page 273).
10. Install the DVD drive and hard disk drives.
11. Install the I/O board shuttle assembly (see “Replacing the I/O board shuttle” on page 297).
12. Install the cables in the cable channel and reconnect each cable (see “Cabling the I/O board shuttle internal connectors” on page 298).
13. Install the top cover and bezel (see “Removing the top cover and bezel” on page 290).
14. Connect the cables and power cords (see “Connecting the cables” on page 260 for cabling instructions).
15. Turn on all attached devices and the server.

Removing the PCI switch-card assembly

To remove the PCI switch-card assembly, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Note where each adapter is installed and remove the adapters near the PCI switch-card assembly. Place the adapters on a static-protective surface (see “Removing an adapter” on page 266).
5. Remove any expansion-slot covers near the PCI switch-card assembly.
6. Disconnect the PCI switch-card ribbon cable.
7. Lift the release latches to disengage the assembly and slide the assembly toward the front of the chassis.
8. If you are instructed to return the PCI switch-card assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

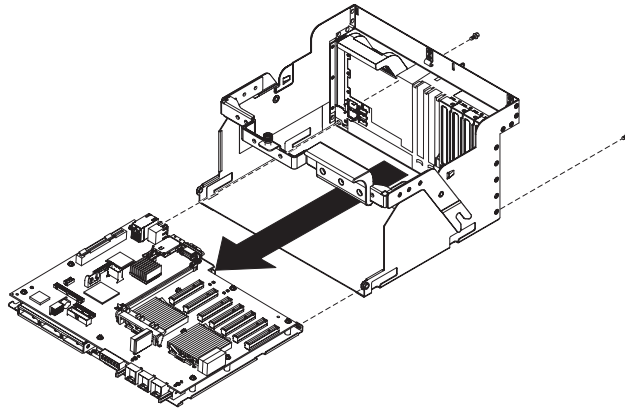
Replacing the PCI switch-card assembly

To install the replacement PCI switch-card assembly, complete the following steps:

1. Align the assembly with the slots on the chassis and slide the assembly into place. Make sure that the assembly is firmly attached.
2. Connect the PCI switch-card ribbon cable.
3. Reinstall the expansion-slot covers.
4. Reinstall the adapters (see “Replacing the adapter” on page 266).
5. Install the top cover (see “Removing the top cover and bezel” on page 290).
6. Connect the power cords and external cables (see “Connecting the cables” on page 260 for cabling instructions).
7. Turn on all attached devices and the server.

Removing the rear I/O shuttle

To remove the rear I/O shuttle, complete the following steps.



1. Read the safety information that begins on page vii and “Installation guidelines” on page 257.
2. Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.
3. Remove the top cover (see “Removing the top cover and bezel” on page 290).
4. Remove the I/O board shuttle assembly from the server and place it on a flat surface (see “Removing the I/O board shuttle” on page 297).
5. Remove the clear plastic sheet from the I/O board.
6. Remove the two screws from the rear of the I/O board shuttle assembly.
7. Slide the I/O board out of the I/O board shuttle.
8. If you are instructed to return the rear I/O shuttle, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Replacing the rear I/O shuttle

To install the replacement rear I/O shuttle, complete the following steps:

1. Align the I/O board on the rear I/O shuttle and slide the I/O board into place.
2. Secure the I/O board on the rear I/O shuttle with two screws.
3. Install the clear plastic sheet on the I/O board.
4. Install the I/O board shuttle assembly in the server and reconnect all internal cables (see “Replacing the I/O board shuttle” on page 297).

Note: Make sure that you correctly replace the cables in the cable channel (see “Cabling the I/O board shuttle internal connectors” on page 298).

5. Install the top cover (see “Removing the top cover and bezel” on page 290).
6. Connect the power cords and external cables (see “Connecting the cables” on page 260 for cabling instructions).
7. Turn on all attached devices and the server.

Chapter 6. Configuring the server

The following configuration programs come with the server:

- **Configuration/Setup Utility program**

The Configuration/Setup Utility program is part of the basic input/output system (BIOS). Use it to configure serial port assignments and scalable partitions, change interrupt request (IRQ) settings, change the startup-device sequence, set the date and time, and set passwords. For information about using this program, see “Using the Configuration/Setup Utility program” on page 318.

- **IBM ServerGuide Setup and Installation CD**

The ServerGuide program provides software-setup tools and installation tools that are designed for the server. Use this CD during the installation of the server to configure basic features, such as an integrated SAS controller with RAID capabilities, and to simplify the installation of your operating system. For information about using this CD, see “Using the ServerGuide Setup and Installation CD” on page 327.

- **Boot Menu program**

The Boot Menu program is part of the BIOS. Use it to override the startup sequence that is set in the Configuration/Setup Utility program and temporarily assign a device to be first in the startup sequence. For information about using this program, see “Using the Boot Menu program” on page 329.

- **Ethernet controller configuration**

For information about configuring the Ethernet controller, see “Configuring the Gigabit Ethernet controller” on page 329.

- **Baseboard management controller utility programs**

Use these programs to configure the baseboard management controller, to apply updates to the firmware, and to remotely manage a server. For information about using these programs, see “Using the baseboard management controller utility programs” on page 330.

- **Remote Supervisor Adapter II configuration**

For information about setting up and cabling the Remote Supervisor Adapter II, see the *Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* on the IBM System x Documentation CD.

- **IBM Electronic Service Agent**

IBM Electronic Service Agent is a software tool that monitors the server for error events and automatically submits electronic service requests to the IBM Support Center. Also, it can collect and transmit system configuration information on a scheduled basis so that the information is available to you and your support representative. It uses minimal system resources, is available free of charge, and can be downloaded from the Web. For more information and to download Electronic Service Agent, go to <http://www.ibm.com/support/electronic/>.

- **RAID configuration programs**

- **LSI Logic Configuration Utility program**

Use the LSI Logic Configuration Utility program to perform the initial configuration on the disk-array subsystem that is connected to the integrated SAS controller with RAID capabilities and, optionally, the ServeRAID-MR10k controller. For information about using this program, see “Using the LSI Logic Configuration Utility program” on page 334.

- **LSI Logic MegaRAID Storage Manager program**

Use LSI Logic MegaRAID Storage Manager program to monitor and manage the disk-array subsystem *after* you install the operating system. For information about using this program, see “Using the LSI Logic MegaRAID Storage Manager program” on page 335.

- **Scalable-partition configuration**

For information about creating and managing scalable partitions, see “Using the Scalable Partition Web interface” on page 335.

- **IBM Advanced Settings Utility (ASU)**

Use ASU to modify firmware settings from the command line without the need to restart the system to access the Configuration/Setup Utility program. You can also use ASU to issue selected baseboard management controller setup commands. The ASU supports scripting environments through its batch-processing mode. For more information and to download the Advanced Settings Utility, go to <http://www.ibm.com/systems/support/>.

Using the Configuration/Setup Utility program

Use the Configuration/Setup Utility program to perform the following tasks:

- View configuration information
- View and change assignments for devices and I/O ports
- Set the date and time
- Set and change passwords
- Set the startup characteristics of the server and the order of startup devices
- Set and change settings for advanced features
- View and clear error logs
- Change interrupt request (IRQ) settings
- Define when the memory scrubbing feature performs a system memory test
- Resolve configuration conflicts

Starting the Configuration/Setup Utility program

To start the Configuration/Setup Utility program, complete the following steps:

1. Turn on the server.
2. When the prompt Press F1 for Configuration/Setup is displayed, press F1. If you have set both a power-on password and an administrator password, you must type the administrator password to access the full Configuration/Setup Utility menu. If you do not type the administrator password, a limited Configuration/Setup Utility menu is available.
3. Select settings to view or change.

Configuration/Setup Utility menu choices

The following choices are on the Configuration/Setup Utility main menu. Depending on the version of the BIOS code, some menu choices might differ slightly from these descriptions.

- **System Summary**

Select this choice to view configuration information, including the type, speed, and cache sizes of the microprocessors, type and speed of installed USB devices, and the amount of installed memory. When you make configuration

changes through other choices in the Configuration/Setup Utility program, the changes are reflected in the system summary; you cannot change settings directly in the system summary.

This choice is on the full and limited Configuration/Setup Utility menu.

- **System Information**

Select this choice to view information about the server. When you make changes through other choices in the Configuration/Setup Utility program, some of those changes are reflected in the system information; you cannot change settings directly in the system information.

This choice is on the full Configuration/Setup Utility menu only.

- **Product Data**

Select this choice to view the machine type and model of the server, the serial number, the revision level or issue date of the BIOS and diagnostics code stored in electrically erasable programmable ROM (EEPROM), and the revision level of the firmware on the Remote Supervisor Adapter II.

- **System Card Data**

Select this choice to view vital product data (VPD) for some server components.

- **Devices and I/O Ports**

Select this choice to view or change assignments for devices and input/output (I/O) ports.

Select this choice to enable or disable integrated SAS and Ethernet controllers and all standard ports (such as serial and parallel). **Enable** is the default setting for all controllers. If you disable a device, it cannot be configured, and the operating system will not be able to detect it (this is equivalent to disconnecting the device). If you disable the integrated Ethernet controller and no Ethernet adapter is installed, the server will have no Ethernet capability.

This choice is on the full Configuration/Setup Utility menu only.

- **Date and Time**

Select this choice to set the date and time in the server, in 24-hour format (*hour:minute:second*).

This choice is on the full Configuration/Setup Utility menu only.

- **System Security**

Select this choice to set passwords. See “Passwords” on page 326 for more information about passwords. You can also enable the chassis-intrusion detector to alert you each time the server cover is removed.

This choice is on the full Configuration/Setup Utility menu only.

- **Power-on Password**

Select this choice to set or change a power-on password. For more information, see “Power-on password” on page 326.

- **Administrator Password**

Attention: If you set an administrator password and then forget it, there is no way to change, override, or remove it. You must replace the microprocessor board.

Select this choice to set or change an administrator password. An administrator password is intended to be used by a system administrator; it limits access to the full Configuration/Setup Utility menu. If an administrator password is set, the full Configuration/Setup Utility menu is available only if you type the administrator password at the password prompt. See “Administrator password” on page 327 for more information.

- **Start Options**

Select this choice to view or change the start options. Changes in the start options take effect when you restart the server.

You can set keyboard operating characteristics, such as the keyboard speed, and you can specify whether the server starts with the keyboard number lock on or off.

The startup sequence specifies the order in which the server checks devices to find a boot record. The server starts from the first boot record that it finds. If the server has Wake on LAN and software and the operating system supports Wake on LAN functions, you can specify a startup sequence for the Wake on LAN functions.

If you have installed an embedded hypervisor, you must use the Configuration/Setup Utility program to change the startup sequence to boot the embedded hypervisor.

If you enable the boot fail count, the default settings will be restored after three consecutive failures to find a boot record.

You can enable a virus-detection test that checks for changes in the boot record when the server starts.

You can enable the use of a USB keyboard from a DOS prompt or through the Configuration/Setup Utility program.

This choice is on the full Configuration/Setup Utility menu only.

- **Advanced Setup**

Select this choice to change settings for advanced features.

Important: The server might malfunction if these settings are incorrectly configured. Follow the instructions on the screen carefully.

This choice is on the full Configuration/Setup Utility menu only.

- **Memory Settings**

Select this choice to view and change the memory settings.

- **Memory Bank Enable/Disable**

Select this choice to manually enable a pair of DIMM connectors. If a memory error is detected during POST or memory configuration, the server automatically disables the failing pair of DIMM connectors and continues operating with reduced memory. After the problem is corrected, you must manually enable the DIMM connectors. Use the arrow keys to highlight the pair of DIMM connectors that you want to enable, and use the arrow keys to select **Enable**.

- **Memory Array Setting**

Select this choice to define the memory array setting.

- **Memory Initialization Scrub Control**

Select this choice to define the frequency of the memory initialization scrub, which occurs during POST.

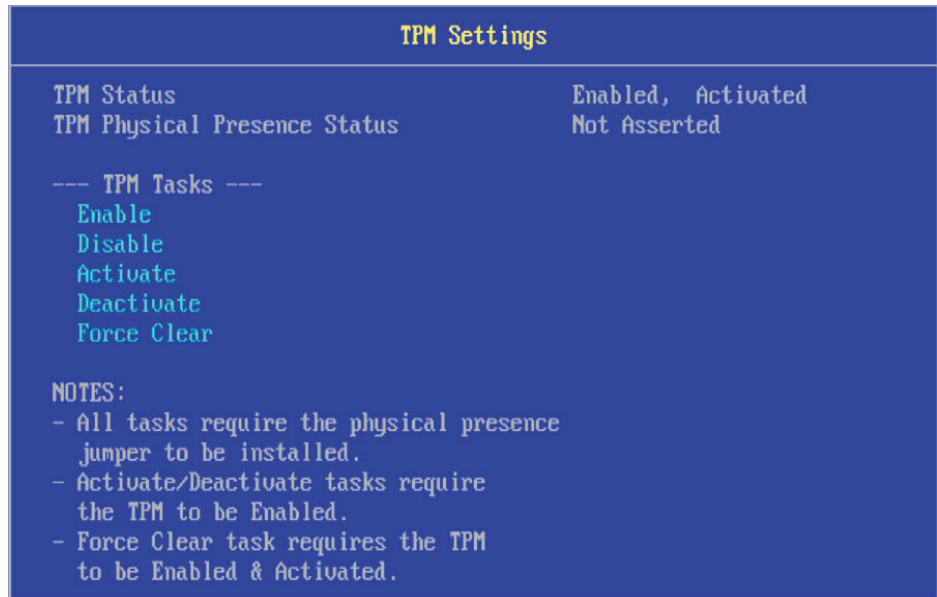
- **Run Time Scrub Rate**

Select this choice to define the rate at which the memory scrubbing feature performs a test of all system memory.

- **CPU Options**

Select this choice to view and change the microprocessor performance settings, and to select the clustering technology settings.

- **Active Energy Manager Power Capping**
Select this choice to limit the maximum power consumed by the microprocessors.
- **Processor Performance States**
Select this choice to make available operating-system based performance features.
- **Clustering Technology**
Select this choice to set the clustering technology.
- **Processor Adjacent Sector Prefetch**
Select **Disable** to force the microprocessors to only fetch the sector of the cache line that contains the data currently required by the microprocessor. **Disable** is the default value.
- **Processor Prefetcher**
Select this choice to enable or disable the prefetcher. **Enable** is the default value.
- **Processor Execute Disable Bit**
Select this choice enable or disable the execute disable bit feature. **Enable** is the default value.
- **Intel Virtualization Technology**
Select this choice to enable or disable the Intel virtualization technology. Select **Enable** to make available the additional capabilities of virtual machine extensions. **Enable** is the default value.
- **Processor IP Prefetcher**
Select this choice to enable or disable the IP prefetcher. **Enable** is the default value.
- **Processor DCU Prefetcher**
Select this choice to enable or disable the DCU prefetcher. **Enable** is the default value.
- **C1E**
Select this choice to enable or disable the C1E feature. The C1E feature reduces microprocessor power consumption. **Enable** is the default value.
- **TPM Menu**
The following graphic is an example of the TPM menu.



Select this choice to view or change the Trusted Platform Module (TPM) status. TPM is implemented as a chip (the TPM). The current status of the TPM and the physical presence status are displayed. To perform any tasks on the TPM, you must assert physical presence by installing a physical presence jumper in the server. (For more information about the physical presence jumper, go to Table 3 on page 18.) To change the TPM status, select one of the following tasks:

- **Enable**

Select this choice to enable the TPM. When the TPM is enabled, you can perform the Activate and Deactivate tasks, and you can perform the Force Clear task if the TPM is also activated.

- **Disable**

Select this choice to disable the TPM. When the TPM is disabled, it can only report its status and accept updates to PCRs.

- **Activate**

Select this choice to activate the TPM. When the TPM is enabled and activated, you can perform the Force Clear task. If the TPM is not enabled, this choice is not available.

- **Deactivate**

Select this choice to deactivate the TPM. When the TPM is deactivated, it has the same capabilities as when it is disabled, and you can change the owner and activate the TPM. If the TPM is not enabled, this choice is not available.

- **Force Clear**

Attention: Any data that is protected by the TPM will become unreadable if you clear the TPM.

Select this choice to clear the data from the TPM, in case you have lost or forgotten the authentication data. A confirmation prompt is displayed before the TPM is cleared. If the TPM is not enabled and activated, this choice is not available.

For more information about Trusted Computing Group, see <https://www.trustedcomputinggroup.org/home>.

- **Partition Chassis Options**

Select this choice to set the partition configuration options for use in a multi-node configuration.

- **Advanced PCI Settings**

Select this choice to view and set the end-to-end cyclic redundancy check (ECRC) of individual PCI Express slots. ECRC is a data transmission error detection feature. You can also enable or disable the ROM execution of individual PCI Express slots.

- **PCI Slot/Device Information**

Select this choice to view system resources that are used by installed PCI Express devices. PCI Express devices are usually configured automatically. This information is saved when you exit. The **Save Settings**, **Restore Settings**, and **Load Default Settings** choices on the Configuration/Setup Utility main menu do not save the **PCI Slot/Device Information** settings.

- **RSA II Settings**

Select this choice to view and change Remote Supervisor Adapter II settings. Select **Save Values and Reboot RSA II** to save the changes that you have made in the settings and restart the Remote Supervisor Adapter II.

- **RSA II MAC Address**

This is a nonselectable menu item that displays the Remote Supervisor Adapter II MAC address.

- **DHCP IP Address**

This is a nonselectable menu item that displays the Remote Supervisor Adapter II DHCP IP address, if DHCP is enabled.

- **DHCP Control**

Select this choice to set the DHCP control. **DHCP Enabled** is the default. If you select **Use Static IP**, use **Static IP Address** to set the address.

- **Static IP Address**

Select this choice to set the static IP address for the Remote Supervisor Adapter II.

- **Subnet Mask**

Select this choice to set the static subnet mask for the Remote Supervisor Adapter II.

- **OS USB Selection**

Select this choice to choose what operating system is used for Remote Supervisor Adapter II USB support.

- **<<<RESTORE RSA II DEFAULTS>>>**

Select this choice to cancel the changes you have made and restore the Remote Supervisor Adapter II settings to the default values.

- **Baseboard management controller (BMC) settings**

Select this choice to view information and to change baseboard management controller (BMC) settings.

- **BMC Firmware Version**

This is a nonselectable menu item that displays the BMC firmware version.

- **BMC Build Level**

This is a nonselectable menu item that displays the BMC firmware build level.

- **BMC Build Date**
This is a nonselectable menu item that displays the BMC firmware build date.
- **BMC IPMI Version**
This is a nonselectable menu item that displays the BMC firmware IPMI version.
- **BMC POST Watchdog**
Select this choice to enable or disable the BMC POST watchdog. **Disable** is the default setting.
- **BMC POST Watchdog Timeout**
Select this choice to set the BMC POST watchdog timeout value. **5 minutes** is the default setting. If the watchdog expires, the server restarts.
- **System BMC Serial Port Sharing**
Select this choice to enable or disable the system BMC serial port sharing. **Enable** is the default setting.
- **BMC Serial Port Access Mode**
Select this choice to set the BMC serial port access mode. **Shared** is the default setting. Select **Dedicated** for Serial Over LAN operation.
- **Reboot system on NMI**
Select **Enable** to enable the server to restart automatically 60 seconds after the service processor issues a nonmaskable interrupt (NMI) to the server. If you disable this option, the server does not restart. **Enable** is the default setting.
- **BMC Network Configuration**
Select this choice to view the BMC network configuration information.
 - **BMC MAC Address**
This is a nonselectable menu item that displays the BMC MAC address.
 - **Host Name**
Select this choice to set the BMC host name. The default value is the lower 4 bytes of the MAC address.
 - **DHCP Control**
Select this choice to set the DHCP control. **DHCP Enabled** is the default setting. If you select **Use Static IP**, use **IP Address** to set the address.
 - **IP Address**
Select this choice to set the static IP address for the BMC. The initial value is assigned by the DHCP server or is 169.254.0.2.
 - **Subnet Mask**
Select this choice to set the subnet mask for the BMC. The default is 255.255.0.0.
 - **Gateway**
Select this choice to set the gateway for the BMC. The default is 0.0.0.0.
 - **Save Network Settings in BMC**
Select this choice to save any changes to the network configuration.
- **System Event Log**
Select this choice to view the system event log, which contains all system-error and warning messages that have been generated. Use the arrow keys to move among pages in the log. Select **Clear error logs** to clear the system event log.

Note: Use the IBM Remote Supervisor Adapter II system event log or run the diagnostic programs for more information about the error codes (for information about using the diagnostic programs, see “Diagnostic programs and messages” on page 100).

- **User Account Settings**

Select this choice to view and change the BMC user account information. You can define up to four user accounts. By default, two user accounts are defined: NULL and USERID. The USERID user account is enabled by default. The password for the USERID user account is PASSWORD.

- **UserID**

Select this choice to view or change settings for user accounts 1, 2, 3, and 4.

- **UserID**

Select this choice to enable or disable the user account. The NULL user account is disabled by default.

- **Username**

Select this choice to view or change the user name.

- **Password**

Select this choice to set the password.

- **Confirm Password**

Select this choice to confirm the password.

- **Privilege Limit**

Select this choice to set the level of access.

- **Save User Account Settings in BMC**

Select this choice to save any changes to the user account configuration.

- **Event/Error Logs**

Select this choice to view or clear error logs.

This choice is available on the full Configuration/Setup Utility menu only.

- **POST Error Log**

Select this choice to view the three most recent error codes and messages that were generated during POST. Select **Clear error logs** to clear the POST error log.

- **System Event/Error Log**

Select this choice to view the system event/error log, which contains all system-error and warning messages that have been generated. Use the arrow keys to move among pages in the log. To clear the system event/error log, select **Clear error logs**.

- **Save Settings**

Select this choice to save the changes that you have made in the settings.

- **Restore Settings**

Select this choice to cancel the changes that you have made in the settings and restore the previous settings.

- **Load Default Settings**

Select this choice to cancel the changes that you have made in the settings and restore the factory settings.

- **Exit Setup**

Select this choice to exit from the Configuration/Setup Utility program. If you have not saved the changes that you have made in the settings, you are asked whether you want to save the changes or exit without saving them.

Passwords

From the **System Security** choice, you can set, change, and delete a power-on password and an administrator password. The **System Security** choice is on the full Configuration/Setup Utility menu only.

If you set only a power-on password, you must type the power-on password to complete the system startup, and you have access to the full Configuration/Setup Utility menu.

An administrator password is intended to be used by a system administrator; it limits access to the full Configuration/Setup Utility menu. If you set only an administrator password, you do not have to type a password to complete the system startup, but you must type the administrator password to access the Configuration/Setup Utility menu.

If you set a power-on password for a user and an administrator password for a system administrator, you can type either password to complete the system startup. A system administrator who types the administrator password has access to the full Configuration/Setup Utility menu; the system administrator can give the user authority to set, change, and delete the power-on password. A user who types the power-on password has access to only the limited Configuration/Setup Utility menu; the user can set, change, and delete the power-on password, if the system administrator has given the user that authority.

Power-on password

If a power-on password is set, when you turn on the server, you must type the power-on password to complete the system startup. You can use any combination of up to seven characters (A - Z, a - z, and 0 - 9) for the password.

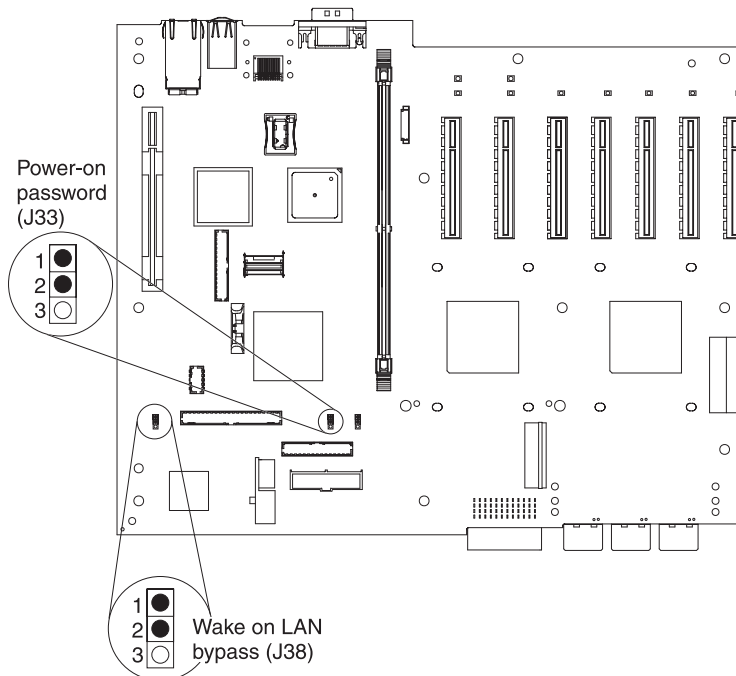
If a power-on password is set, you can enable the Unattended Start mode, in which the keyboard and mouse remain locked but the operating system can start. You can unlock the keyboard and mouse by typing the power-on password.

If you forget the power-on password, you can regain access to the server in any of the following ways:

- If an administrator password is set, type the administrator password at the password prompt. Start the Configuration/Setup Utility program and reset the power-on password.
- Remove the battery from the server and then reinstall it. For instructions for removing the battery, see "Removing the battery" on page 268.
- Change the position of the power-on password override jumper (J33 on the I/O board) to bypass the power-on password check.

Attention: Before changing any switch settings or moving any jumpers, turn off the server; then, disconnect all power cords and external cables. See the safety information beginning on page vii. Do not change settings or move jumpers on any system-board switch or jumper blocks that are not shown in this document.

The following illustration shows the location of the power-on password override and Wake on LAN (WOL) bypass jumpers.



While the server is turned off, move the jumper on J33 from pins 1 and 2 to pins 2 and 3. You can then start the Configuration/Setup Utility program and reset the power-on password. After you reset the password, turn off the server again and move the jumper back to pins 1 and 2.

The power-on password override switch does not affect the administrator password.

Administrator password

If an administrator password is set, you must type the administrator password for access to the full Configuration/Setup Utility menu. You can use any combination of up to seven characters (A - Z, a - z, and 0 - 9) for the password.

Attention: If you set an administrator password and then forget it, there is no way to change, override, or remove it. You must replace the microprocessor board.

Using the ServerGuide Setup and Installation CD

The *ServerGuide Setup and Installation CD* contains a setup and installation program that is designed for your server. The ServerGuide program detects the server model and optional devices that are installed and uses that information during setup to configure the hardware. The ServerGuide program simplifies operating-system installations by providing updated device drivers and, in some cases, installing them automatically.

If a later version of the ServerGuide program is available, you can download a free image of the *ServerGuide Setup and Installation CD*, or you can purchase the CD. To download the image, go to the IBM ServerGuide Web page at <http://www.ibm.com/pc/qtechinfo/MIGR-4ZKPPT.html>. To purchase the latest *ServerGuide Setup and Installation CD*, go to the ServerGuide fulfillment Web site at <http://www.ibm.com/systems/management/serverguide/sub.html>.

The ServerGuide program has the following features:

- An easy-to-use interface

- Diskette-free setup, and configuration programs that are based on detected
- Device drivers that are provided for the server model and detected hardware
- Operating-system partition size and file-system type that are selectable during setup

ServerGuide features

Features and functions can vary slightly with different versions of the ServerGuide program. To learn more about the version that you have, start the *ServerGuide Setup and Installation* CD and view the online overview. Not all features are supported on all server models.

The ServerGuide program requires a supported IBM server with an enabled startable (bootable) CD drive. In addition to the *ServerGuide Setup and Installation* CD, you must have your operating-system CD to install the operating system.

The ServerGuide program performs the following tasks:

- Sets system date and time
- Detects the SCSI RAID adapter, controller, or integrated SAS controller with RAID capabilities and runs the SCSI RAID configuration program (with LSI chip sets for ServeRAID adapters only)
- Checks the microcode (firmware) levels of a ServeRAID adapter and determines whether a later level is available from the CD
- Detects installed optional devices and provides updated device drivers for most adapters and devices
- Provides diskette-free installation for supported Windows operating systems
- Includes an online readme file with links to tips for hardware and operating-system installation

Setup and configuration overview

When you use the *ServerGuide Setup and Installation* CD, you do not need setup diskettes. You can use the CD to configure any supported IBM server model. The setup program provides a list of tasks that are required to set up your server model. On a server with a ServeRAID adapter or integrated SAS controller with RAID capabilities, you can run the SCSI RAID configuration program to create logical drives.

Note: Features and functions can vary slightly with different versions of the ServerGuide program.

When you start the *ServerGuide Setup and Installation* CD, the program prompts you to complete the following tasks:

- Select your language.
- Select your keyboard layout and country.
- View the overview to learn about ServerGuide features.
- View the readme file to review installation tips for your operating system and adapter.
- Start the operating-system installation. You will need your operating-system CD.

Typical operating-system installation

The ServerGuide program can reduce the time it takes to install an operating system. It provides the device drivers that are required for your hardware and for the operating system that you are installing. This section describes a typical ServerGuide operating-system installation.

Note: Features and functions can vary slightly with different versions of the ServerGuide program.

1. After you have completed the setup process, the operating-system installation program starts. (You will need your operating-system CD to complete the installation.)
2. The ServerGuide program stores information about the server model, service processor, hard disk drive controllers, and network adapters. Then, the program checks the CD for newer device drivers. This information is stored and then passed to the operating-system installation program.
3. The ServerGuide program presents operating-system partition options that are based on your operating-system selection and the installed hard disk drives.
4. The ServerGuide program prompts you to insert your operating-system CD and restart the server. At this point, the installation program for the operating system takes control to complete the installation.

Installing your operating system without using ServerGuide

If you have already configured the server and you are not using the ServerGuide program to install your operating system, complete the following steps to download the latest operating-system installation instructions from the IBM Web site.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. From the menu on the left side of the page, click **System x support search**.
4. From the **Task** menu, select **Install**.
5. From the **Product family** menu, select **System x3850 M2** or **System x3950 M2** and click **Continue**.
6. From the **Operating system** menu, select your operating system, and then click **Search** to display the available installation documents.

Using the Boot Menu program

The Boot Menu program is a built-in configuration program that you can use to temporarily redefine the first startup device without changing settings in the Configuration/Setup Utility program.

To use the Boot Menu program, complete the following steps:

1. Turn off the server.
2. Restart the server.
3. Press F12.
4. Select the startup device.

The next time the server is started, it returns to the startup sequence that is set in the Configuration/Setup Utility program.

Configuring the Gigabit Ethernet controller

The Ethernet controller is integrated on the I/O board. It provides an interface for connecting to a 10 Mbps, 100 Mbps, or 1 Gbps network and provides full-duplex (FDX) capability, which enables simultaneous transmission and reception of data on the network. If the Ethernet ports in the server support auto-negotiation, the

controller detects the data-transfer rate (10BASE-T, 100BASE-TX, or 1000BASE-T) and duplex mode (full-duplex or half-duplex) of the network and automatically operates at that rate and mode.

You do not have to set any jumpers or configure the controller. However, you must install a device driver to enable the operating system to address the controller. For device drivers and information about configuring the Ethernet controller, see the *Broadcom NetXtreme Gigabit Ethernet Software* CD that comes with the server. To find updated information about configuring the controller, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Publications lookup**.
4. From the **Product family** menu, select **System x3850 M2** or **System x3950 M2** and click **Continue**.

Using the baseboard management controller utility programs

Use the baseboard management controller utility programs to configure the baseboard management controller, update baseboard management controller firmware, and remotely manage a server.

Using the configuration utility program

Use the baseboard management controller configuration utility program to view or change the baseboard management controller configuration settings and to save the configuration to a file for use on multiple servers. The configuration utility is located with the baseboard management controller firmware updates on the firmware update diskette or CD. You can access the configuration utility after the firmware update is started and completed or stopped before completing.

To download the configuration utility program, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.
5. From the BMC software section, download the file for the operating system and for the DOS firmware update utility from which you will perform the configuration.

To start the baseboard management controller configuration utility program, complete the following steps:

1. Insert the firmware update diskette or CD into the drive.
2. Turn on or restart the server. The server starts DOS from the firmware update diskette or CD and runs the necessary utilities.
3. If you are prompted with questions, type N and press Enter.

4. From the command line, type `bmc_cfg` and press Enter.

Using the firmware update utility program

Use the baseboard management controller firmware update utility program to update baseboard management controller firmware. This program updates the baseboard management controller firmware only and does not affect any device drivers.

Important: To ensure proper server operation, be sure to update the baseboard management controller firmware before or after you update the BIOS code, IBM Remote Supervisor Adapter II firmware, and Field Programmable Gate Array (FPGA) firmware.

To download the program, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.
5. From the BMC software section, download the file for the operating system and the media (diskette or CD) that you plan to use.

Note: To ensure proper server operation, be sure to update the server baseboard management controller firmware before updating the BIOS code.

From a POST/BIOS standpoint, for remote control support, there is a "priority" for handling remote entities. This allows a limit on the amount of entities which can control a system remotely (and in some cases even locally) at one time. The priority is as follows:

1. No remote session, local keyboard input allowed as expected.
2. RSA II remote session, no local keyboard input allowed and only local video (during post only). OS will allow both remote and local access.
3. SOL/serial console session, both local keyboard and remote serial input allowed.
4. RSA II remote session and SOL/serial console session enabled - No local keyboard, no SOL/Console video and/or keyboard access. Only RSA II input allowed.

If a RSA II remote session is started, it takes the highest priority and will block both SOL and local keyboard input.

Updating the firmware

To update the firmware, use one of the following procedures:

- For the Linux or Windows operating-system update packages, follow the instructions in the readme file that comes with the firmware update.
- If you are using a diskette or CD, complete the following steps:
 1. Review the installation instructions in the readme file.
 2. Create a diskette or CD that contains the downloaded flash utility.
 3. Insert the firmware update diskette or CD into the CD or DVD drive.

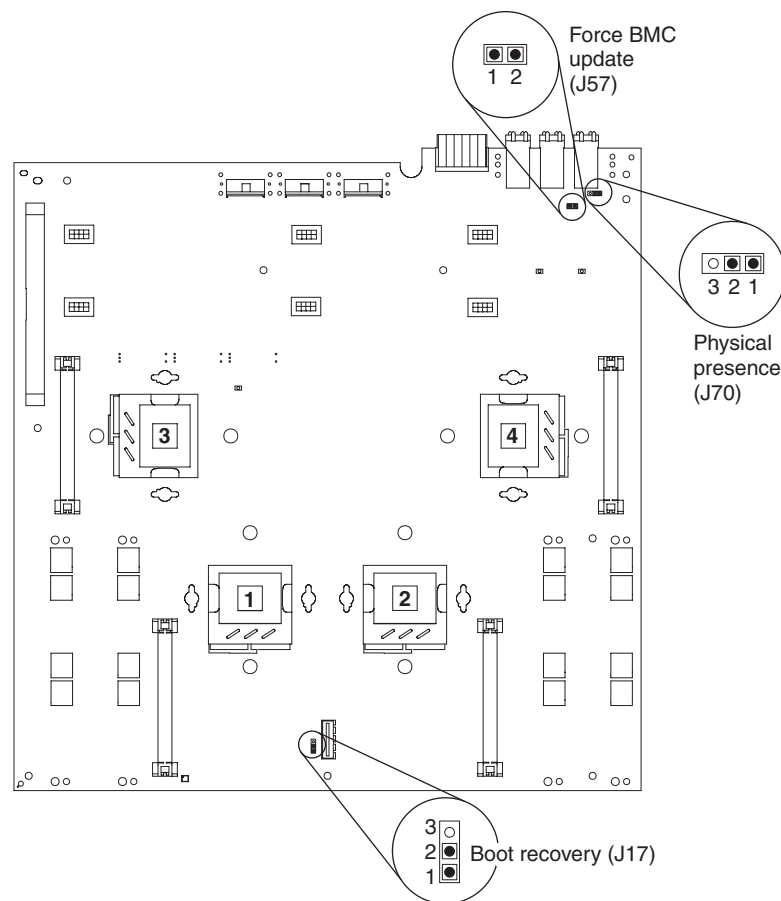
4. Turn on or restart the server. The server starts DOS from the diskette or CD and runs the necessary utilities.
5. If prompted with questions, type Y and press Enter.

Using the force BMC update jumper

If the normal firmware update procedure results in an inoperative BMC, change the position of the force BMC update jumper (J57 on the microprocessor board) to bypass the operational firmware image.

Attention: Before changing any switch settings or moving any jumpers, turn off the server; then, disconnect all power cords and external cables. See the safety information beginning on page vii. Do not change settings or move jumpers on any system-board switch or jumper blocks that are not shown in this document.

The following illustration shows the location of the force BMC update, and boot recovery jumpers.



While the server is turned off, place a jumper over pins 1 and 2 on J57. Then, perform a firmware update. Turn off the server again and remove the jumper from pins 1 and 2.

Note: Only use the force BMC update jumper if the normal firmware update procedure fails and the operational firmware image is corrupted. Use of the force BMC update jumper disables normal baseboard management controller operation.

Using the management utility program

Use the baseboard management controller management utility program to remotely manage and configure a server. The following features are available from the program:

- **IPMI (Intelligent Platform Management Interface) Shell**

Use this feature to remotely perform power-management and system identification control functions over a LAN or serial port interface from a command-line interface. Use this feature also to remotely view the event log.

- **Serial over LAN Proxy**

Use this feature to remotely perform control and management functions over a Serial over LAN network. Use this feature also to remotely view and change the BIOS settings.

To download the utility program and create the baseboard management controller management utility CD, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to <http://www.ibm.com/systems/support/>.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Software and device drivers**.
4. Click **IBM System x3850 M2** or **IBM System x3950 M2** to display the matrix of downloadable files for the server.
5. From the BMC software section, download the management utility (SMBRIDGE).
6. Review the readme file on the CD to install and use the program.

Using the RAID configuration programs

Use the LSI Logic Configuration Utility program and the LSI Logic MegaRAID Storage Manager program to configure and manage redundant array of independent disks (RAID) arrays. The following notes describe information that you must consider:

- The integrated SAS controller with RAID capabilities supports RAID levels 0 and 1 with a hot-spare drive installed. Installing an optional ServeRAID controller provides additional RAID levels.
- You cannot use the *ServerGuide Setup and Installation* CD to configure the integrated SAS controller with RAID capabilities.
- When you create a RAID level 1 (mirrored) pair, all drives must be on the same channel.
- Hard disk drive capacities affect how you create arrays. The drives in an array can have different capacities, but the RAID controller treats them as if they all have the capacity of the smallest hard disk drive.
- You can set up a mirror after the operating system is installed on the primary drive only if you are using an integrated SAS controller with RAID capabilities. You must make sure that the primary drive has the lower SCSI ID (for example, 0).

Note: The bezel identifies the SCSI IDs of the hard disk drive bays.

Important: If you use an integrated SAS controller with RAID capabilities to configure a RAID level 1 (mirrored) array after you have installed the operating

system, you will lose access to any data or applications that were previously stored on the secondary drive of the mirrored pair.

- If you install a different type of RAID controller, follow the instructions in the documentation that comes with the controller to view or change SCSI settings for attached devices.

Using the LSI Logic Configuration Utility program

Use the LSI Logic Configuration Utility program to perform the initial configuration of the SAS controller and attached devices. The LSI Logic Configuration Utility program is part of the BIOS. You can perform the initial configuration *before* you install the operating system.

Starting the LSI Logic Configuration Utility program

To start the LSI Logic Configuration Utility program, complete the following steps:

1. Turn on the server.
2. When the prompt Press CTRL-C to start LSI Logic Configuration Utility... is displayed, press Ctrl+C.
3. Use the arrow keys to select the controller for which you want to change settings. Use the Help function to see instructions and available actions for this screen.
4. To change the settings of the selected items, follow the instructions on the screen.
5. When you have finished changing settings, press Esc to exit the program; select **Save** to save the settings that you have changed.

Configuring the controller and devices

To configure a SAS controller and attached devices, select the controller from the initial LSI Logic Configuration Utility program screen; then, press Enter. You can view and change settings for the following items for the selected controller:

Boot Support

Specify the type of boot support that will be in effect (disabled, BIOS only, OS only, or both BIOS and OS).

RAID Properties

Create a RAID array or hot-spare drive from the displayed choices. To create an array, complete the following steps:

1. Select the volume: **IM** (integrated mirror) or **IS** (integrated striping).
2. Select each drive that will be part of the array.
3. Select **C** to create the array.

SAS Topology

View information about the devices that are directly attached to the selected SAS controller and which devices make up RAID arrays. Format and verify an attached device.

Advanced Adapter Properties

View the SAS properties and change the following items for the selected controller:

- Global properties
- Cylinder head sector (CHS) mapping
- Advanced device properties, such as I/O timeouts and LUNs to scan
- Spin-up properties
- PHY properties

Using the LSI Logic MegaRAID Storage Manager program

Use the LSI Logic MegaRAID Storage Manager program to monitor and manage the disk-array subsystem that is connected to the integrated SAS controller with RAID capabilities and the ServeRAID-MR10k controller option. The LSI Logic MegaRAID Storage Manager program, device drivers, and information come with the ServeRAID-MR10k controller option.

Using the Scalable Partition Web interface

(Requires scalability enablement) The Scalable Partition Web interface is an extension of the Remote Supervisor Adapter II Web interface and is used to create, delete, control, and view scalable partitions. The Scalable Partition Web interface firmware is in the Remote Supervisor Adapter II service processor.

A multi-node, or merged configuration interconnects multiple servers. These merged systems consist of one primary and up to three secondary systems. Each multi-node configuration can have one or more scalable partitions. Each scalable partition supports an independent operating system installation.

The scalable partition uses a single, contiguous memory space and provides access to all associated adapters and hard disk drives. PCI slot numbering starts with the primary node and continues with the secondary nodes, in numeric order of the chassis IDs.

Before you create scalable partitions, read the following information:

- Make sure that all nodes in the multi-node configuration contain the following software and hardware:
 - The current level of BIOS code, SAS BIOS code, service processor firmware, BMC firmware, and FPGA firmware.

Note: To check for the latest firmware levels and to download firmware updates, go to <http://www.ibm.com/systems/support/>.

- Microprocessors that are the same cache size and type, and the same clock speed.
- Make sure that each node contains the following :
 - A minimum of one microprocessor and one memory card with one pair of DIMMs.

Note: The nodes can vary in the number of microprocessors and the amount of memory each contains, above the minimum.

- A ScaleXpander key on the microprocessor board to enable multi-node operation
- Make sure that the primary node contains a minimum of 4 GB of memory.

To create a scalable partition, complete the following steps:

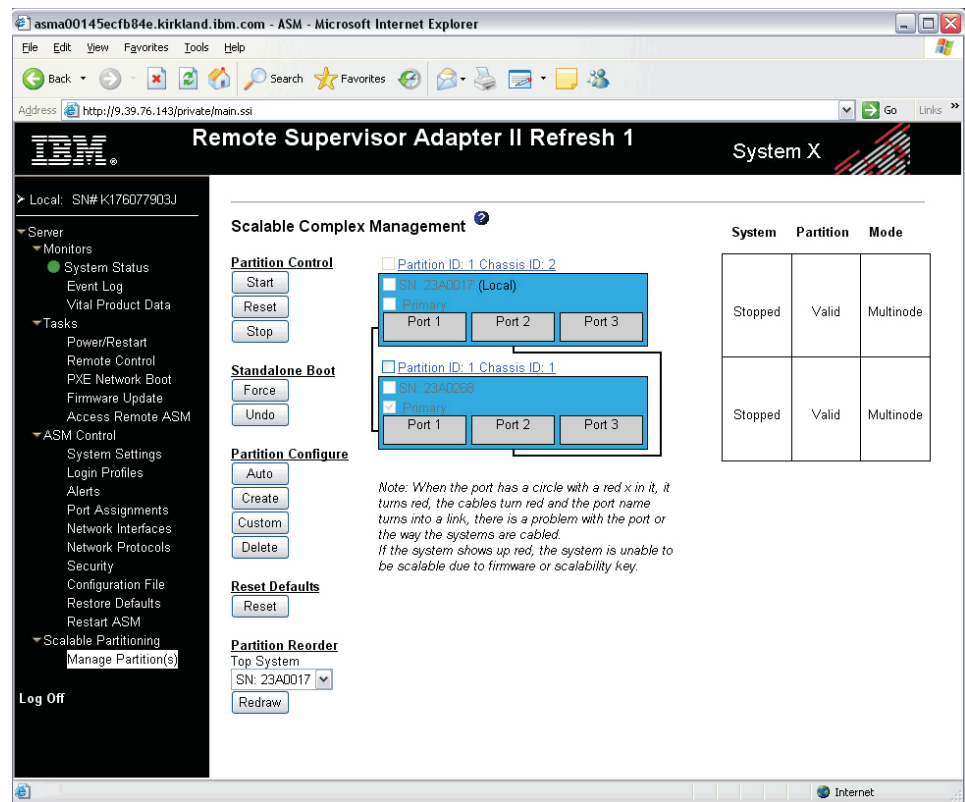
1. Connect the ScaleXpander cables. See “SMP Expansion cabling” on page 260 for instructions.
2. Connect all nodes to an ac power source and make sure that they are not running an operating system.

Note: If the nodes are part of an existing partition, all nodes must be in Standby mode, which means that the nodes are part of the partition but operate

independently. Click **Force** under **Standalone Boot** on the Scalable Complex Management page to enable the Standby mode. Click **Undo** to return the nodes from Standby mode.

3. Connect and log in to the Remote Supervisor Adapter II Web interface. See the *Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* for more information; then, continue with the procedure to create a scalable partition.
4. In the navigation pane, click **Manage Partition(s)** under **Scalable Partitioning**. Use the Scalable Complex Management page to create, delete, control, and view scalable partitions. A page similar to the one in the following illustration is displayed.

Note: The illustration shows a Scalable Complex Management page with a partition.



Select the primary node; then, **Auto**, **Create**, or **Custom** to create a scalable partition:

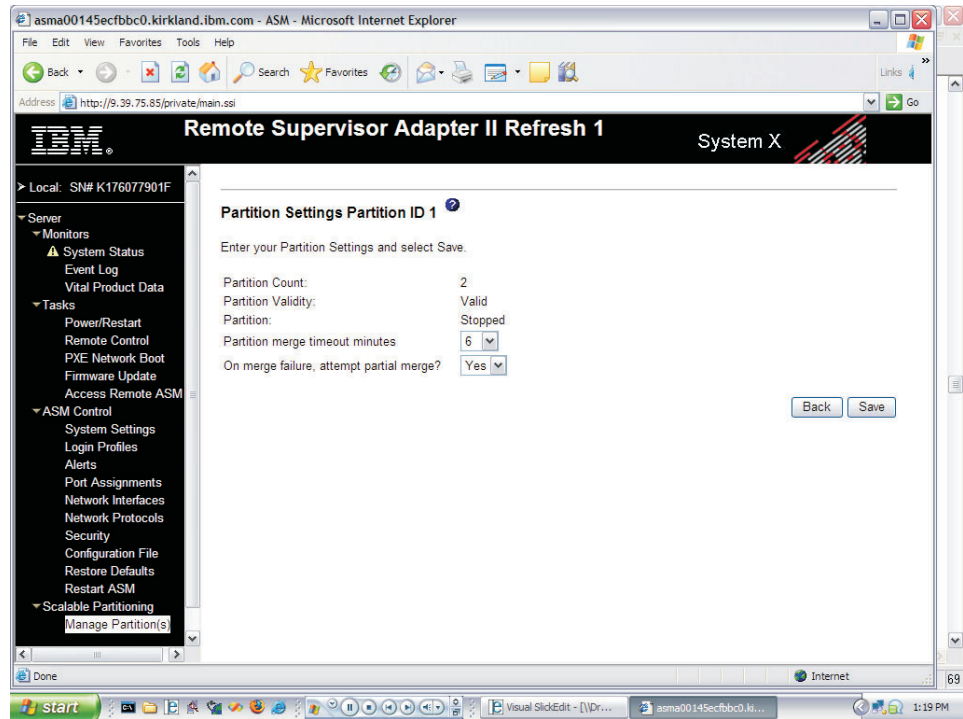
- Click **Auto** under **Partition Configure** to automatically create a single partition that uses all nodes in the multi-node configuration.
- Click **Create** under **Partition Configure** to manually assign nodes to the partition.

Click **Custom** under **Partition Configure** to manually assign nodes to the partition and assign chassis IDs.

Notes:

- a. If you click **Auto**, **Create**, or **Redraw** the chassis IDs might not be displayed in numeric order.
- b. To put the chassis IDs in numeric order, delete the partition, then click **Custom** to create a scalable partition and assign the chassis IDs in order.

5. (Optional) Click **Redraw** to reorder the sequence in which the nodes appear in the diagram on the page. You can, for example, reorder the diagram to reflect the order in which the nodes are installed in a rack. The nodes are reordered according to the ScaleXpander cabling, with the node that you select in the top position.
6. (Optional) Click **Partition ID** to define operation of the partition and view information about the partition. A page similar to the one in the following illustration is displayed.



The following nonselectable fields display information about the partition:

- The **Partition Count** field displays the number of nodes in the partition.
- The **Partition Validity** field displays the following status: **Valid** (which indicates the configuration is correct).
- The **Partition** field displays one of the following statuses:
 - **Stopped:** The partition is inactive, and the nodes can be reassigned to a partition.
 - **Started:** The partition is active.
 - **Resetting:** The configuration is resetting.
 - **Unknown:** The partition contains unidentified port or chassis IDs.
- a. In the **Partition merge timeout minutes** field, select the number of minutes POST waits for the scalable nodes to merge resources. The default value is **6 minutes**. Allow at least 8 seconds for each GB of memory in the scalable partition.
- b. In the **On merge failure, attempt partial merge?** field, select whether POST should attempt a partial merge if one error is detected during full merge. **Yes** is the default value.
- c. In the **Memory Mirroring?** field, select whether memory mirroring is enabled in all nodes in the partition. **Yes** is the default value.
- d. Click **Save**.

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your system, and whom to call for service, if it is necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system. Information about diagnostic tools is in the *Problem Determination and Service Guide* on the IBM Documentation CD that comes with your system.
- Go to the IBM support Web site at <http://www.ibm.com/systems/support/> to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to <http://www.ibm.com/systems/support/> and follow the instructions. Also, some documents are available through the IBM Publications Center at <http://www.ibm.com/shop/publications/order/>.

Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM systems, optional devices, services, and support. The address for IBM System x[®] and xSeries information is <http://www.ibm.com/systems/x/>. The address for IBM BladeCenter[®] information is <http://www.ibm.com/systems/bladecenter/>. The address for IBM IntelliStation[®] information is <http://www.ibm.com/intellistation/>.

You can find service information for IBM systems and optional devices at <http://www.ibm.com/systems/support/>.

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage, configuration, and software problems with System x and xSeries servers, BladeCenter products, IntelliStation workstations, and appliances. For information about which products are supported by Support Line in your country or region, see <http://www.ibm.com/services/sl/products/>.

For more information about Support Line and other IBM services, see <http://www.ibm.com/services/>, or see <http://www.ibm.com/planetwide/> for support telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

Hardware service and support

You can receive hardware service through your IBM reseller or IBM Services. To locate a reseller authorized by IBM to provide warranty service, go to <http://www.ibm.com/partnerworld/> and click **Find a Business Partner** on the right side of the page. For IBM support telephone numbers, see <http://www.ibm.com/planetwide/>. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9 a.m. to 6 p.m.

IBM Taiwan product service

台灣 IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路 7 號 3 樓
電話：0800-016-888

IBM Taiwan product service contact information:

IBM Taiwan Corporation
3F, No 7, Song Ren Rd.
Taipei, Taiwan
Telephone: 0800-016-888

Appendix B. Notices

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Important notes

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives that are available from IBM.

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Particulate contamination

Attention: Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the server that is described in this document. Risks that are posed by the presence of excessive particulate levels or concentrations of harmful gases include damage that might cause the server to malfunction or cease functioning altogether. This specification sets forth limits for particulates and gases that are intended to avoid such damage. The limits must not be viewed or used as definitive limits, because numerous other factors, such as temperature or moisture content of the air, can influence the impact of particulates or environmental corrosives and gaseous contaminant transfer. In the absence of specific limits that are set forth in this document, you must implement practices that maintain particulate and gas levels that are consistent with the protection of human health and safety. If IBM determines that the levels of particulates or gases in your environment have caused damage to the server, IBM may condition provision of repair or replacement of servers or parts on implementation of appropriate remedial measures to mitigate such environmental contamination. Implementation of such remedial measures is a customer responsibility.

Table 14. Limits for particulates and gases

Contaminant	Limits
Particulate	<ul style="list-style-type: none">• The room air must be continuously filtered with 40% atmospheric dust spot efficiency (MERV 9) according to ASHRAE Standard 52.2¹.• Air that enters a data center must be filtered to 99.97% efficiency or greater, using high-efficiency particulate air (HEPA) filters that meet MIL-STD-282.• The deliquescent relative humidity of the particulate contamination must be more than 60%².• The room must be free of conductive contamination such as zinc whiskers.
Gaseous	<ul style="list-style-type: none">• Copper: Class G1 as per ANSI/ISA 71.04-1985³• Silver: Corrosion rate of less than 300 Å in 30 days

¹ ASHRAE 52.2-2008 - *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

² The deliquescent relative humidity of particulate contamination is the relative humidity at which the dust absorbs enough water to become wet and promote ionic conduction.

³ ANSI/ISA-71.04-1985. *Environmental conditions for process measurement and control systems: Airborne contaminants*. Instrument Society of America, Research Triangle Park, North Carolina, U.S.A.

Documentation format

The publications for this product are in Adobe Portable Document Format (PDF) and should be compliant with accessibility standards. If you experience difficulties when you use the PDF files and want to request a web-based format or accessible PDF document for a publication, direct your mail to the following address:

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This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

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European Community contact:
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Telephone: 0049 (0)711 785 1176
Fax: 0049 (0)711 785 1283
E-mail: tjahn@de.ibm.com

Taiwanese Class A warning statement

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Germany Electromagnetic Compatibility Directive

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Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

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Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung des EMVG ist die IBM Deutschland GmbH, 70548 Stuttgart.

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People's Republic of China Class A warning statement

中华人民共和国“A类”警告声明

声明

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VCCI-A

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바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에
서 비업무용으로 교환하시기 바랍니다.

Battery return program

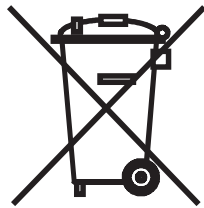
This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/index.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

For Taiwan: Please recycle batteries.



For the European Union:



Notice: This mark applies only to countries within the European Union (EU).

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

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For California:

Perchlorate material – special handling may apply. See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>.

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials. This product/part may include a lithium manganese dioxide battery which contains a perchlorate substance.

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