



@server

pSeries 610 Model 6C1 and Model 6E1
Installation Guide

SA38-0597-02





@server[®]

pSeries 610 Model 6C1 and Model 6E1
Installation Guide

SA38-0597-02

Third Edition (February 2002)

Before using this information and the product it supports, read the information in "Safety Notices" on page vii, Appendix B, "Environmental Notices" on page 105, and Appendix C, "Notices" on page 107.

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Safety Notices

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

- viii
- 3
- 22
- 33

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

- viii
- ix
- 3
- 22
- 33
- 79

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

Rack Safety Instructions

- Do not install this unit in a rack where the internal rack ambient temperatures will exceed 40 degrees C.
- Do not install this unit in a rack where the air flow is compromised. Any side, front or back of the unit used for air flow through the unit must not be in direct contact with the rack.
- Care should be taken to ensure that a hazardous condition is not created due to uneven mechanical loading when installing this unit in a rack. If the rack has a stabilizer it must be firmly attached before installing or removing this unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to the rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement for the supply circuit.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Electrical Safety

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

DANGER

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

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

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

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

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

CAUTION:

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

DANGER

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

Laser Safety Information

CAUTION:

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

Laser Compliance

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

CAUTION:

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

Data Integrity and Verification

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

About This Book

This book provides information about the @server pSeries 610 Model 6C1 and Model 6E1, specifically how to install and remove options, use the system, use diagnostics and service aids, and verify system operation. The Model 6E1 is a deskside system and the Model 6C1 is a rack mount system.

ISO 9000

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

Online Publications

IBM @server pSeries publications are available online. To access the online books, visit our Web site at: http://www.ibm.com/servers/eserver/pseries/library/hardware_docs/

Related Publications

The following publications provide additional information about your system unit:

- The *@server p Series 610 Model 6C1 and Model 6E1 User's Guide*, order number SA38-0598, contains information to help users use the system, use the service aids, and solve minor problems.
- The *@server pSeries 610 Model 6C1 and Model 6E1 Service Guide*, order number SA38-0599, contains reference information, maintenance analysis procedures (MAPs), error codes, removal and replacement procedures, and a parts catalog.
- The *RS/6000 @server pSeries Diagnostic Information for Multiple Bus Systems*, order number SA38-0509, contains diagnostic information, service request numbers (SRNs), and failing function codes (FFCs).
- The *RS/6000 @server pSeries Adapters, Devices, and Cable Information for Multiple Bus Systems*, order number SA38-0516, contains information about adapters, devices, and cables for your system. This manual is intended to supplement the service information found in the *RS/6000 @server pSeries Diagnostic Information for Multiple Bus Systems*.
- The *Site and Hardware Planning Guide*, order number SA38-0508, contains information to help you plan your installation.
- The *System Unit Safety Information*, order number SA23-2652, contains translations of safety information used throughout this book.
- The *PCI Adapter Placement Reference*, order number SA38-0538, contains information regarding slot restrictions for adapters that can be used in this system.
- The *7014 Model T00 and T42 Rack Installation and Service Guide*, order number SA38-0577, contains information regarding the 7014 Model T00 and T42 Rack, in which this server may be installed.

Ergonomic Information

After you have set up your system, we encourage you to visit the Healthy Computing Web site. Good ergonomic practice is important to get the most from your workstation and to avoid discomfort. This means that the equipment and the workplace should be arranged to suit your individual needs and the kind of work you do.

The Healthy Computing Web site gives ergonomic guidelines to help you understand the ergonomic considerations that you should know when working at a computer workstation. The address is: <http://www.us.pc.ibm.com/healthycomputing>

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- IBM
- PowerPC
- pSeries
- e (logo)

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Chapter 1. Setting Up the Server

Follow the procedures in this chapter to set up your server.

Step 1. Check Your Inventory

Model 6E1 and Model 6C1

Books, CD-ROM & other media



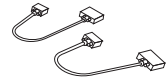
"About Your Machine" document



Power cables (2 standard, 1 optional)



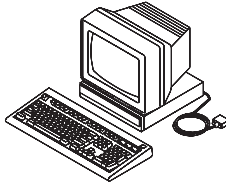
9-pin to 25-pin serial converters (2) (optional)



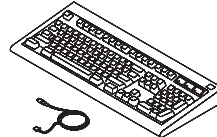
SCSI converter cable (optional)



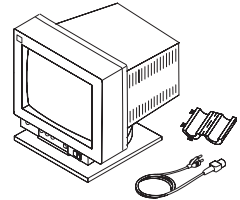
ASCII terminal (optional)



Keyboard (optional)
Wrist/palm rest (optional)



Display (optional), cable (optional), and cable toroid (optional)

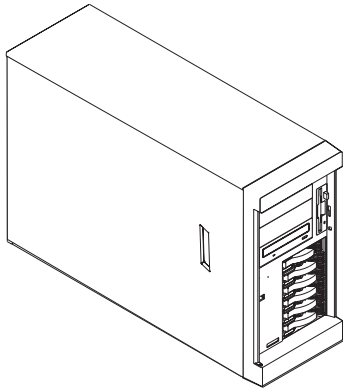


Mouse (optional)

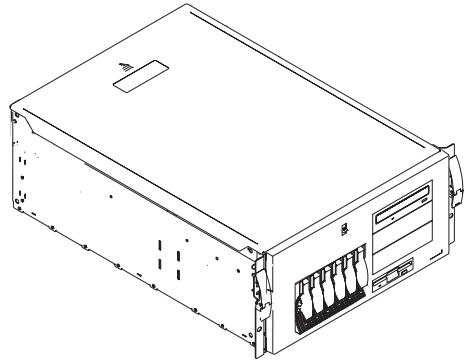


System Unit (Model 6E1 or 6C1)

Model E1

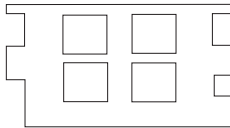


Model C1

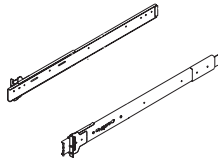


Model 6C1 (Rack Mount) Only

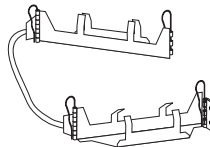
Rack Mounting Template



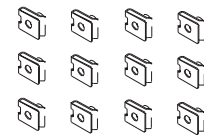
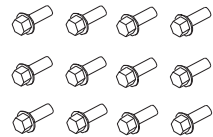
2 Rack Rails



Cable Management Arm



Rack Mounting Kit Envelope contains:
8 rail screws,
12 rack screws,
24 cage nuts
(12 for square holes
and 12 for round holes)



Step 2. Need Help?

If you encounter difficulties while setting up your system unit, contact your sales representative for assistance.

Step 3. Read the Safety Notices

Before continuing, read the following safety information. Do not plug any cables into the system unit, adapters, or electrical outlets until you have reviewed this information. Make sure none of the power cords are connected before continuing to the next step.

DANGER

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

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

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

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

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

CAUTION:

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

DANGER

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

Step 4. Are You Installing a Model 6C1 (Rack Mount)?

If you are installing a Model 6C1, continue with this step. If you are installing a Model 6E1 (Tower), go to “Step 7. Are All of the Internal Options Installed?” on page 12.

You will need the following items:

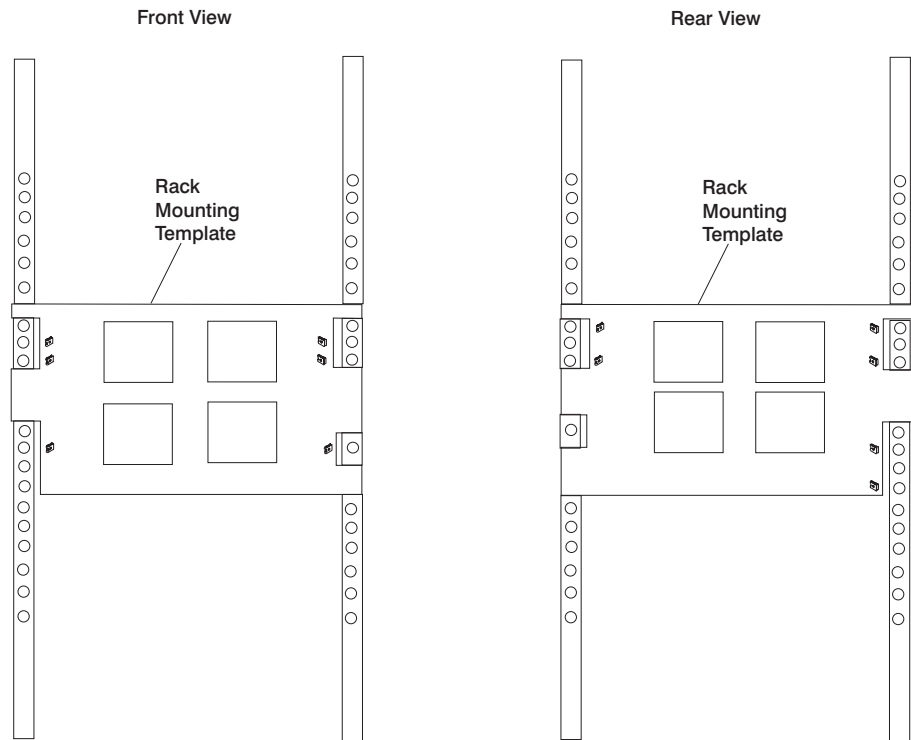
- Rack Mounting Template
- 2 Rack Rails
- Cable Management Arm
- Rack Mounting Kit Envelope
- Screwdriver or Nutdriver

Step 5. Attach the Mounting Hardware to the Rack Enclosure

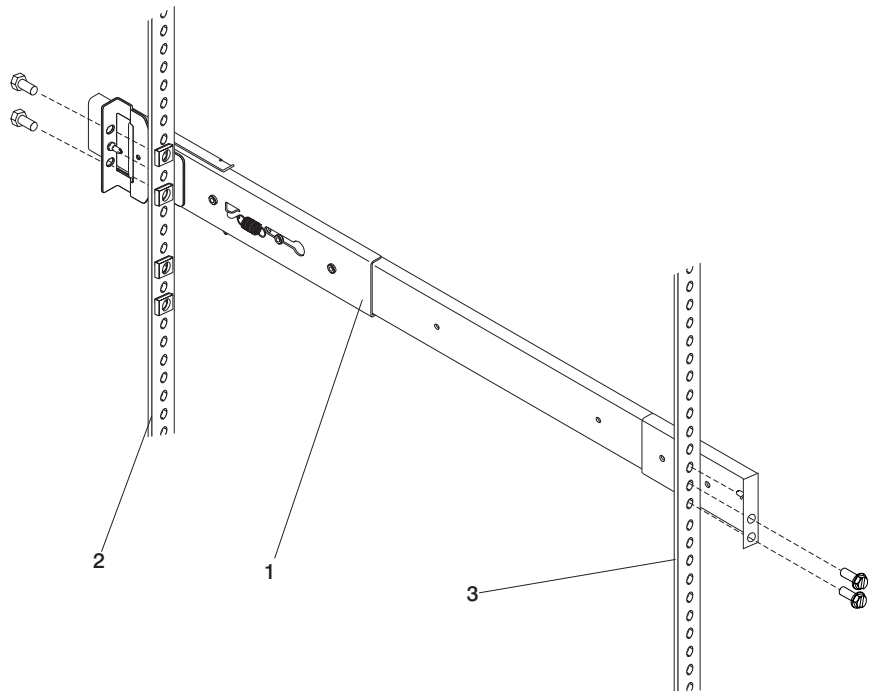
1. Install the cage nuts for the rack rails and the cable management arm on the mounting rails of the rack enclosure.

Note: You must align the rack rails correctly. Otherwise, the installation cannot be completed successfully.

- a. Position the template on the front mounting rail, aligning the holes.
- b. Install the cage nuts, using the locations shown on the template.
- c. Move the template to the rear mounting rails.
- d. Install the cage nuts, using the locations shown on the template.



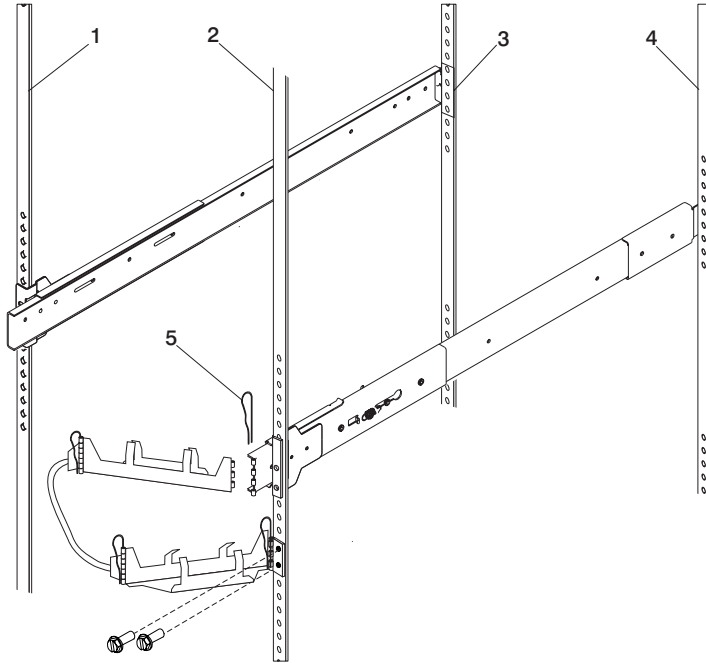
2. Attach the slide rails to the rack.
 - a. Insert the left slide-rail rear bracket pin into the hole between the two cage nuts for the slide rail at the rear of the rack. The two holes in the rear bracket line up with the cage nuts.
 - b. Pull the slide-rail front bracket to the front of the rack; insert the front bracket pin into the hole above the cage nuts for the slide rail. The two holes in the front bracket line up with the cage nuts.



- 1 Left slide rail
- 2 Left rear
- 3 Left front

- c. Do the same for the right slide rail.
- d. From the outside of the rack enclosure, insert two M6 by 16-mm screws through each slide-rail bracket and cage nut; then, tighten the screws finger tight.

3. Attach the cable-management arm to the left rear of the rack enclosure.
 - a. Align the cable-management-arm mounting bracket with the cage nuts on the rear mounting rail.
 - b. Insert two M6 by 16-mm screws to secure the mounting bracket to the rack.

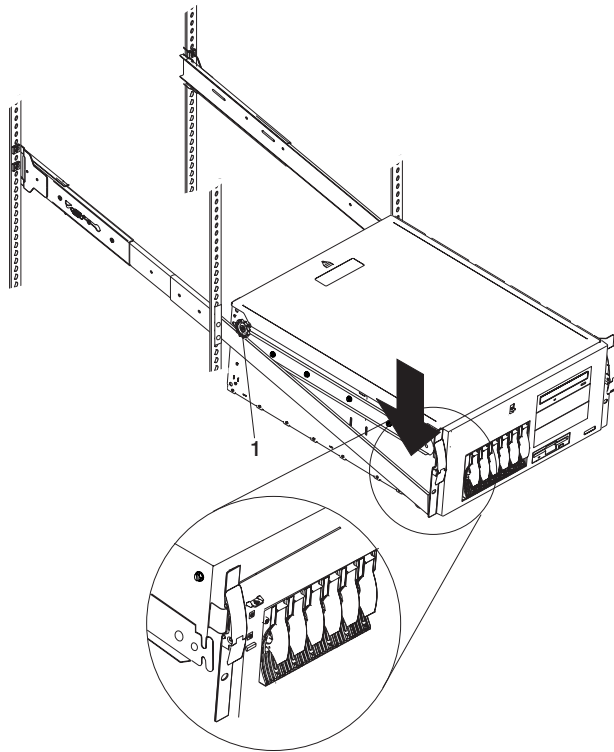


- 1 Right rear
 - 2 Left rear
 - 3 Right front
 - 4 Left front
 - 5 Hitch pin
- c. Attach the free end of the cable-management arm to the rear of the left slide rail, using a hitch pin (5).

Step 6. Install the System in the Rack Enclosure

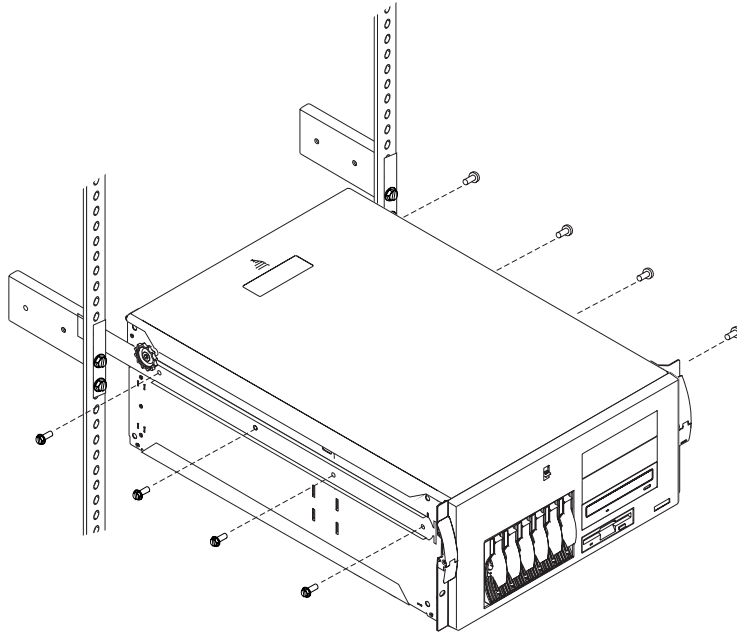
Attention: Care should be taken to ensure that a hazardous condition is not created due to uneven mechanical loading when installing this unit in a rack. If the rack has a stabilizer it must be firmly attached before installing or removing this unit.

1. Mount the server on the slide rails.
 - a. Extend the slide rails fully from the rack until the slide rails lock.
 - b. Rest the blue wheel-shaped knobs (1) on the slide rails at a point close to the rack.
 - c. Lower the front of the server until the bottom notch in each chassis bracket fits into the top notch in the slide rail end.



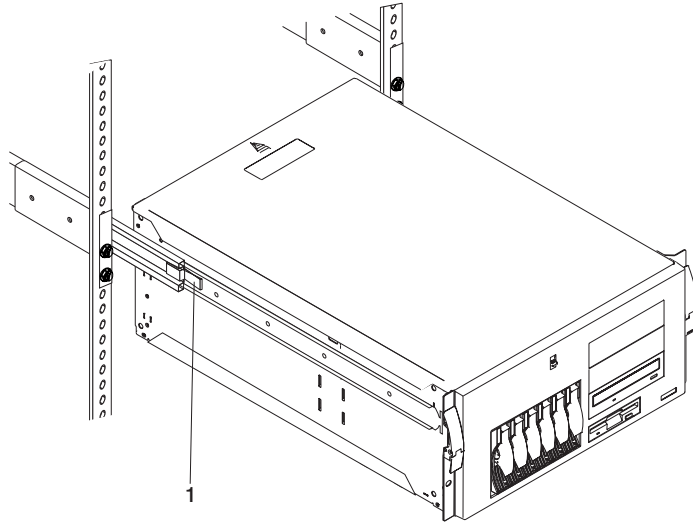
Slide the server backward or forward as necessary until the notches meet.

d. Attach the rails to the sides of the server with M4 by 5-mm screws.



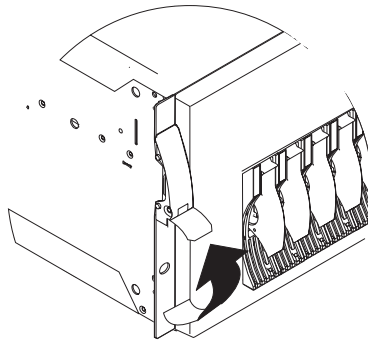
2. Remove the blue wheel-shaped knobs from the server. Store the knobs in a safe place to use if you need to remove the server from the rack at a later time.
3. Press the safety latches on the slide rails (1) and slide the server about halfway into the rack enclosure.

Note: When the server is fully extended, safety latches on the slide rails lock into place. This action prevents the server from being accidentally pulled out too far and dropped. To release the safety latch, press in on the latch.

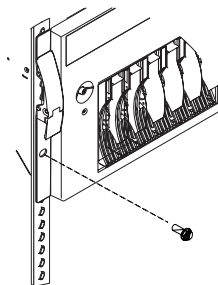


4. Secure the server in the rack enclosure.
 - a. Slide the server into the rack enclosure until the slide latches on the front chassis brackets click into place.
 - b. Using a screwdriver, tighten the screws that hold the rear of the slide rails to the rear of the rack.
 - c. Release the server and pull the server forward about halfway.

Note: To release the server, release the left and right slide latches and pull the server forward.



- d. Using a screwdriver, tighten the screws that hold the front of the slide rails to the front of the rack.
 - e. Slide the server into the rack enclosure again until the slide latches on the front chassis brackets click into place.
5. Optional: For additional security, such as might be needed when transporting the rack, fasten the server to the rack enclosure by inserting a M6 by 16-mm screw through the chassis bracket, mounting rail, and cage nut on each side.



Step 7. Are All of the Internal Options Installed?

These instructions are for systems that have internal options (such as adapters, disk drives, or memory upgrades) already installed.

If you have internal options that are not installed, install them now. Refer to Chapter 3, "Installing Options in Your System" on page 33, and then return here.

Step 8. Position the System Unit and Display

Position the system unit and display (optional) at or near their installed location.

Observe the following guidelines when you are positioning the system unit:

- The system unit weighs between 34 kg (75 pounds) and 41 kg (90 pounds). Do not try to lift the system unit by yourself.
- Displays or ASCII terminals can weigh as much as 35 kg (77 pounds). Use caution when lifting or moving the display or ASCII terminal.
- Leave enough space around the system unit to safely and easily complete the setup procedures.
- Observe standard ergonomic guidelines while arranging your system unit so that you can work comfortably and safely. For more information on arranging your workstation, visit the Healthy Computing Web address at: <http://www.pc.ibm.com/us/healthycomputing>.
- Be sure to maintain at least 51 mm (2 inches) of space on the sides of the system unit and 152 mm (6 inches) at the rear of the system unit to allow the system unit to cool properly. The front of the system requires a minimum of 76 mm (3 inches) of space. Blocking the air vents can cause overheating, which might result in a malfunction or permanent damage to the system unit.
- Place the system unit in a location where it can safely and easily reach any necessary power outlets and network connections.
- Place the display or ASCII terminal in a stable and sturdy location.

Step 9. Connect the Graphics Display

Note:

If you are using an ASCII terminal with a keyboard as the console for this system, go to “Step 12. Connect the Serial and Parallel Devices” on page 16.

If you are using a graphics display with a keyboard and mouse, continue with “Step 10. Attach the Display Cable Toroid” on page 14.

If you ordered a graphics display with your system unit, the graphics adapter has been set to use the highest display resolution and refresh rate available for that display. If you want to:

- Attach another display to your system unit

OR

- Change the default display resolution or refresh rate

after completing the installation steps, refer to the *Customer Installable Options Library* CD-ROM for the documentation for your graphics adapter.

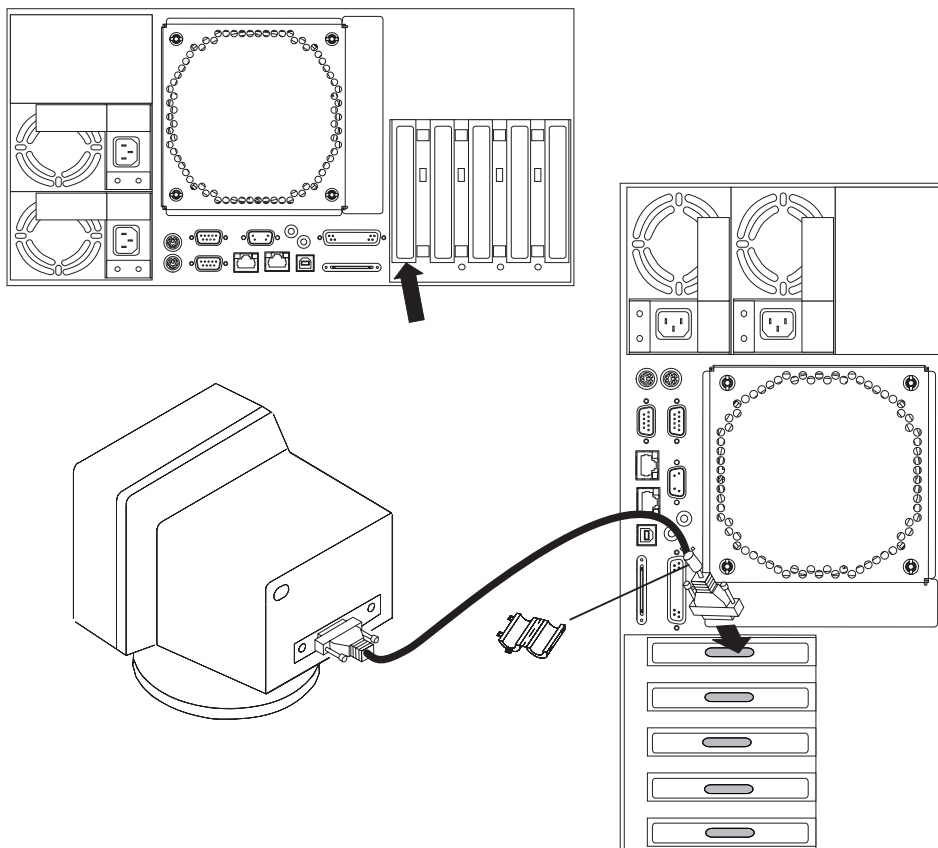
As shown in “Step 10. Attach the Display Cable Toroid” on page 14, connect the graphics display cable to the back of the display and to the graphics adapter connector. Consult the “About Your Machine” document for the locations of installed adapters.

For more information about your display, refer to the documentation included with the display.

Note: Some displays require an additional cable.

Step 10. Attach the Display Cable Toroid

If the cable for your display does not include a toroid, locate the toroid shipped with your system unit and follow the installation instructions included with the toroid.

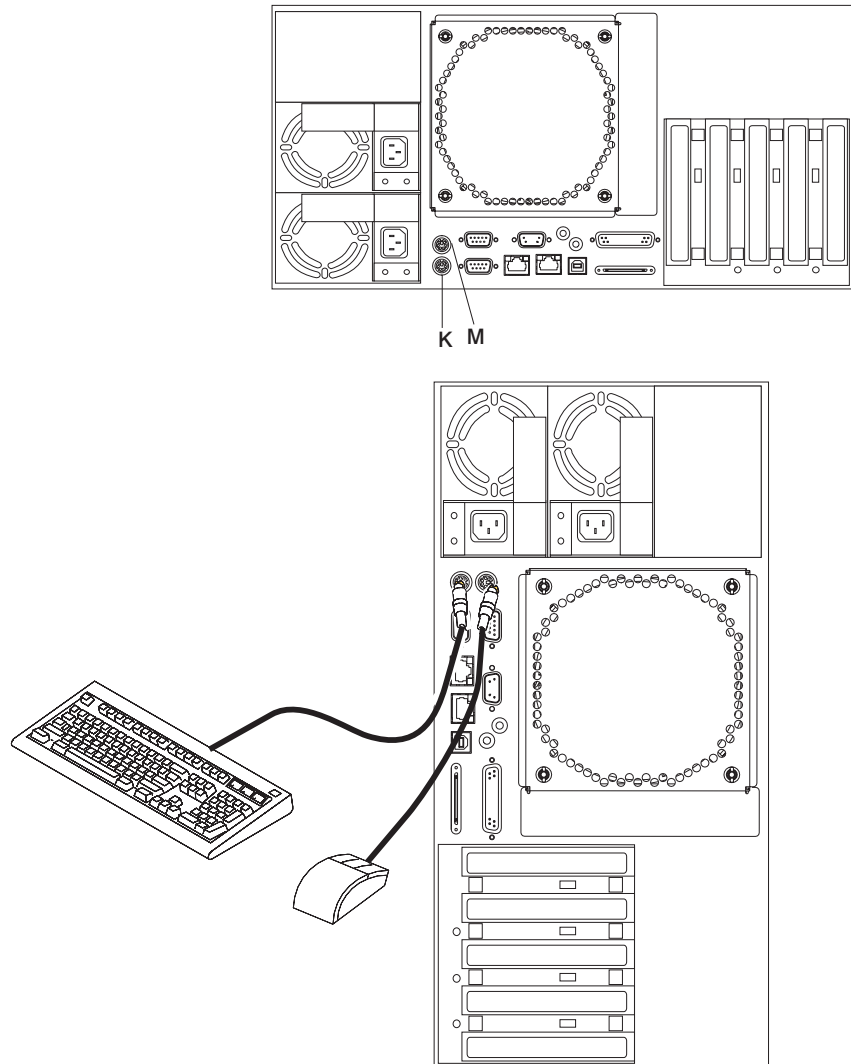


Step 11. Connect the Keyboard and Mouse

Note: A keyboard and mouse should be attached to the ports shown only if they are used with an attached graphics display.

If a wrist/palm rest was included with your keyboard and you want to attach it, refer to the keyboard documentation for installation instructions.

As shown in the following figure, connect the keyboard and mouse to the connectors on the rear of the system unit.



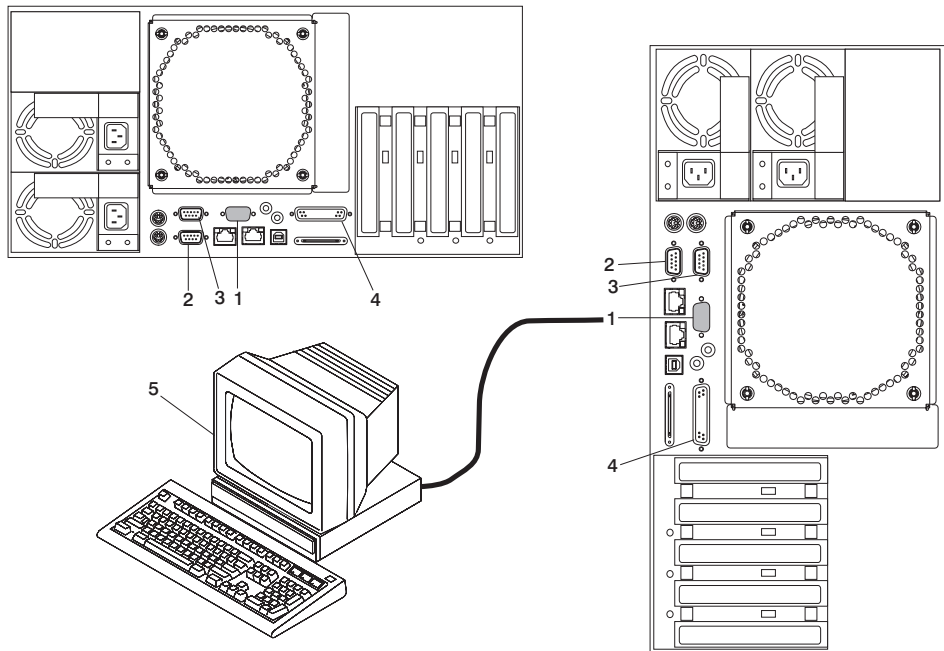
Step 12. Connect the Serial and Parallel Devices

If you have a local ASCII terminal (5) or a single serial device, connect it to the serial connector S1 (1).

Note: If you have a remote ASCII terminal, connect it through an external modem to serial connector S1, and connect a local ASCII terminal to serial connector S2 (2).

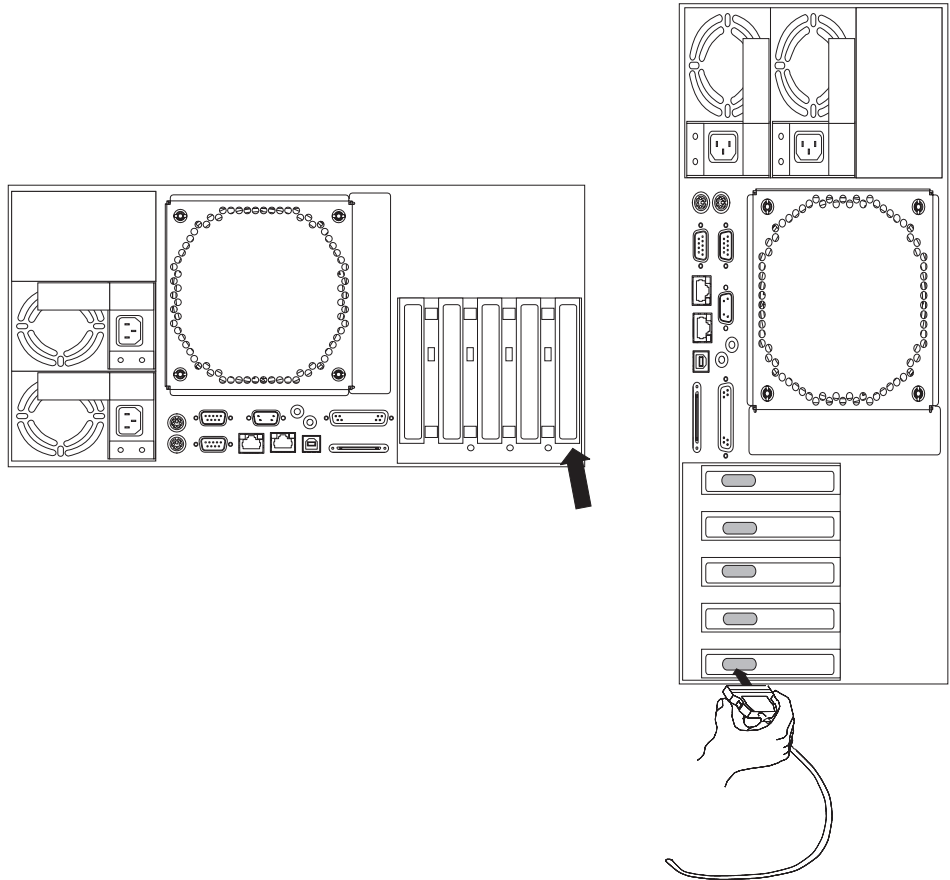
Connect any additional serial devices to the S3 connector (3) if it is not already in use.

If you have a parallel device (such as a printer), connect it to the parallel connector (4).



Step 13. Connect the Adapter Cables

If you are using any optional adapters (such as token ring or 8-port EIA-232), connect the cables to the appropriate adapter connectors in the PCI slots of your machine. Consult the "About Your Machine" document for the locations of installed adapters.



Step 14. Connect the First External SCSI Device

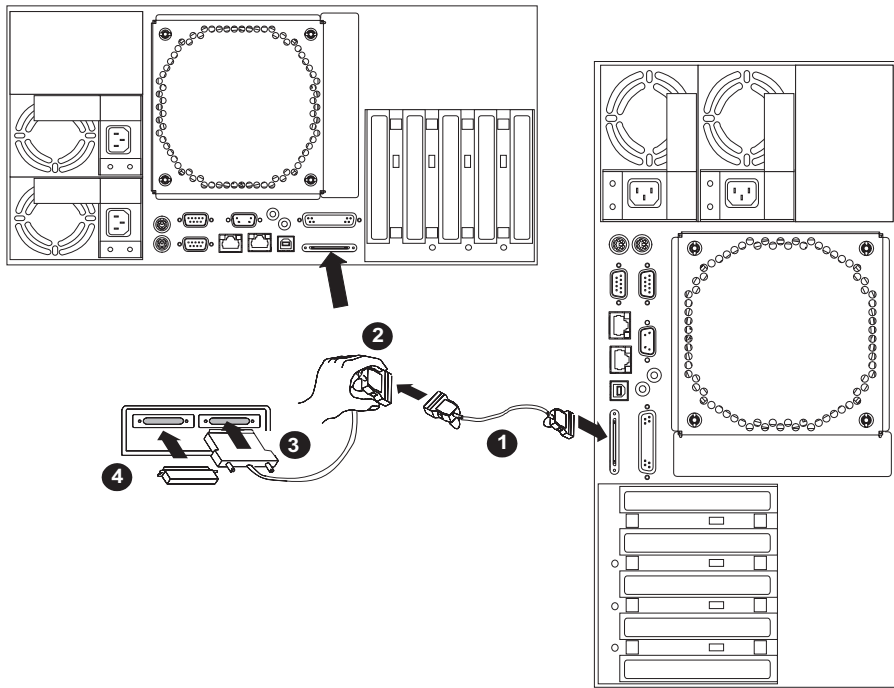
If you have no external SCSI devices to attach, skip to “Step 17. Are You Using an Ethernet Connection?” on page 21.

If you need to connect an external SCSI device, follow these steps. If you ordered the optional SCSI converter cable and need it to connect an external SCSI device, begin with step 1. If you do not need the converter cable, begin with step 3.

1. Connect the SCSI end of the converter cable (1) directly to the system unit.
2. Connect the other end of the SCSI converter cable to one end of the SCSI device cable (2).
3. Connect the other end of the SCSI device cable (3) to the SCSI device.
4. Connect the SCSI device terminator (4) (if this is the last device to be connected). The last device on a SCSI bus *must* be terminated.

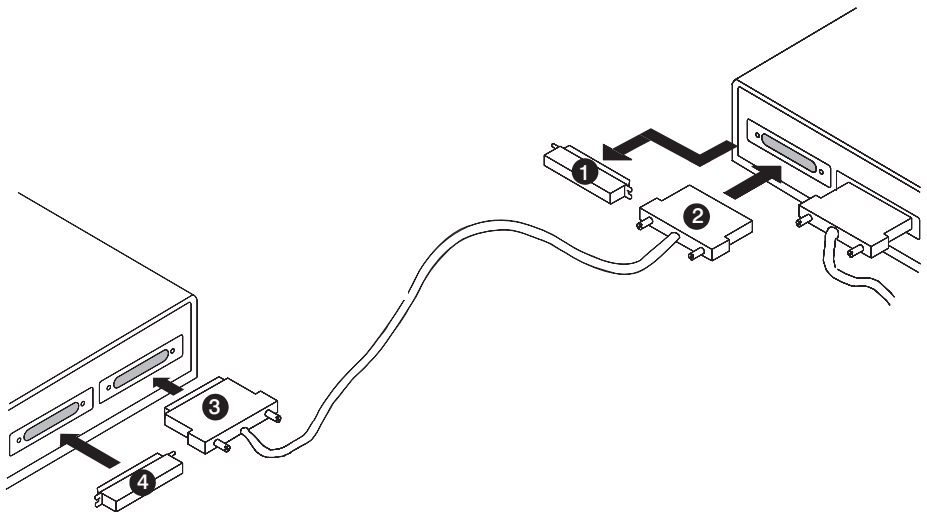
Note: When a cable is not attached to the SCSI connector on the system unit, the connector is automatically terminated (internally).

5. To set the SCSI device address, refer to the SCSI device documentation. For future reference, you can record the address in Appendix D, “System Records” on page 109.



Step 15. Connect Any Additional External SCSI Devices

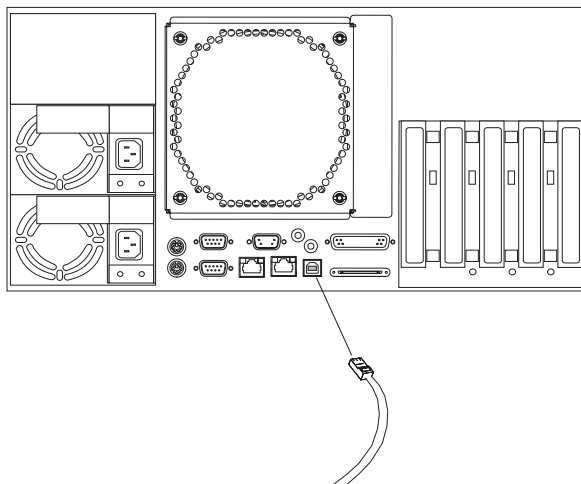
1. Locate the last SCSI device in the chain from the system unit. If a SCSI bus terminator (1) is installed, remove it.
2. Connect the new SCSI cable (2) where you just removed the SCSI bus terminator.
3. Connect the other end of the SCSI cable (3) to the new SCSI device.
4. Connect the SCSI bus terminator (4).
5. Refer to the SCSI device documentation to set the SCSI device address. For future reference, you can record the address in Appendix D, "System Records" on page 109.
6. Repeat these steps for each additional external SCSI device you attach.



Step 16. Are You Using the Rack Indicator Feature?

The rack indicator feature signals when a drawer installed in a rack has a failure. Ask your system administrator if you are unsure whether you are using the rack indicator feature. If you are not using the rack indicator feature, continue with “Step 17. Are You Using an Ethernet Connection?” on page 21.

Connect the rack indicator cable.

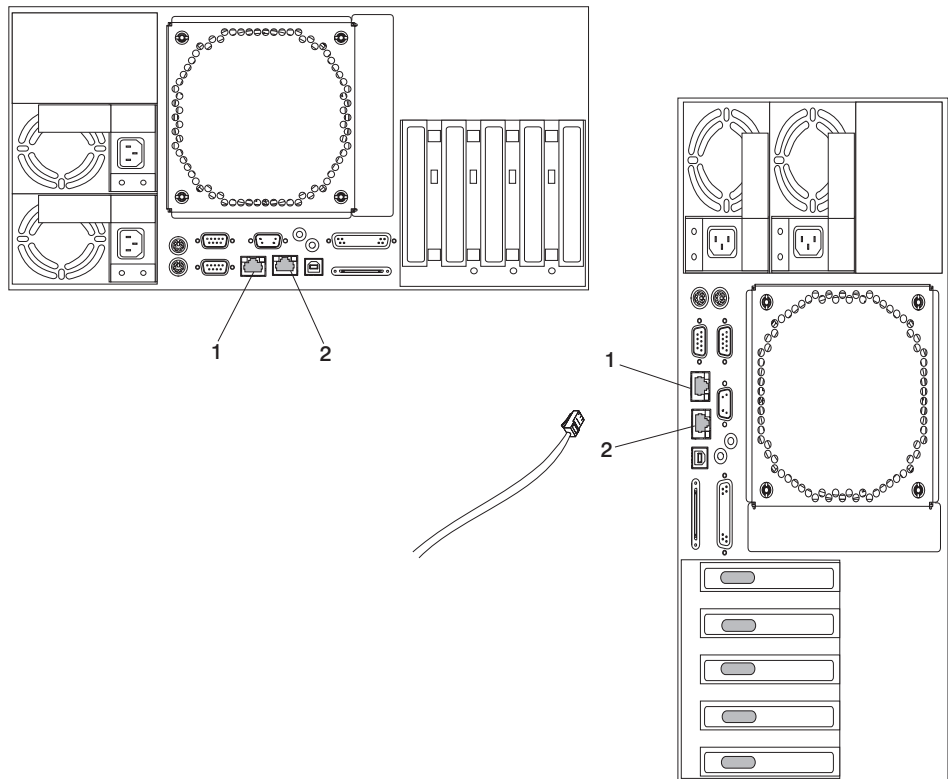


Step 17. Are You Using an Ethernet Connection?

Ask your system administrator if you are unsure whether you are using an Ethernet connection. If you are not using Ethernet or you have already connected your Ethernet to an adapter, continue with “Step 18. Connect the Power Cables to Server” on page 22. To connect the Ethernet cable:

Note: The twisted-pair connector is compatible with the IEEE 802.3 Ethernet network 10/100 Base T link.

1. Connect the twisted-pair cable to either twisted-pair connector (1) or (2).
2. The twisted-pair Ethernet cable is now installed. Continue with “Step 18. Connect the Power Cables to Server” on page 22.



Step 18. Connect the Power Cables to Server

DANGER

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

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

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

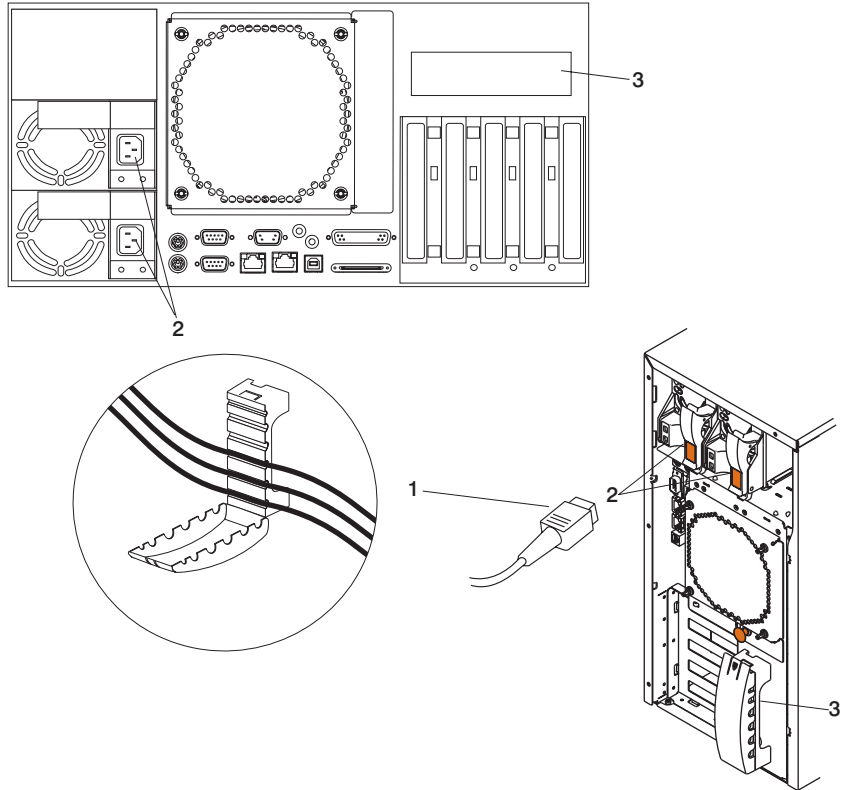
Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

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

CAUTION:

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

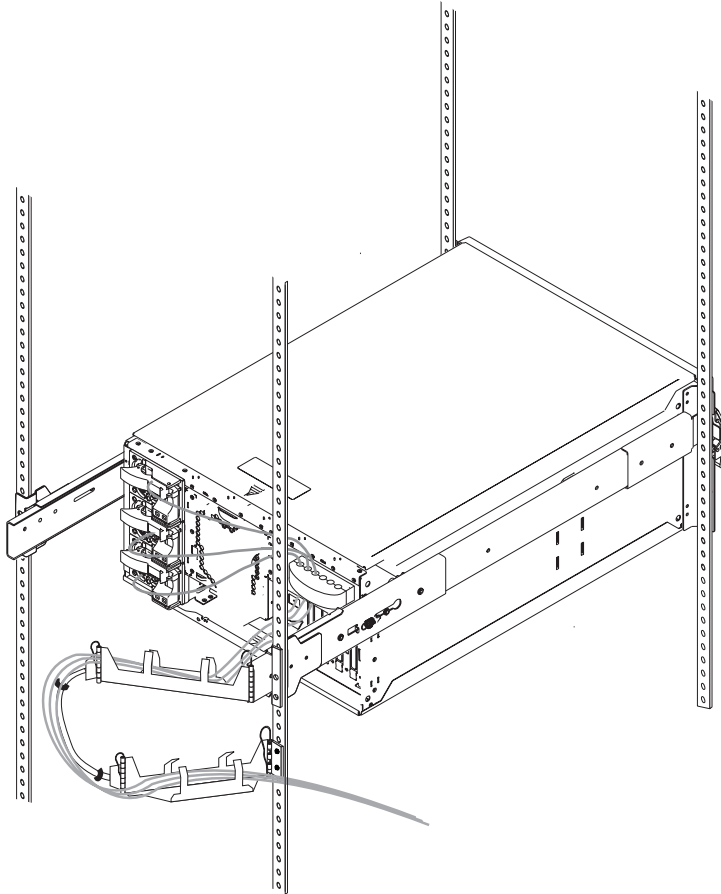
Plug the power cables into the power supply connectors (2) and route the power cables (1) through the cable-restraint bracket (3).



Step 19. Are You Installing a Model 6C1 (Rack Mount)?

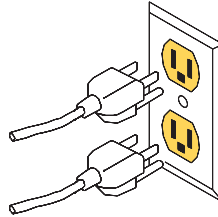
If you are installing a Model 6C1, continue with this step. If you are installing a Model 6E1 (Tower), go to “Step 20. Connect the Power Cables to Electrical Outlets” on page 25.

1. Route the power cords, mouse cable, and keyboard cable through the cable-restraint bracket.
2. Route all cables through the cable-management arm, attaching the cables to the arm with the hook and loop fastener strips provided. The wraps are provided for additional cable management.



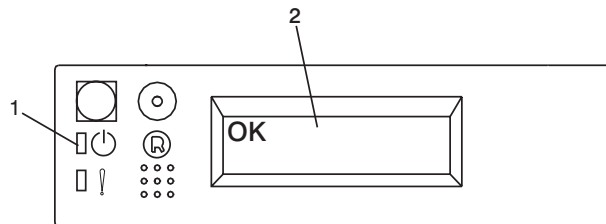
Step 20. Connect the Power Cables to Electrical Outlets

Plug the power cables for the system unit, display, and attached devices into electrical outlets.



When the power cables are plugged into the electrical outlets, the following occurs:

- The operator panel displays OK, and the green power LED (1) blinks. When this occurs, your system is in standby mode. The following figure shows the operator panel in standby mode.



- 1 Power-On LED
2 Operator Panel Display

If your system does not stop in standby mode, check all cables for good connection.
If you cannot find a problem, call your support center for assistance.

Step 21. Your System Unit Is Now Set Up

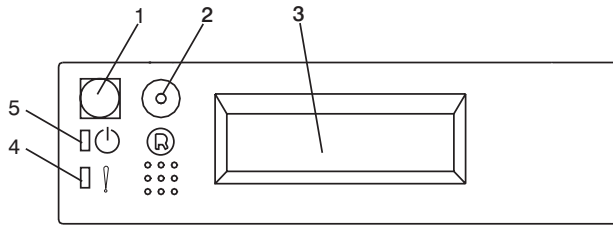
Arrange your system unit and attached devices so that you can use them comfortably.

If the AIX operating system is not preinstalled on your system and you want to install the AIX operating system now, refer to the *AIX Installation Guide*, order number SC23-4112. Return here to continue after your operating system is installed.

Step 22. Start the Operating System

To start the installed AIX operating system, press the power-on switch on the operator panel.

- The fans in the system unit start spinning.
- The green power LED on the operator panel comes on solid.
- Checkpoint codes appear in the operator panel display.



- | | |
|---|------------------------|
| 1 | Power-On Switch |
| 2 | Reset Switch |
| 3 | Operator Panel Display |
| 4 | Attention LED (amber) |
| 5 | Power-On LED (green) |

- Follow the instructions on your display.

The AIX Documentation library is available at the following web address: <http://www.ibm.com/servers/aix/library/techpubs.html>. AIX documentation is also contained on the *AIX Documentation* CD. The documentation information is made accessible by loading the documentation CD files onto the hard disk or by mounting the CD in the CD-ROM drive.

Step 23. Accessing Documentation for Your New System

If you are installing this system and another person is the system administrator, deliver this book to the system administrator when the installation is complete. Ensure that the system administrator reads the following information and is aware of the options to access the documentation for the new system.

Hardware Documentation

Hardware documentation, in addition to this installation guide, is available on the Web or can be ordered in printed hardcopy.

To access the hardware documentation on the Web, go to:

http://www.ibm.com/servers/eserver/pseries/library/hardware_docs

Installation, using, and service documentation is available from this Web site. To order printed versions of the books that are available in hardcopy, go to:

<http://www.ibm.com/shop/publications/order>

Operating System Documentation

Documentation for the AIX operating system is available either from the AIX documentation CD or from the Web.

If you ordered the AIX documentation CD with your operating system, you can access the information by loading the documentation CD onto a hard disk on your system or by mounting the AIX documentation CD in the CD-ROM drive. This CD contains the base set of documentation for the AIX operating system.

To access the complete library for AIX operating system documentation, go to:

<http://www.ibm.com/servers/aix/library/techpubs.html>

Step 24. Verify the Hardware Operation

If your system did not load the AIX operating system successfully, or you would like to test your hardware, go to Chapter 2, "Verifying the Hardware Operation" on page 29.

Chapter 2. Verifying the Hardware Operation

The system verification procedure checks the system for correct hardware operation. If you have a problem with your system in the future, use this procedure to test the system hardware to help you determine if you have a hardware problem. Run the system verification procedure as described in the following steps.

Step 1. Considerations Before Running This Procedure

Read the following before using this procedure:

- The AIX operating system must be installed on your system before you attempt to perform this procedure.
- If this system unit is directly attached to another system unit or attached to a network, be sure communications with the other systems are stopped.
- This procedure requires use of all of the system resources. No other activity can be running on the system while you are performing this procedure.

Step 2. Loading the Diagnostics

To run the online diagnostics in service mode from the boot hard disk, do the following:

1. Stop all programs including the AIX operating system (get help if needed).
2. Remove all tapes, diskettes, and CD-ROM discs.
3. Turn off the system unit power.
4. Turn on the system unit power.
5. After the **keyboard** POST indicator displays on the firmware console and before the last POST indicator (**speaker**) displays, press the numeric 6 key on either the directly attached keyboard or the ASCII terminal to indicate that a service mode boot should be initiated using the customized service mode boot list.
6. Enter any requested password.

Note: If you are unable to load the diagnostics to the point when the DIAGNOSTIC OPERATING INSTRUCTIONS display, call your support center for assistance.

Step 3. Running System Verification

When the Diagnostic Operating Instructions display, do the following to run system verification:

1. Press Enter.
2. To do a general checkout with minimal operator action, select the **Diagnostic Routines** option on the Function Selection menu.

To do a more complete checkout including the use of wrap plugs, select the **Advanced Diagnostics** option on the Function Selection menu. The advanced diagnostics are primarily for the service representative; the advanced diagnostics may instruct you to install wrap plugs to better isolate a problem.

3. Select the **System Verification** option on the Diagnostic Mode Selection menu.
4. To run a general checkout of all installed resources, select the **All Resource** option on the Diagnostic Selection menu. Follow the instructions on the screen to complete the checkout procedure.

To check one particular resource, select that resource on the Diagnostic Selection menu.

The checkout program ends with either of the following results:

- The Testing Complete screen displays a message stating No trouble was found.
- The A Problem Was Detected On (Time Stamp) menu displays, with either a service request number (SRN) or an error code. Make a note of any codes displayed on the display or operator panel.

To perform additional system verification, go to “Step 4. Performing Additional System Verification”. To exit diagnostics, go to “Step 5. Stopping the Diagnostics” on page 31.

Step 4. Performing Additional System Verification

To perform additional system verification, do the following:

1. Press Enter to return to the Diagnostic Selection menu.
2. To check other resources, select the resource. When you have checked all of the resources you need to check, go to “Step 5. Stopping the Diagnostics” on page 31.

Step 5. Stopping the Diagnostics

To stop the diagnostics, do the following:

1. To exit the diagnostics, press the F3 key (from a defined terminal) or press 99 (from an undefined terminal).
2. If you changed any attributes on your ASCII terminal to run the diagnostics, change the settings back to normal.
3. This completes the system verification. If you received an error code, record the code and report it to the service organization.

If the server passed all the diagnostic tests, the verification process is complete and your server is ready to use.

Chapter 3. Installing Options in Your System

This chapter provides instructions to help you add options to your server. Some option removal instructions are provided, in case you need to remove one option to install another. If you have several internal options to install, these instructions enable you to add them all at one time.

Safety Considerations

Observe the following safety precautions anytime you work with this server.

DANGER

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

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

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

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

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

CAUTION:

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

Handling Static-Sensitive Devices

Attention: Adapters, planars, diskette drives, and disk drives are sensitive to static electricity discharge. These devices are wrapped in antistatic bags to prevent this damage.

Take the following precautions:

- If you have an antistatic wrist strap available, use it while handling the device.
- Do not remove the device from the antistatic bag until you are ready to install the device in the system unit.
- With the device still in its antistatic bag, touch it to a metal frame of the system unit.
- Grasp cards and boards by the edges. Hold drives by the frame. Avoid touching the solder joints or pins.
- If you need to lay the device down while it is out of the antistatic bag, lay it on the antistatic bag. Before picking it up again, touch the antistatic bag and the metal frame of the system unit at the same time.
- Handle the devices carefully to prevent permanent damage.

Stopping the System Unit

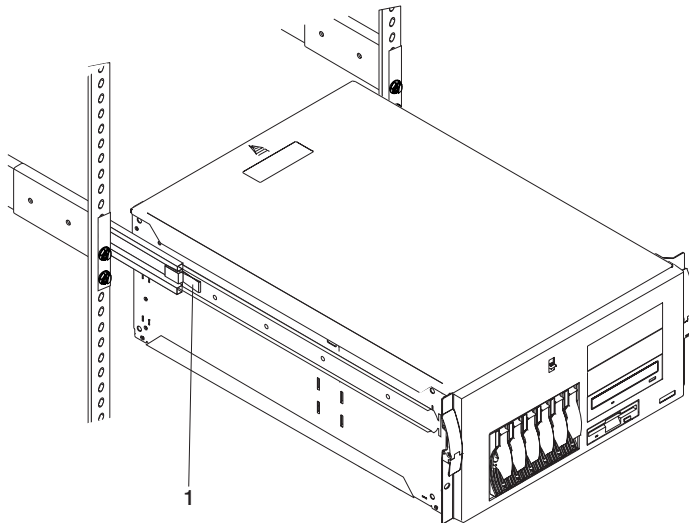
Attention: When shutting down your system to install options, shut down all applications first and then shut down the operating system. The system power turns off and the system goes into standby mode when the operating system is shut down. Before removing power from the system unit, ensure that the shut down process is complete. Failure to do so can result in the loss of data. Some option installation procedures do not require the system to be stopped for installation. If necessary, the option installation procedures in this section will direct you here if stopping the system is required.

1. Log in to the system as root user.
2. Stop any applications that are running on the system.
3. At a command line, type shutdown to stop the operating system.
4. After you shut down the operating system, set the power switches of any attached devices to Off.

Placing the Model 6C1 in the Service Position

Attention: Care should be taken to ensure that a hazardous condition is not created due to uneven mechanical loading when placing the server in the service position. If the rack has a stabilizer it must be firmly attached before placing the server in the service position.

Before doing any actions inside the Model 6C1, you must put the server in the service position. To place the server in the service position, release the left and right side latches and pull the server toward the front until it is fully extended. When the server is fully extended, safety latches on the slide rails lock into place. This prevents the server from being accidentally pulled out too far and dropped.



After completing actions, return the server to the normal position by pressing in on the safety latches (1).

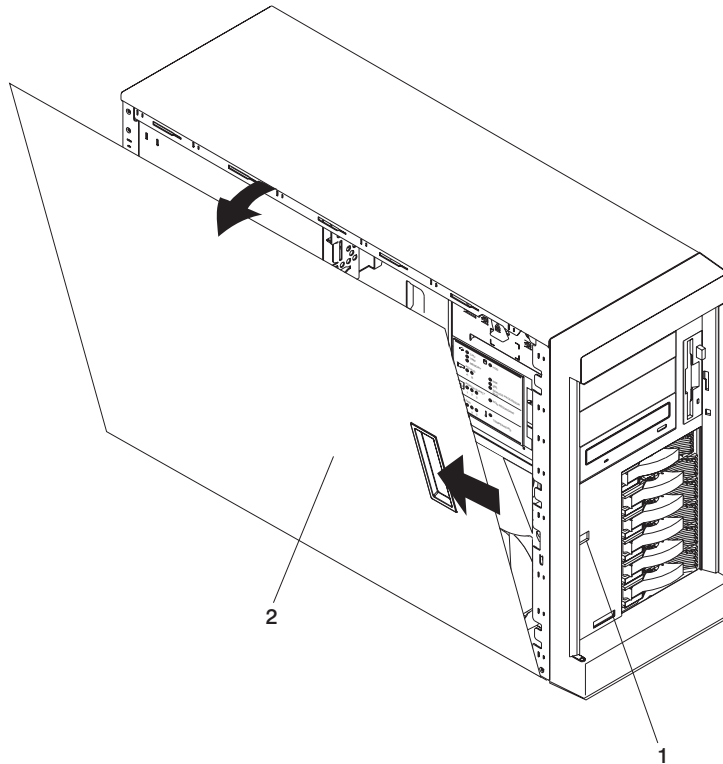
Option List

Choose an option from the list below and go to the installation procedures for the option you are installing.

- Processor Cards
 - Installing a Processor Card, see page 42.
 - Removing a Processor Card, see page 44.
- System Memory Options
 - Installing a Memory Card , see page 46.
 - Removing a Memory Card, see page 48.
 - Installing Memory DIMMs, see page 50.
 - Removing Memory DIMMs, see page 52.
- Adapters
 - Installing Adapters, see page 54.
 - Removing Adapters, see page 58.
- Disk Drive Options
 - Installing Hot-Swap Disk Drives, see page 60.
 - Removing Hot-Swap Disk Drives, see page 63.
- Installing a Internal Disk Drive, see page 65.
- Installing a CD-ROM Drive, Tape Drive, DVD-RAM or DVD-ROM, see page 66.
- Configuring or Deconfiguring Disk and Media Drives, see page 68.
- Hot-Swap Power Supplies
 - Installing a Hot-Swap Power Supply, see page 69.
 - Removing a Hot-Swap Power Supply, see page 71.
- Replacing a Hot-Swap Fan Assembly, see page 73.
- Replacing the Battery, see page 79.
- Connecting the Rack Indicator, see page 81.

Removing the Service Access Covers

Service Access Cover (Model 6E1)

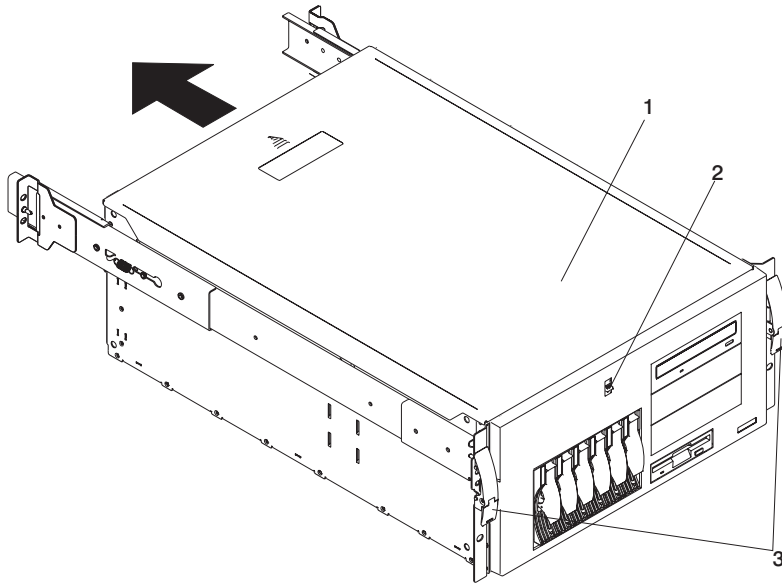


- | | |
|---|----------------------|
| 1 | Cover-release latch |
| 2 | Service access cover |

1. If you are planning to install or remove any part other than a hot-swap hard disk drive, hot-swap power supply, or hot-swap fan, turn off the server and all attached devices and disconnect all external cables and power cords.
2. Slide the cover-release lever (1) to the right to release the cover and slide the cover (2) toward the rear of the server about 25 mm (1 inch). Move the top edge of the cover out from the server; then, lift the cover off the server. Set the cover aside.

Attention: For proper cooling and airflow, replace the cover before turning on the server. Operating the server for extended periods of time (over 30 minutes) with the cover removed might damage server components.

Service Access Cover (Model 6C1)



- | | |
|---|----------------------|
| 1 | Service access cover |
| 2 | Cover-release latch |
| 3 | Side latches |

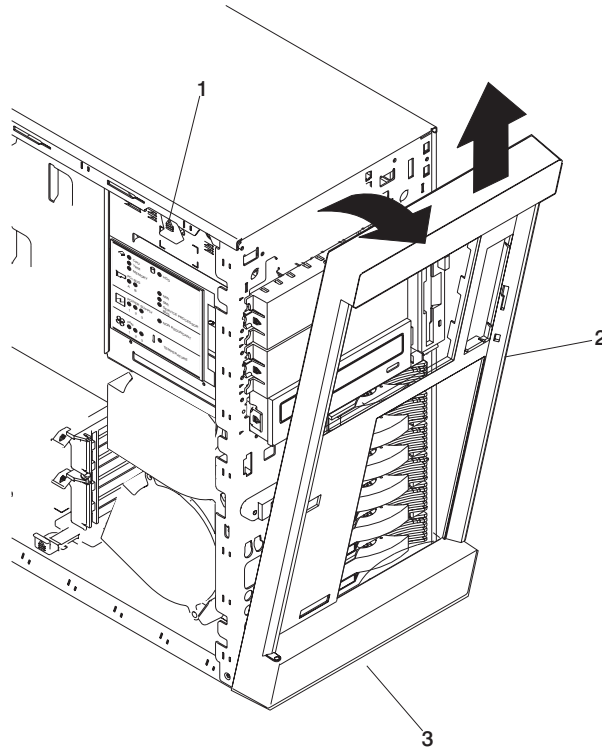
1. To install or remove any part other than a hot-swap hard disk drive, hot-swap power supply, or hot-swap fan, turn off the server and all attached devices and disconnect all external cables and power cords.
2. If you have not already done so, place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
3. Move the cover-release lever (2) down while sliding the service access cover (1) toward the rear of the server about 25 mm (1 inch). Lift the cover off the server and set the cover aside.

Attention: For proper cooling and airflow, replace the cover before turning on the server. Operating the server for extended periods of time (over 30 minutes) with the cover removed might damage server components.

Removing the Bezel

Refer to the following illustrations while you perform the steps in this procedure.

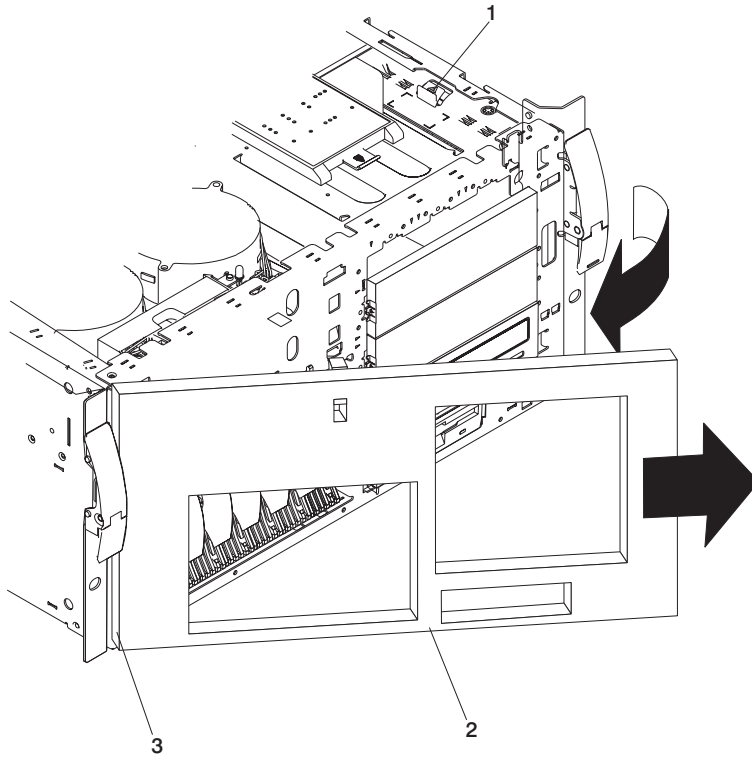
Bezel (Model 6E1)



- | | |
|---|--------------------------------|
| 1 | Bezel-release lever |
| 2 | Bezel |
| 3 | Side with bezel tabs and slots |

1. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
2. Press the bezel-release lever (1) and remove the bezel (2).

Bezel (Model 6C1)



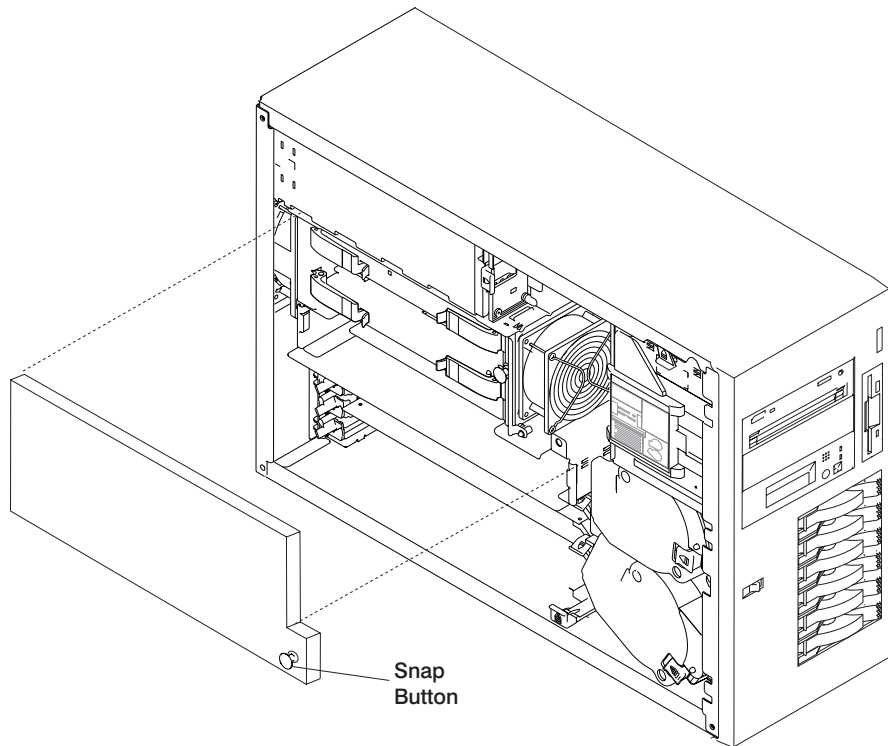
- | | |
|---|--------------------------------|
| 1 | Bezel-release lever |
| 2 | Bezel |
| 3 | Side with bezel tabs and slots |

1. If you have not already done so, place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
2. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
3. Press the bezel-release lever (1) and remove the bezel (2).

Removing and Replacing Processor and Memory Card Cover

Removal

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. Pull out on the snap button and remove the processor and memory card cover.

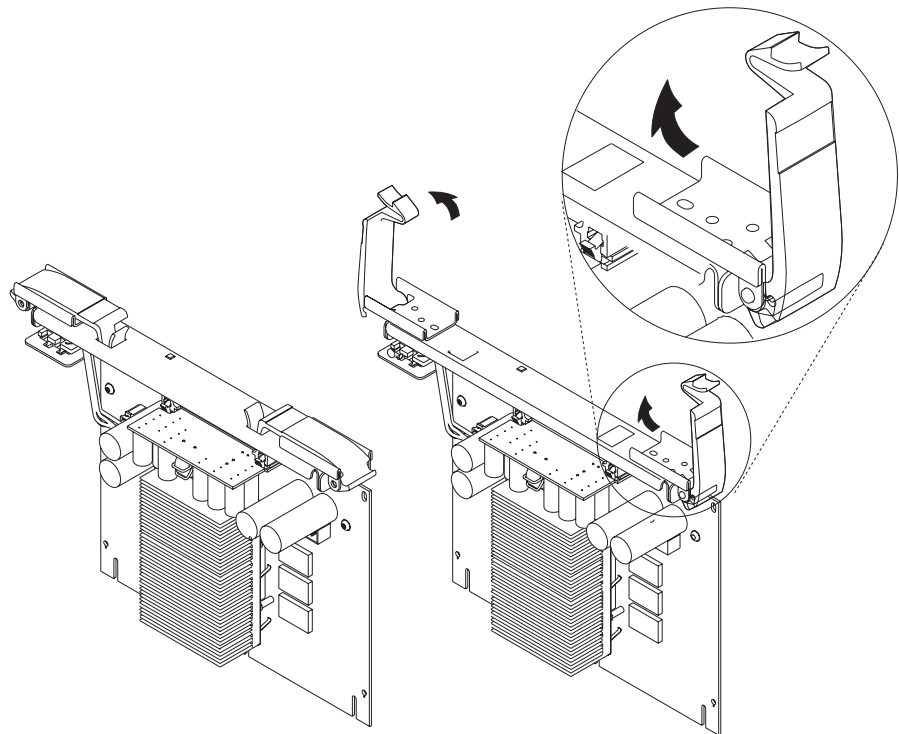


Replacment

Install the processor and memory card cover and push in on the snap button to secure.

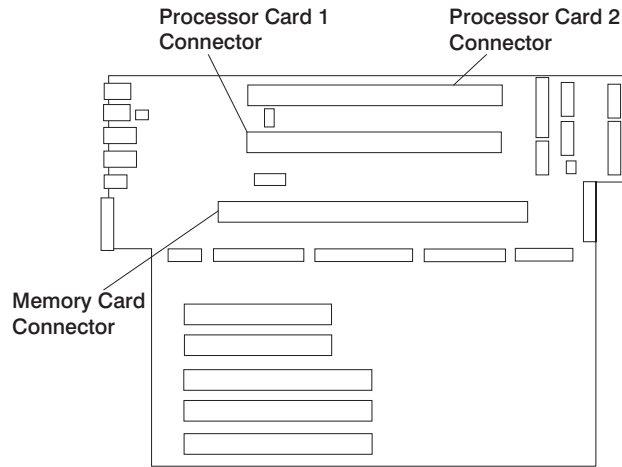
Installing a Processor Card

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. If you have not already done so, remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
6. Remove the air flow baffle from the system.
7. Remove the plastic boot from the processor card connector.
8. Open the retention latches. *Both* latches should be in an upright position. See the following illustration.



9. Align the card with the connector.

Note: If one processor card is installed in the system, the processor must be installed in the processor card 1 connector.

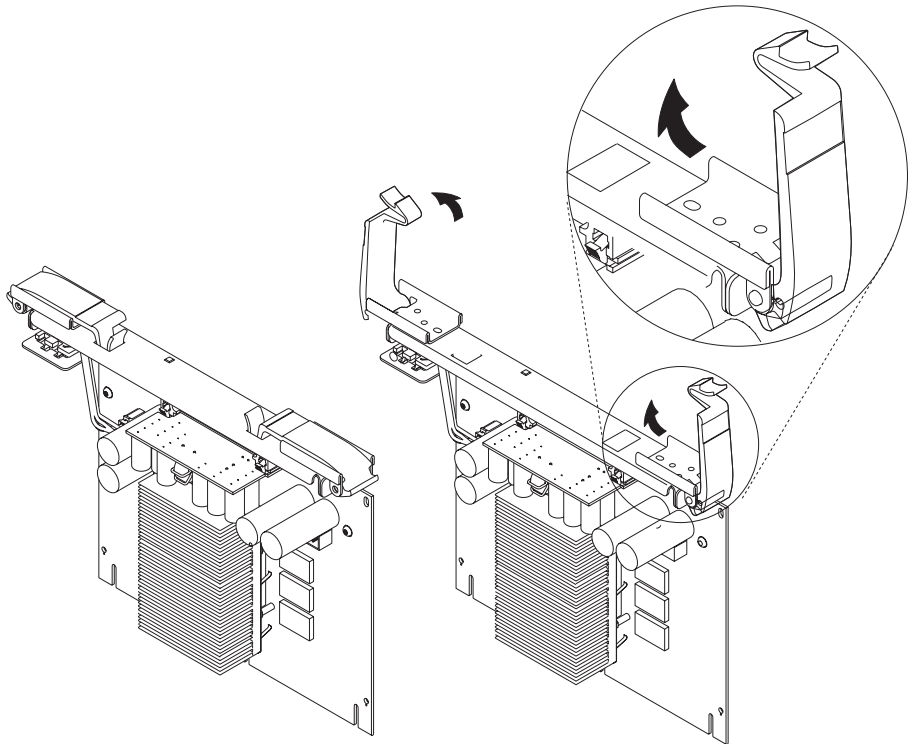


10. Close the retention latches securing the card into the connector.
11. If you have other options to install, refer to "Option List" on page 36.
If you do not have other options to install, replace the processor and memory card cover as described in "Removing and Replacing Processor and Memory Card Cover" on page 41.
12. Replace the system unit covers as described in "Replacing the Service Access Covers" on page 77.

Removing a Processor Card

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. Remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
6. The processor card is secured in place with retention latches, one on each end of the card. Open the retention latches.

Attention: To prevent damage to the card and the card connectors, open or close the retention latches at the same time.



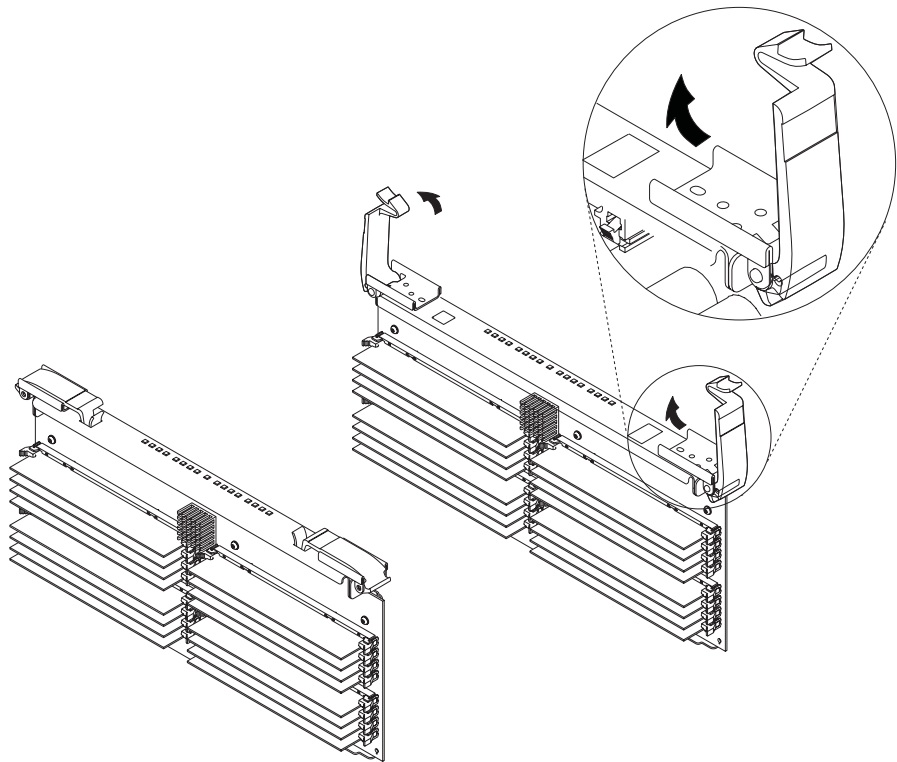
7. Remove the card from the connector. Be sure to store the processor card in a safe place.
8. If you have other options to install, refer to “Option List” on page 36.

If you do not have other options to install, replace the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.

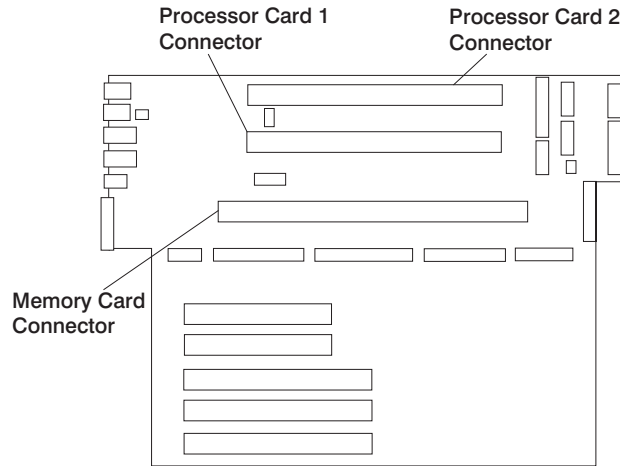
9. Replace the system unit covers as described in “Replacing the Service Access Covers” on page 77.

Installing a Memory Card

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. If you have not already done so, remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
6. Open the retention latches. *Both* latches should be in an upright position. See the following illustration.



7. Align the card with the connector.

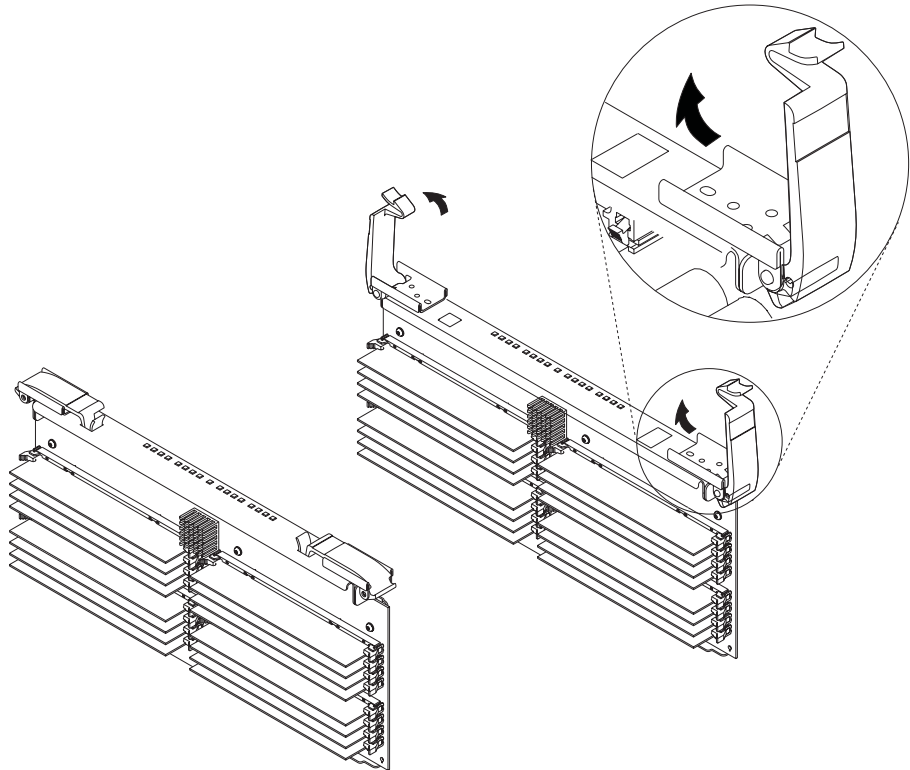


8. Close the retention latches securing the card into the connector.
9. If you have other options to install, refer to "Option List" on page 36.
If you do not have other options to install, replace the processor and memory card cover as described in "Removing and Replacing Processor and Memory Card Cover" on page 41.
10. Replace the system unit covers as described in "Replacing the Service Access Covers" on page 77.

Removing a Memory Card

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. Remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
6. The memory card is secured in place with retention latches, one on each end of the card. Open the retention latches.

Attention: To prevent damage to the card and the card connectors, open or close the retention latches at the same time.



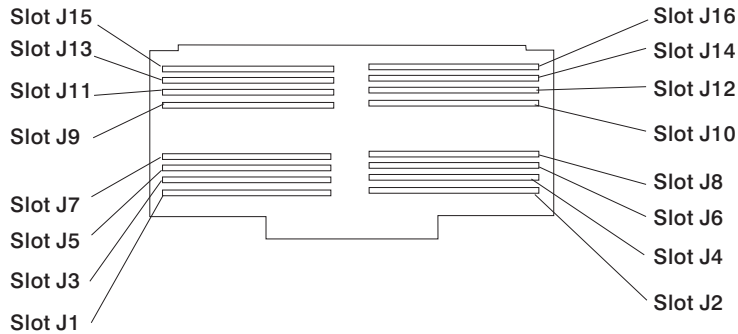
7. Remove the card from the connector. Be sure to store the memory card in a safe place.
8. If you have other options to install, refer to “Option List” on page 36.

If you do not have other options to install, replace the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.

9. Replace the system unit covers as described in “Replacing the Service Access Covers” on page 77.

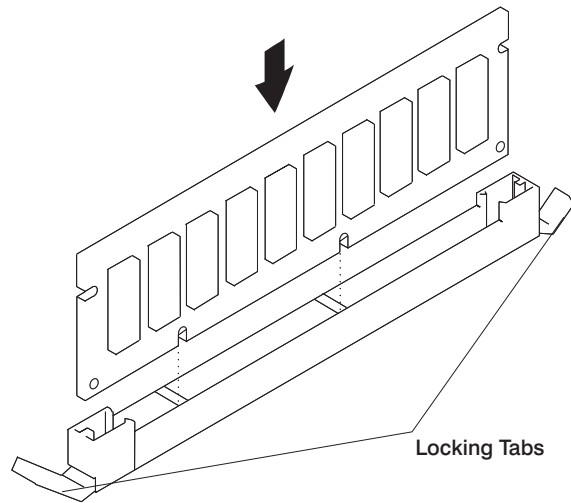
Installing Memory DIMMs

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. If you have not already done so, remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
6. If you have not already done so, remove the memory card as described in “Removing a Memory Card” on page 48.
7. With one hand, touch any metal surface of the chassis to minimize static electrical charges, and then pick up the memory DIMM.
8. Locate the memory DIMM connector on the memory card.



Note: Memory DIMMs must be installed in pairs and in the correct slot configuration. (Slots J1 and J2, J3 and J4, J5 and J6, and so on.)

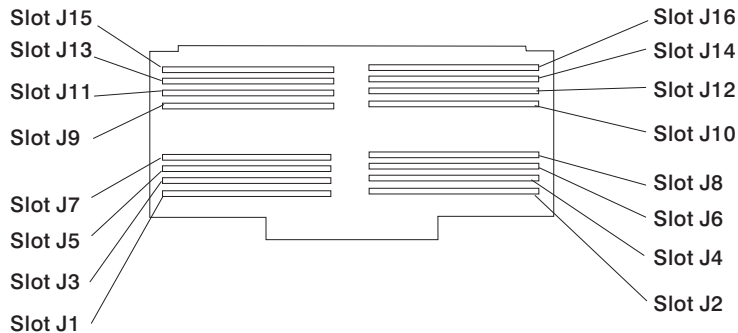
9. Insert the memory module firmly into the connector.



10. Secure the memory DIMM with the locking tabs located at each end of the connector.
11. Replace the memory card into the system unit. See “Installing a Memory Card” on page 46 for more information.
12. If you have other options to install, refer to “Option List” on page 36.
If you do not have other options to install, replace the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
13. Replace the system unit covers as described in “Replacing the Service Access Covers” on page 77.

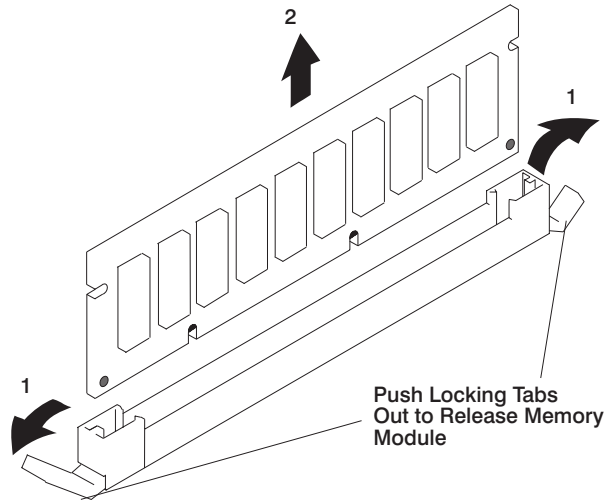
Removing Memory DIMMs

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. If you have not already done so, remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
6. If you have not already done so, remove the memory card as described in “Removing a Memory Card” on page 48
7. Locate the memory DIMM connectors and determine which DIMM you want to remove.



Note: Memory DIMMs must be removed in pairs and in the correct slot configuration. (Slots J1 and J2, J3 and J4, J5 and J6, and so on.)

8. Remove the memory DIMM by pushing the tabs (1) out on the memory connectors and then pulling the memory DIMM (2) out of the connector..



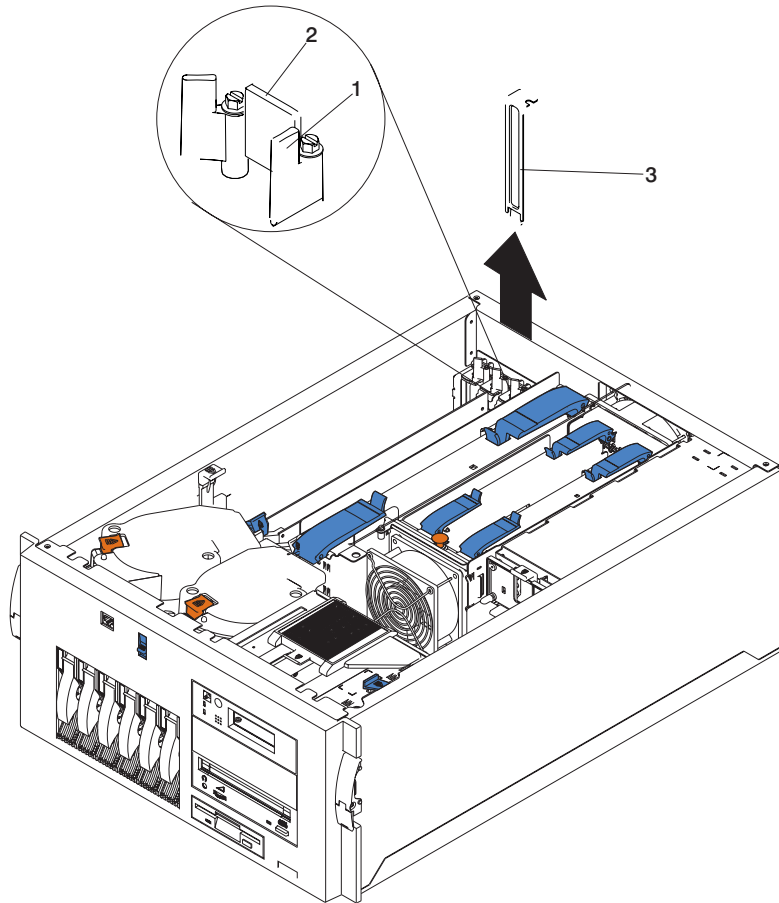
9. Replace the memory card into the system unit. See “Installing a Memory Card” on page 46 for more information.
10. If you have other options to install, refer to “Option List” on page 36.
If you do not have other options to install, replace the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.
11. Replace the system unit covers as described in “Replacing the Service Access Covers” on page 77.

Installing Adapters

Read “Safety Considerations” on page 33.

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. Determine which PCI adapter expansion slot you will use for the adapter.

Note: Check the instructions that were provided with the adapter for any requirements or restrictions. See the *PCI Adapter Placement Reference*, order number SA38-0538, for more information.



- | | |
|---|-------------------------|
| 1 | Adapter retention latch |
| 2 | Tab |
| 3 | Expansion-slot cover |

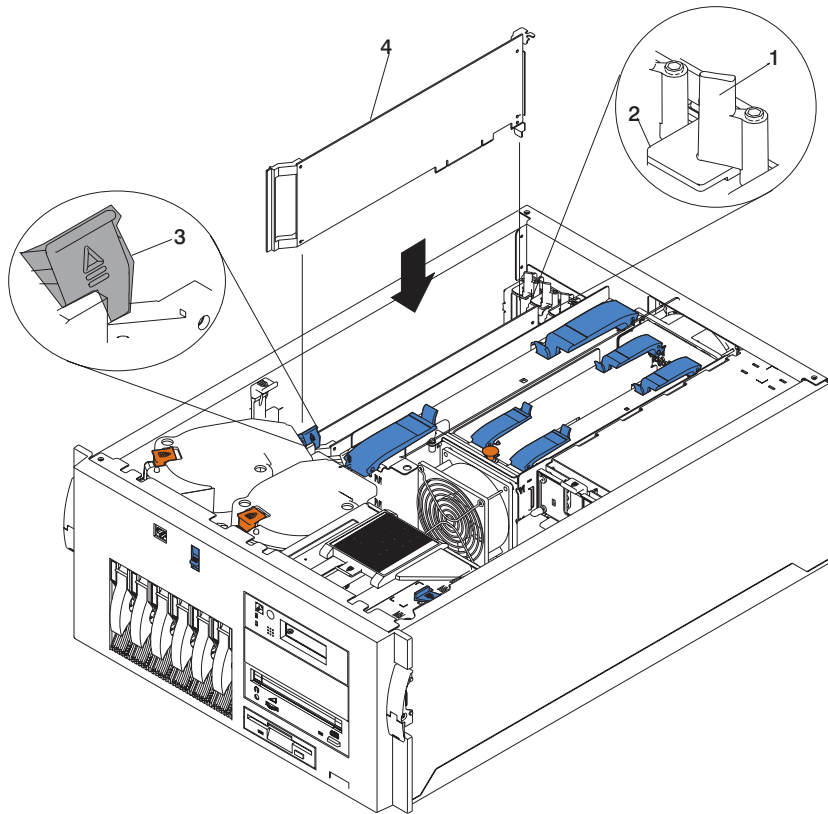
6. Remove the expansion-slot cover:
 - a. Rotate the adapter retention latch (1) counterclockwise.
 - b. Raise the tab (2) on the adapter guide over the tab on the top corner of adapter.
 - c. Remove the expansion-slot cover from the server (3). Store it in a safe place for future use.

Attention: Expansion-slot covers must be installed on all vacant slots. This maintains the electromagnetic emissions characteristics of the system and ensures proper cooling of system components.

7. Refer to the documentation that was provided with the adapter for any cabling instructions. It might be easier for you to route any cables before you install the adapter.
8. If you are installing a long adapter, press on the touchpoint on the adapter retainer flap (3) at the end of the slot nearest the front of the server, and rotate the adapter retainer flap upward.
9. Remove the adapter from the antistatic package.

Attention: Avoid touching the components and gold-edge connectors on the adapter.

10. Place the adapter, component-side up, on a flat, static-protective surface.
11. Set any jumpers or switches as described by the adapter manufacturer.



- | | |
|---|-------------------------|
| 1 | Adapter retention latch |
| 2 | Tab |
| 3 | Adapter retainer flap |
| 4 | Adapter |

12. Install the adapter.
 - a. Carefully grasp the adapter (4) by its top edge or upper corners, and align it with the expansion slot on the system board.
 - b. Press the adapter *firmly* into the expansion slot.

Attention: When you install an adapter in the server, be sure that it is completely and correctly seated in the system-board connector. Incomplete insertion might cause damage to the system board or the adapter.

- c. Lower the tab (2) on the adapter guide over the tab on the top corner of adapter. Rotate the adapter retention latch (1) clockwise until it snaps into place.

Attention: Power cannot be restored to the adapter slot if the tab is not lowered into place.

- d. Close the adapter retainer flap (3) if previously opened.

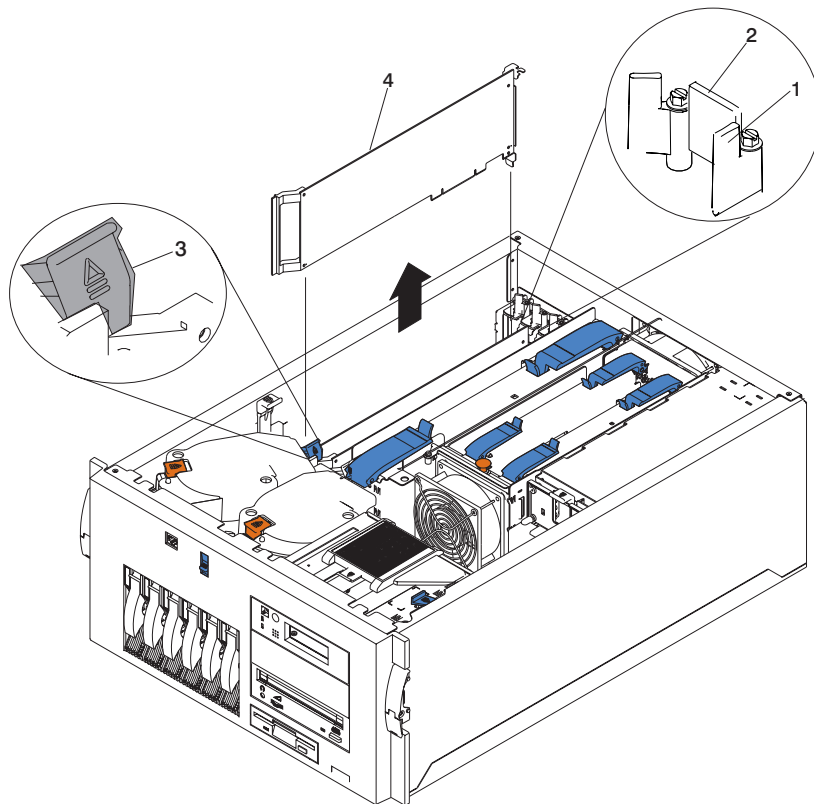
13. Connect any needed cables to the adapter.

Attention: Route cables so that the flow of air from the fans is not blocked.

14. If you have other options to install, refer to “Option List” on page 36.
If you do not have other options to install, replace the covers as described in “Replacing the Service Access Covers” on page 77.

Removing Adapters

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. Determine which adapter you are removing.
6. Disconnect any cables attached to the adapter.



- | | |
|---|-------------------------|
| 1 | Adapter retention latch |
| 2 | Tab |
| 3 | Adapter retainer flap |
| 4 | Adapter |

7. If you are removing a long adapter, press on the touchpoint on the adapter retainer flap (3) at the end of the slot nearest the front of the server, and rotate the adapter retainer flap upward.

8. Rotate the adapter retention latch (1) counterclockwise.
9. Raise the tab (2) on the adapter guide over the tab on the top corner of the adapter.
10. Carefully grasp the adapter (4) by its top edge or upper corners, and remove it from the system board.
11. If you are not installing another adapter in this slot, install an expansion-slot cover and close the adapter retainer flap (3) if previously opened.
12. If you have other options to install, refer to "Option List" on page 36.
If you do not have other options to install, replace the covers as described in "Replacing the Service Access Covers" on page 77.

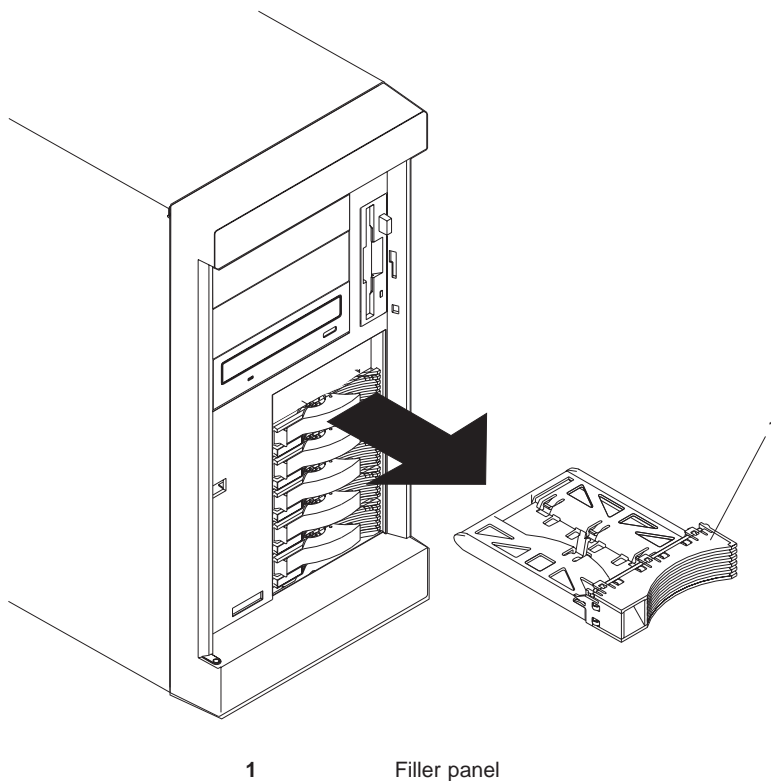
Installing Hot-Swap Disk Drives

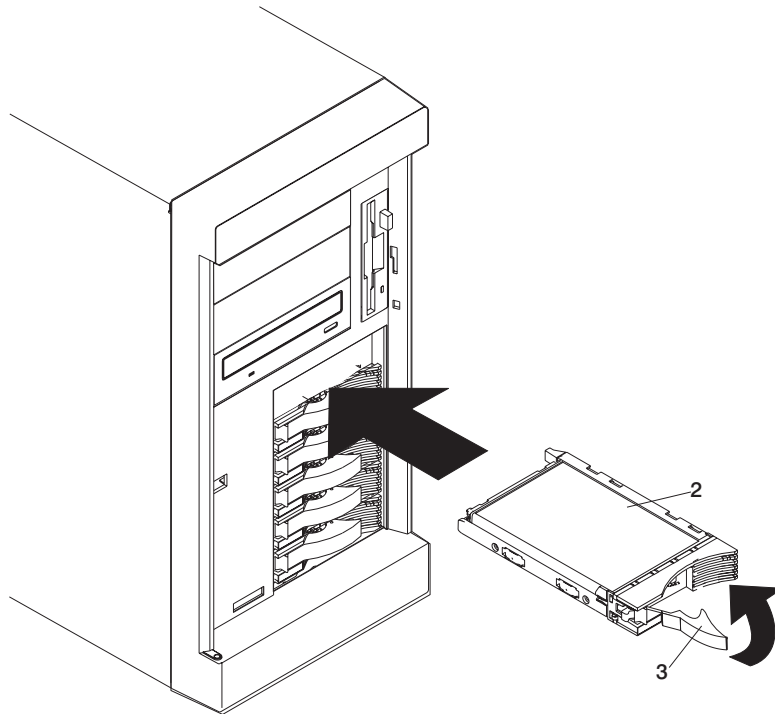
Read “Safety Considerations” on page 33.

The hot-swap drive bays support hot-swap drives only.

Note: You do not have to turn off the server to install hot-swap drives in these bays. However, you must turn off the server when performing any steps that involve installing or removing cables.

Refer to the following illustrations while you perform the steps in this procedure.





2 Drive
3 Drive tray handle (in open position)

1. If the server is a Model 6E1, unlock and open the server door.

Attention: To maintain proper system cooling, do not operate the server for more than two minutes without either a drive or a filler panel installed for each bay.
2. Remove the filler panel (1) from one of the empty hot-swap bays by inserting your finger into the depression at the left side of the filler panel and pulling the panel away from the server.

Attention: Do not remove the drive from the tray assembly.
3. Install the hard disk drive (2) in the hot-swap bay:
 - a. Ensure the drive tray handle (3) is open (that is, perpendicular to the drive).
 - b. Align the drive/tray assembly so that it engages the guide rails in the bay.
 - c. Gently push the drive/tray assembly into the bay until the drive connects to the backplane.
 - d. Push the tray handle to the right until it locks.
4. Check the hard disk drive status indicators to verify that the hard disk drives are operating properly.
5. Repeat the previous steps for all the drives you are installing.
6. Log in as root user.

7. At the command line, type `smitty`.
8. Select **Devices**.
9. Select **Install/Configure Devices Added After IPL** and press Enter. Follow the instructions on the screen. Successful configuration is indicated by the OK message displayed next to the **Command** field at the top of the screen.
10. Press F10 to exit smitty.
11. If you have other options to install, refer to “Option List” on page 36.
If you do not have other options to install, close and lock the server door

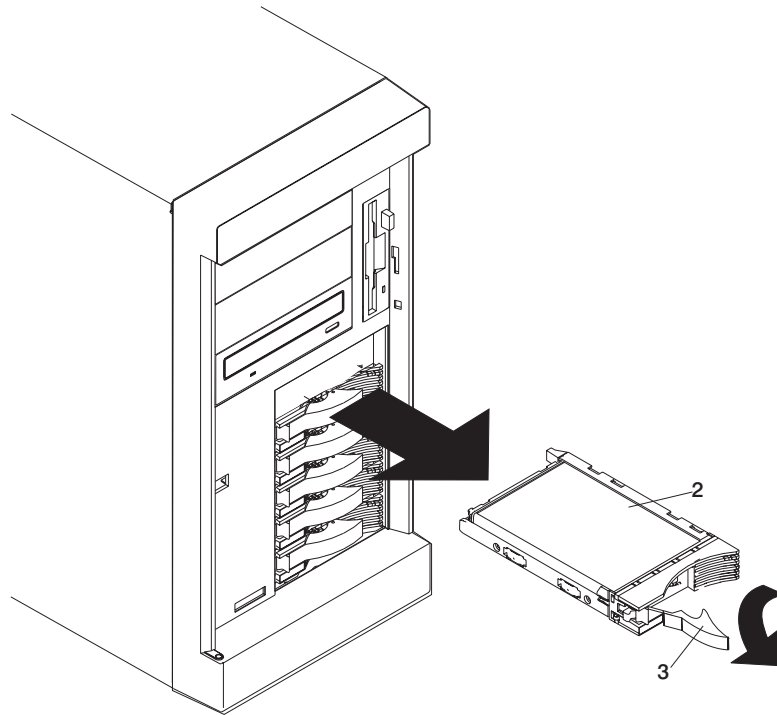
Removing Hot-Swap Disk Drives

You do not have to turn off the server to remove a drive from the hot-swap bays.

Attention:

1. Before you remove a hot-swap hard disk drive that is not defective, back up all important data.
2. To avoid damage to a hard disk drive, *do not* remove the drive from the hot-swap bay until it has had time to spin down (approximately 30 seconds). Handle the drive carefully.
3. Before you hot-swap a drive, make sure it is defective. If you partially or completely remove a good drive instead of a defective one, the server might lose valuable data.

Refer to the following illustration while you perform the steps in this procedure.

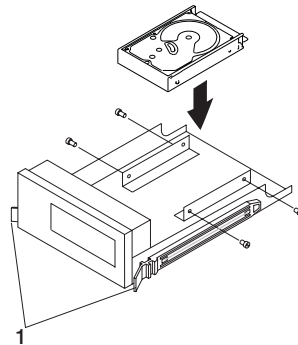


- 2 Drive
- 3 Drive tray handle (in open position)

1. If the server is a Model 6E1, unlock and open the server door.
Attention: To maintain proper system cooling, do not operate the server for more than two minutes without either a drive or a filler panel installed for each bay.
2. Log in as root user.
3. At the command line, type `smitty`.
4. Select **System Storage Management (Physical and Logical Storage)**.
5. Select **Removable Disk Management**.
6. Select **Remove a Disk**.
7. Select the desired disk from the list on the screen and press Enter.
8. Follow the instructions on the screen to remove the drive.
9. When you are asked "Are you sure?" answer "Yes" and press Enter. The power LED on the drive that you selected turns off.
10. Remove the defective hard disk drive (2) by placing the handle (3) on the drive to the open position (perpendicular to the drive) and pulling the hot-swap tray from the bay.
11. Repeat the previous steps for all the drives you are removing.
12. Press F10 to exit **smitty**.
13. If you have other options to install, refer to "Option List" on page 36.
If you do not have other options to install, close and lock the server door.

Installing an Internal Disk Drive

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. Remove the bezel as described in “Removing the Bezel” on page 39.
5. Remove the operator panel by grasping the release levers (1) and pull the operator panel tray from the system unit.
6. With one hand, touch any metal surface of the chassis to minimize static electrical charges, and then pick up the disk drive.
7. Insert the disk drive into the operator panel tray.

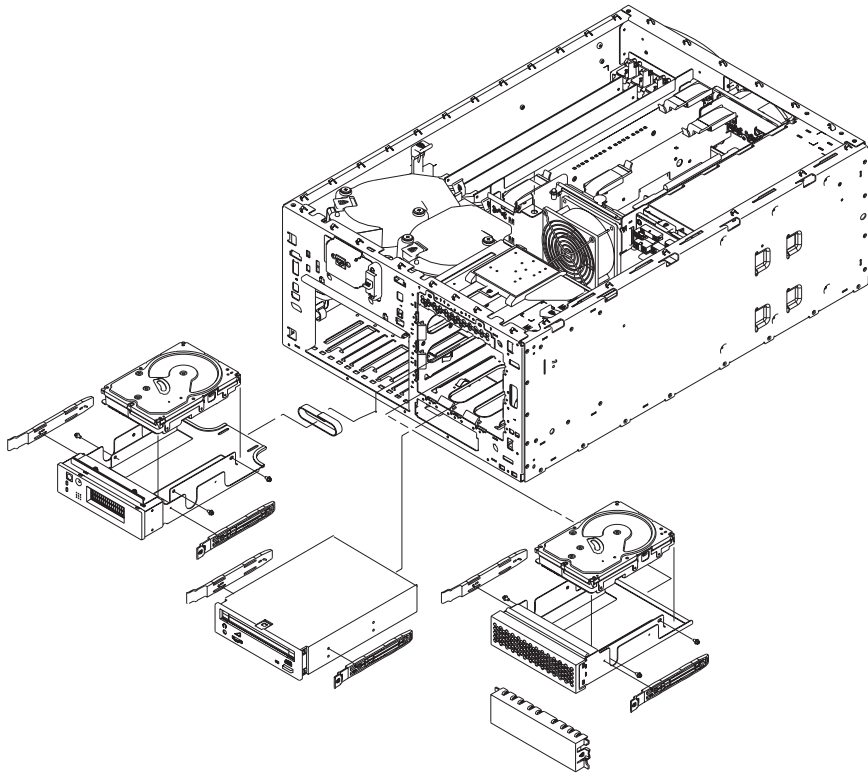


8. Align the screw holes on the disk drive with the screw holes on the operator panel tray.
9. Install the four retaining screws.
10. Install the operator panel tray back into the system unit.
11. Connect all disk drive cables.
12. If you have other options to install, refer to “Option List” on page 36.
If you do not have other options to install; replace the bezel as described in “Replacing the Bezel” on page 75.

Installing a CD-ROM, Tape Drive, DVD-RAM, or DVD-ROM

Read “Safety Considerations” on page 33.

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. Remove the bezel as described in “Removing the Bezel” on page 39.
5. Remove the filler panel from the bay opening by pulling the filler panel away from the server. You do not need the filler panel when you have a drive installed in the bay.



6. Touch the static-protective bag containing the drive to any unpainted metal surface on the server; then, remove the drive from the bag and place it on an antistatic surface.
7. Set any jumpers or switches on the drive according to the documentation that was provided with the drive.
8. Install rails on the drive.
 - a. Pull the blue slide rails off the back of the filler panel.

- b. Clip the rails onto the sides of the drive.
9. Place the drive so that the slide rails engage in the bay guide rails. Push the drive into the bay until it clicks into place.
10. Connect one of the connectors on the SCSI cable for the non-hot-swap drive bays to the back of the drive.
11. Connect a power cable to the back of the drive. Power cables for non-hot-swap drives are preinstalled in the server. The connectors are keyed and can be inserted only one way.
12. If you have other options to install, refer to “Option List” on page 36.
If you do not have other options to install; replace the bezel as described in “Replacing the Bezel” on page 75.

Configuring or Deconfiguring Disk Drives

To configure or deconfigure a drive, use the following procedures:

Configuring Drives

1. Log in as root user.
2. At the command line, type `smitty`.
3. Select **System Storage Management (Physical and Logical Storage)** and press Enter.
4. Select **Logical Volume Manager** and press Enter.
5. Select **Volume Groups** and press Enter.
6. Select **Set Characteristics of a Volume Group** and press Enter.
7. Select **Add a Physical Volume to a Volume Group**.
8. Fill in the fields for the drive you are adding to the system. Press F4 for a list of selections.

See the *AIX System Management Guide: Operating System and Devices* to finish the drive configuration. This publication is available at the following Web address: <http://www-1.ibm.com/servers/aix/library/>. Select **Technical Publications**. This publication is also contained on the *AIX Documentation* CD. The documentation is made accessible by loading the documentation CD files onto the hard disk or by mounting the CD in the CD-ROM drive.

9. Press F10 to exit `smitty`.

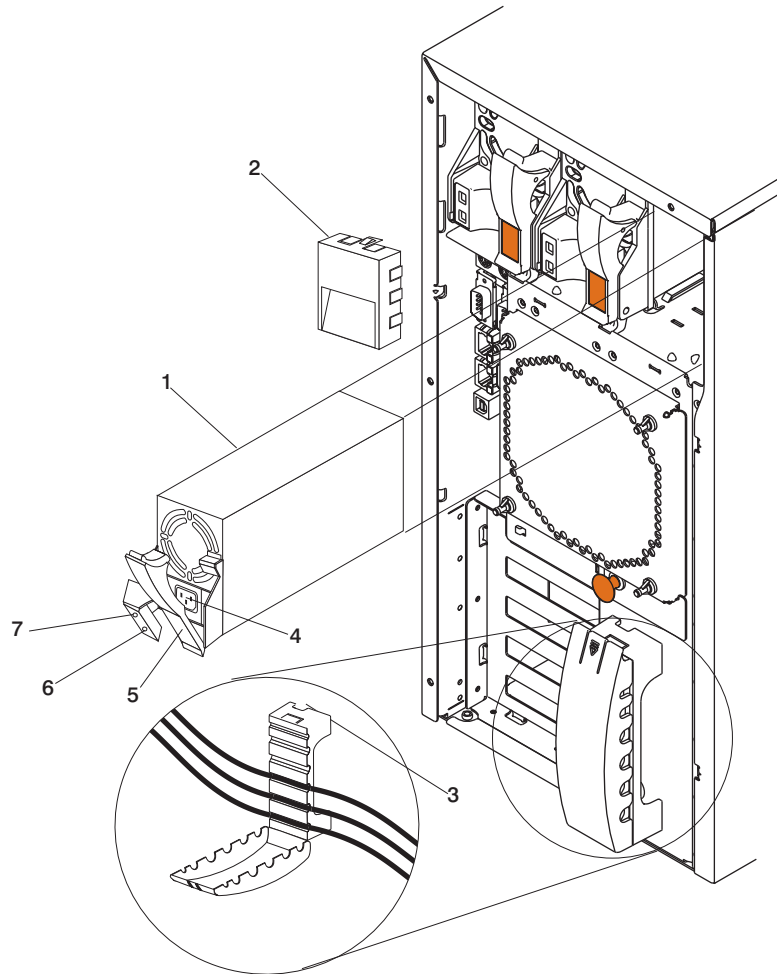
Deconfiguring Drives

1. Log in as root user.
2. At the command line, type `smitty`.
3. Select **System Storage Manager (Physical and Logical Storage)** and press Enter.
4. Select **Logical Volume Manager** and press Enter.
5. Select **Volume Groups** and press Enter.
6. Select **Set Characteristics of a Volume Group**. and press Enter.
7. Select **Remove a Physical Volume from a Volume Group**.
8. Press F4 to list the available volume groups, then select the volume group name and press Enter.
9. Press F4 to select a physical volume, and follow the instructions on the screen to select the physical volume. Then press Enter.
10. Return to the procedure that directed you here.

Installing a Hot-Swap Power Supply

Read “Safety Considerations” on page 33.

The server comes with two power supplies. You can add a third power supply. With a third power supply installed the system continues to function if a single power supply fails. Refer to the following illustration while performing the steps in this procedure.



- | | | | |
|---|---|---|----------------------|
| 1 | Power supply | 2 | Filler panel |
| 3 | Cable-restraint bracket | 4 | Power cord connector |
| 5 | Handle on power supply (in open position) | 6 | AC power light |
| 7 | DC power light | | |

Note: You do not need to turn off the power to the server to install hot-swap power supplies if your system has a redundant power supply.

1. Remove the filler panel (2) from the empty power supply bay by inserting your finger into the depression on the filler panel and pulling it away from the server. Save the filler panel in case you remove the power supply at a later time.

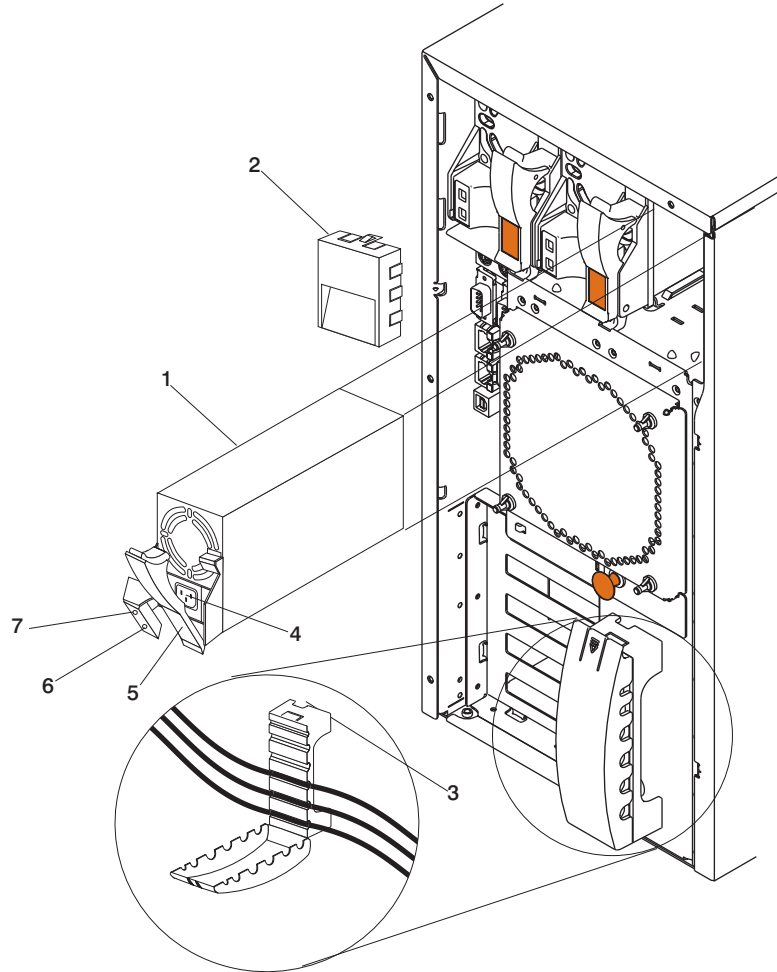
Note: During normal operation, each power-supply bay must have either a power supply or filler panel installed for proper cooling.

2. Install the power supply (1) in the bay:
 - a. Place the handle (5) on the power supply in the open position (that is, perpendicular to the power supply) and slide the power supply into the chassis.
 - b. Gently close the handle to seat the power supply in the bay.
3. Plug the power cord for the added power supply into the power cord connector (4).
4. Route the power cord through the cable-restraint bracket (3).
5. Plug the power cord into a properly grounded electrical outlet.
6. Verify that the DC Power light (7) and AC Power light (6) on the power supply are lit, indicating that the power supply is operating correctly.
7. If you have other options to install, refer to "Option List" on page 36.

Removing a Hot-Swap Power Supply

Read “Safety Considerations” on page 33.

Refer to the following illustration while performing the steps in this procedure.



- | | | | |
|---|---|---|----------------------|
| 1 | Power supply | 2 | Filler panel |
| 3 | Cable-restraint bracket | 4 | Power cord connector |
| 5 | Handle on power supply (in open position) | 6 | AC power light |
| 7 | DC power light | | |

Note: You do not need to turn off the power to the server to install hot-swap power supplies if your system has a redundant (third) power supply installed.

1. If your system does not have a redundant (third) power supply installed, shut down the system as described in “Stopping the System Unit” on page 34 and turn off the power to the server and peripheral devices. Otherwise, go to the next step.

2. To remove the power supply (1):

a. Unplug the power cord connector from the power supply.

Attention: Be careful when you remove the hot-swap power supply; the power supply might be too hot to handle comfortably.

b. Remove the defective power supply by placing the handle (5) on the power supply in the open position (perpendicular to the power supply) and pulling the power supply from the bay.

3. If you are not replacing the power supply:

a. Install a power-supply filler panel (2).

Note: During normal operation, each power-supply bay must have either a power supply or filler panel installed for proper cooling.

b. Open the cable-restraint bracket (3) and remove the power cord from the cable-restraint bracket. Close the cable-restraint bracket.

c. Unplug the power cord from the electrical outlet.

If you are replacing the power supply:

a. Place the handle (5) on the power supply in the open position, and slide the power supply into the chassis.

b. Gently close the handle on the power supply to seat the power supply in the bay.

c. Plug the power cord for the power supply into the power cord connector (4).

d. Verify that the AC Power light (6) and DC Power light (7) are lit, indicating that the power supply is operating correctly.

e. If you have other options to install, refer to “Option List” on page 36.

Replacing a Hot-Swap Fan Assembly

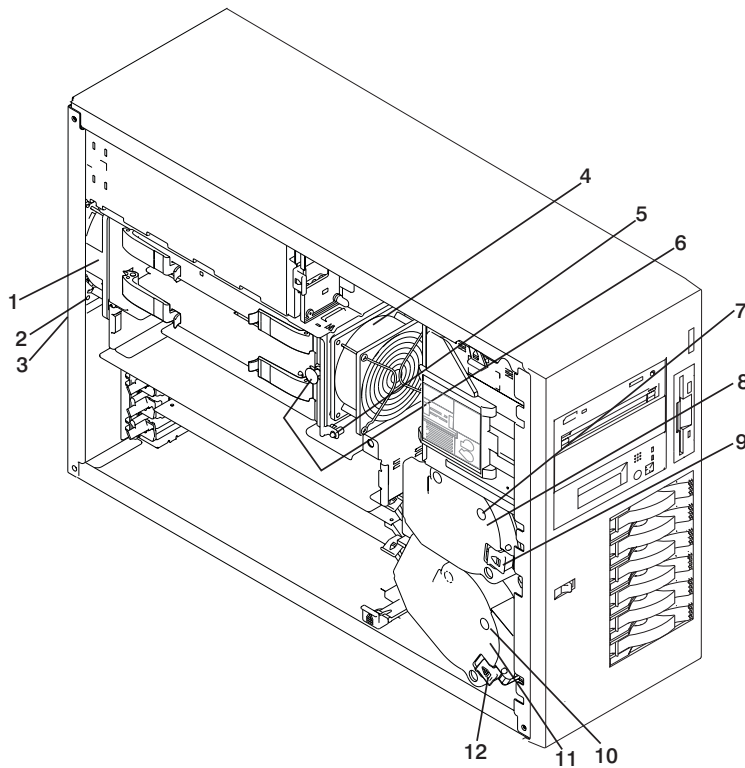
Read “Safety Considerations” on page 33.

The server comes with four hot-swap fan assemblies.

Attention: Replace a fan that has failed within 48 hours to help ensure proper cooling.

Note: You do not need to turn off the power to the server to replace a hot-swap fan assembly.

The following illustration shows the replacement of a hot-swap fan assembly. Refer to this illustration while performing the steps in this procedure.



1	Hot-swap fan assembly 1	2	Fan assembly 1 LED
3	Fan 1 release button	4	Hot-swap fan assembly 2
5	Fan assembly 2 LED	6	Fan 2 release button
7	Fan assembly 3 LED	8	Hot-swap fan assembly 3
9	Fan 3 release latch	10	Fan assembly 4 LED
11	Hot-swap fan assembly 4	12	Fan 4 release latch

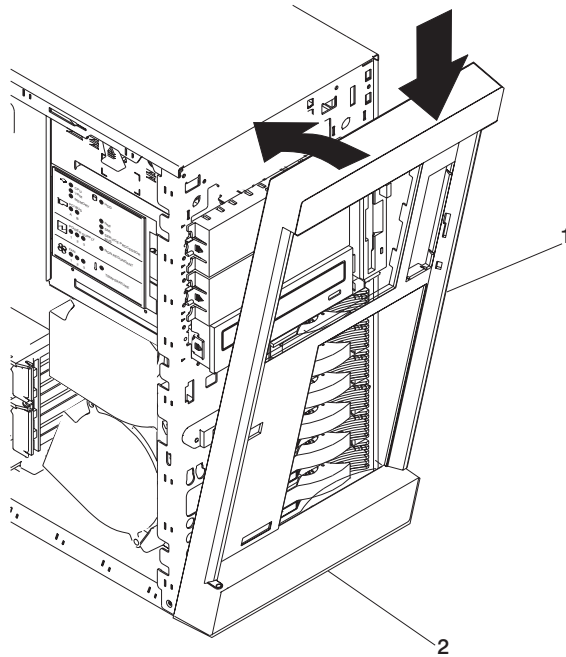
1. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
2. For fan assemblies 2, 3, and 4 you must remove the service access cover. See “Removing the Service Access Covers” on page 37.

Attention: To ensure proper system cooling, do not remove the service access cover for more than 30 minutes during this procedure.

3. Determine which fan assembly (fan assembly 1 **(1)**, fan assembly 2 **(4)**, fan assembly 3 **(8)** or fan assembly 4 **(11)**) to replace by checking the fan LEDs on the indicator panel (see Chapter 4, “Attention LED and Lightpath LEDs” on page 83) and the LEDs located on the fan assemblies.
4. If you are removing fan assembly 2, you must remove the processor and memory card cover. See “Removing and Replacing Processor and Memory Card Cover” on page 41.
5. If you are removing fan assembly 1 or fan assembly 2, pull out the snap button and remove the fan.
If you are removing fan assembly 3 or fan assembly 4, press the orange release latch **(9)**, or **(12)** for the fan and pull the fan away from the server. Slide the replacement fan assembly into the server until it clicks into place.
6. Verify that the FAN LED on the diagnostic panel is not lit. If the FAN LED is lit, reseal the fan.
7. If removed earlier, replace the processor and memory card cover. See “Removing and Replacing Processor and Memory Card Cover” on page 41.
8. Replace the service access cover. See “Replacing the Service Access Covers” on page 77.

Replacing the Bezel

Bezel (Model 6E1)

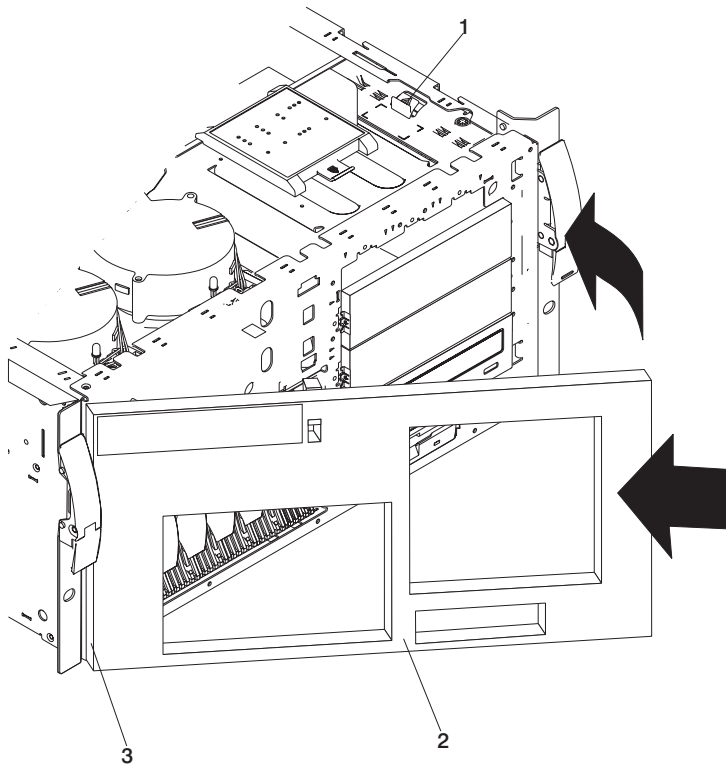


- | | |
|---|-------------------------|
| 1 | Trim bezel |
| 2 | Slots (hidden by bezel) |

Note: When replacing the bezel, check the serial number on the bezel with the serial number on the front of the system to ensure that you are installing the correct bezel on the correct system.

1. Place the tabs at the bottom edge of the trim bezel (1) in the slots (2) at the bottom front of the server.
2. Press the top of the bezel toward the server until the bezel clicks into place.

Bezel (Model 6C1)



- | | |
|---|-------------------------|
| 1 | Bezel-release lever |
| 2 | Trim bezel |
| 3 | Slots (hidden by bezel) |

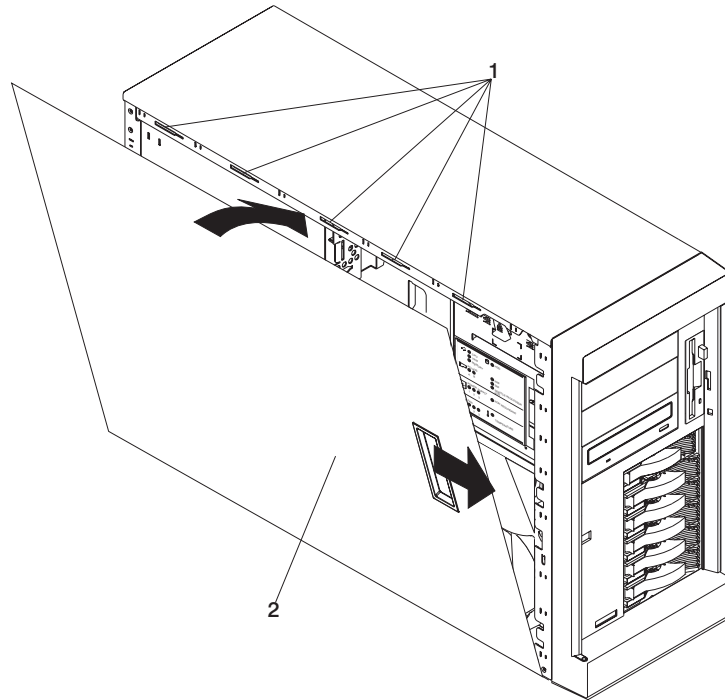
Note: When replacing the bezel, check the serial number on the bezel with the serial number on the front of the system to ensure that you are installing the correct bezel on the correct system.

1. Place the tabs on the left side of the trim bezel in the slots (**3**) at the left front of the server.
2. Press the right end of the bezel toward the server until the bezel clicks into place.

Replacing the Service Access Covers

Service Access Cover (Model 6E1)

Refer to the following illustration to install the service access cover.

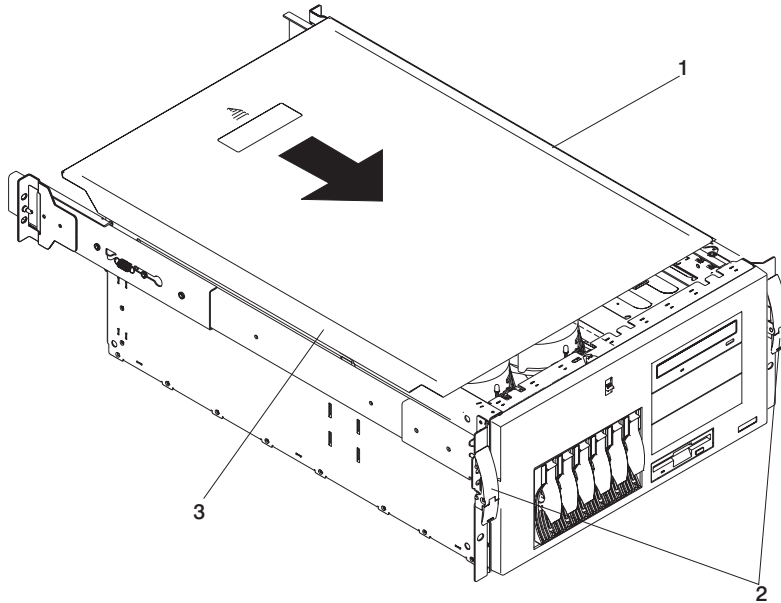


- | | |
|---|----------------------|
| 1 | Slots |
| 2 | Service access cover |

1. Align the left-side cover (2) with the left side of the server, about 25 mm (1 inch) from the front of the server; place the bottom of the left-side cover on the bottom rail of the left-side side of the chassis.
2. Insert the tabs at the top of the cover into the slots (1) at the top of the server side.
3. Hold the cover against the server, and slide the cover toward the front of the server until the cover clicks into place.

Service Access Cover (Model 6C1)

Refer to the following illustration to install the service access cover.



- | | |
|---|----------------------|
| 1 | Service access cover |
| 2 | Side latches |
| 3 | Flanges |

1. Align the service access cover (1) with the top of the server, about 25 mm (1 inch) from the front of the server. The flanges on the left and right sides of the cover should be on the outside of the server chassis.
2. Hold the cover against the server, and slide the cover toward the front of the server until the cover clicks into place.

Replacing the Battery

CAUTION:

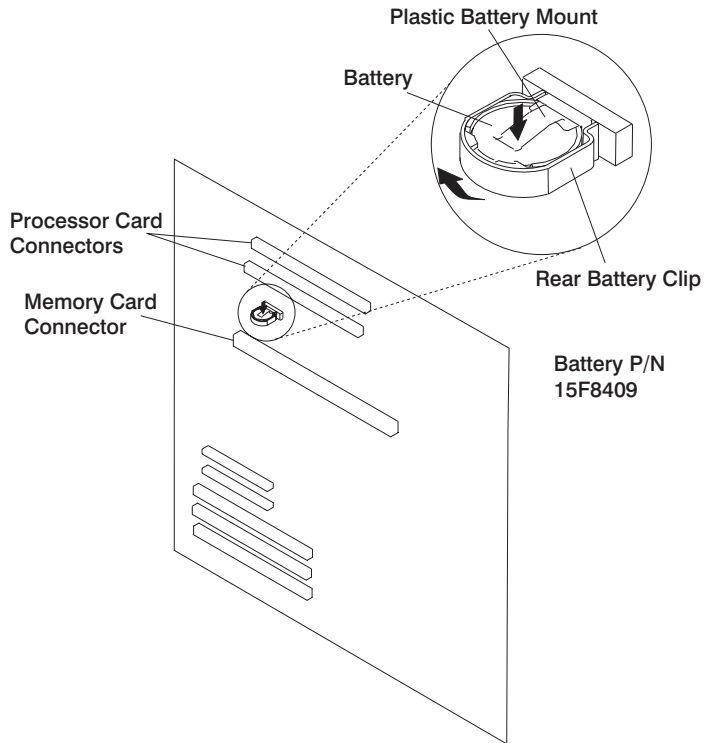
A lithium battery can cause fire, explosion, or a severe burn. Do not recharge, disassemble, heat above 100 degrees C (212 degrees F), solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace only with the part number specified for your system. Use of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

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

Dispose of the battery according to local regulations.

1. If you have not already done so, shut down the system as described in “Stopping the System Unit” on page 34.
2. If you have not already done so, unplug the system unit power cables from the electrical outlets.
3. If your server is a Model 6C1 (rack mount), place the server in the service position as described in “Placing the Model 6C1 in the Service Position” on page 35.
4. If you have not already done so, remove the service access cover as described in “Removing the Service Access Covers” on page 37.
5. If you have not already done so, remove the processor and memory card cover as described in “Removing and Replacing Processor and Memory Card Cover” on page 41.

6. Locate the battery on the system board.

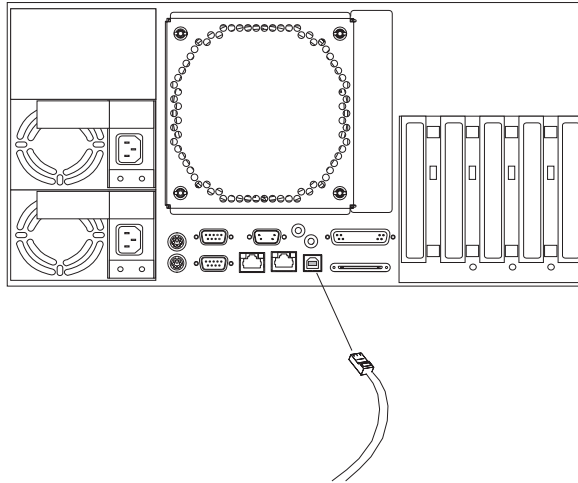


7. If needed, remove any processor cards or memory card to gain access to the battery.
8. Pry the battery out of its mount using your fingernail or a small blunt object. After the top of the battery has cleared the plastic mount, pull it up and out of the system board.
9. Ensure that the battery polarity is correct.
10. Using your thumb, gently press the battery into the battery mount. Use your index finger to support the back of the battery mount during this operation.
11. Replace any removed processor or memory cards.
12. Replace the processor and memory card cover as described in "Removing and Replacing Processor and Memory Card Cover" on page 41.
13. Replace the system unit covers as described in "Replacing the Service Access Covers" on page 77.
14. Reset the time and date.
15. If running AIX, the **bootlist** command may have to be run from AIX while logged in as root user. This restores the custom boot list and allow the option of Select Software under multiboot to start the operating system. The IP (Internet Protocol) parameters might have to be rebuilt also.

Connecting the Rack Indicator

The rack indicator feature signals when a drawer installed in a rack has a failure.

Connect the rack indicator cable.



Chapter 4. Attention LED and Lightpath LEDs

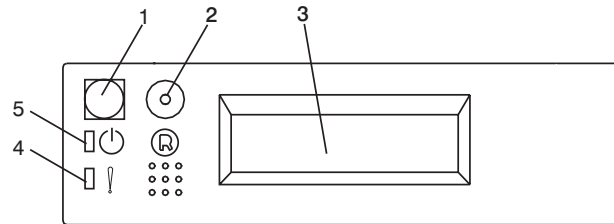
The Attention and Lightpath LEDs provide for an obvious and intuitive means to identify failing components in your server.

Operator Panel Display

When a failing component is detected in your server, the Attention LED is turned on. To further help you identify the failing component, go to the indicator panel (see “Indicator Panel” on page 84) inside the server and check which LEDs are on. If either of the following conditions exists:

- No LEDs lit on the indicator panel
- PCI LED is the only LED lit on the indicator panel

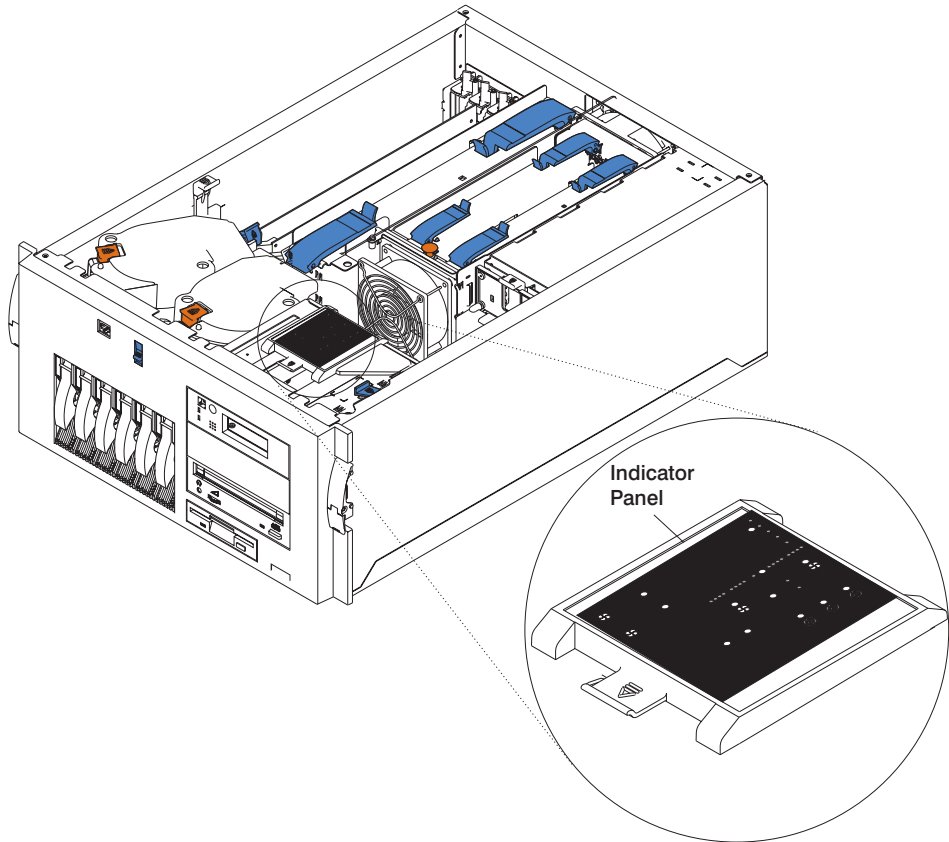
Go to Step 3 in “Problem Determination Using the Standalone or Online Diagnostics” on page 87. Otherwise, continue with this procedure.



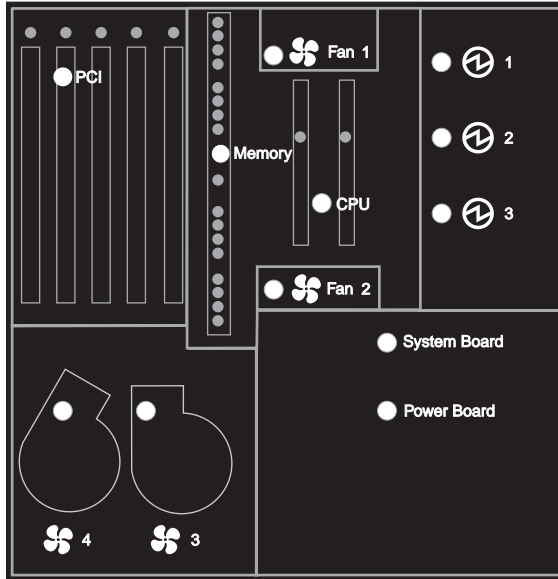
1	Power-On Switch
2	Reset Switch
3	Display
4	Attention LED
5	Power-On LED

Indicator Panel

You can access the indicator panel without any tools. The panel provides enough information to identify the area that needs attention. The panel contains a group of amber LEDs that indicate which functional area of the system is experiencing the fault (such as power, CPUs, memory, fans). If one of these LEDs is on, the user or service representative is directed to the physical area of the server where an additional LED will be on, indicating the component that is responsible for the current fault.



The following illustration shows the LEDs on the indicator panel, located inside the server.



Component LEDs

In addition to the indicator panel or display, individual LEDs are located on or near the failing components. The LEDs are either on the component itself or on the carrier of the component (memory card, fan, memory module, CPU).

The LEDs are amber, except for the power supplies. For the power supplies, two green LEDs (AC Power Good and DC Power Good) indicate the fault condition for the power supply.

Reporting the Problem

After you have determined which component is failing, report the problem.

1. Record the following information before calling for service:
 - Machine type and model
 - Server serial number
 - Any error codes that appear in the operator panel display or console
 - Any LEDs lit on the indicator panel
2. Call for service. You will be given the choice to replace the failing component yourself or have a service representative replace it. If you are replacing the failing component, go to “Repair Action” on page 86 for instructions.

Repair Action

1. Replace the failing component with the new component. Refer to Chapter 3, “Installing Options in Your System” on page 33 for instructions.
2. Log in as root user.
3. At the command line, type `diag`.
4. Select **Task Selection**.
5. Select **Log Repair Action**.
6. Select the device that was repaired. (If the device is not listed, select `sysplanar0`)
7. Press F10 to exit diagnostics.

If the Attention LED remains on after you have completed the repair action and reset the LEDs, call for service.

Chapter 5. Hardware Problem Determination

This chapter provides information on using standalone or online diagnostics to help you solve hardware problems.

Problem Determination Using the Standalone or Online Diagnostics

Use this procedure to obtain a service request number (SRN) when you are able to load the Standalone or Online Diagnostics. If you are unable to load the Standalone or Online Diagnostics, go to “Problem Determination When Unable to Load Diagnostics” on page 94. The service organization uses the SRN to determine which field replaceable units (FRUs) are needed to restore the system to correct operation.

Step 1. Considerations before Running This Procedure

Note: See the operator manual for your ASCII terminal to find the key sequences you need to respond to the diagnostic programs.

- The diagnostics can use a display connected to the video port or an ASCII terminal attached to a serial port.
- This procedure asks you to select the type of diagnostics you want to run.
- Go to “Step 2.”.

Step 2.

Is the Attention LED on?

NO Go to “Step 3”.

YES Go to Chapter 4, “Attention LED and Lightpath LEDs” on page 83.

Step 3

Are the Online Diagnostics installed on this system?

NO Go to “Step 16” on page 93.

YES Go to “Step 4” on page 88.

Step 4

Determine if the operating system is accepting commands.

Is the operating system accepting commands?

- NO** The system must be turned off in order to run diagnostics.
Verify with the system administrator and users that the system may be turned off. If so, then turn off the system unit and go to “Step 7” on page 89.
- YES** Go to “Step 5”.

Step 5

Diagnostic tests can be run on many resources while the operating system is running. However, you can obtain more extensive problem isolation by running Online Diagnostics in Service mode.

Do you want to run the Online Diagnostics in Service mode?

- NO** Go to “Step 6”.
- YES** Do the following to shut down your system:
1. At the system prompt, stop the operating system using the appropriate command for your operating system.
 2. After the operating system is stopped, turn off the system unit.
 3. 3. Go to “Step 7” on page 89.

Step 6

This step invokes the Online Diagnostics in concurrent mode.

1. Log in as root user.
2. Enter the **diag** command.
3. Wait until the Diagnostic Operating Instructions are displayed, or wait for three minutes.

Are the Diagnostic Operating Instructions displayed without any obvious console display problems?

- NO** Do the following to shut down your system:
1. At the system prompt, stop the operating system using the appropriate command for your operating system.
 2. After the operating system is stopped, turn off the system unit.
 3. 3. Go to “Step 7” on page 89.
- YES** Go to “Step 10” on page 90.

Step 7

This step loads Online Diagnostics in service mode. If you are unable to load the diagnostics, go to “Step 8”.

1. Turn on the power.
2. When the keyboard indicator (icon or text) appears, press F6 on the directly attached keyboard, or 6 on the ASCII terminal keyboard, to indicate that online diagnostics are to be loaded.
3. Enter any requested passwords.
4. Follow any instructions to select a console.

Did the Diagnostics Operating Instructions display without any obvious display problem?

- NO** Go to “Step 8”.
- YES** Go to “Step 10” on page 90.

Step 8

Starting at the top of the following table, find your symptom and follow the instructions given in the Action column.

Symptom	Action
Display problem	Go to “Step 9”.
All other symptoms	Go to “Problem Determination When Unable to Load Diagnostics” on page 94

Step 9

Find your type of console display in the following table. Then follow the instructions given in the Action column.

Console Display	Action
Display Device	Go to the display documentation for problem determination.
ASCII terminal	Go to the problem-determination documentation for this type of terminal.

Step 10

The diagnostics loaded correctly.

Press the Enter key.

Is the Function Selection menu displayed?

NO Go to "Step 11".

YES Go to "Step 12" on page 91.

Step 11

There is a problem with the keyboard.

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

Keyboard Type	Action
101-key keyboard. Identify by the type of Enter key used. The Enter key is within one horizontal row of keys.	Record error code MOKBD001 and report the problem to the service organization.
102-key keyboard. Identify by the type of Enter key used. The Enter key extends into two horizontal rows of keys.	Record error code MOKBD002 and report the problem to the service organization.
Kanji keyboard. Identify by the Japanese characters.	Record error code MOKBD003 and report the problem to the service organization.
ASCII-terminal keyboard. This applies to all attached terminals.	Go to the problem-determination documentation for this type of terminal.

Step 12

1. If the terminal type has not been defined, use the **Initialize Terminal** option on the Function Selection menu to initialize the operating system environment before you can continue with the diagnostics. This is a separate operation from selecting the console display.
2. Select **Diagnostic** Routines.
3. Press the Enter key.
4. In the following table, find the menu or system response you received when you selected **Diagnostics**. Follow the instructions given in the Action column.

System Response	Action
The Diagnostic Mode Selection menu is displayed.	Select Problem Determination and go to "Step 13" on page 92.
The Missing Resource menu is displayed.	<p>Follow the displayed instructions until either the Diagnostic Mode Selection menu or an SRN is displayed.</p> <p>If the Diagnostic Mode Selection menu is displayed, select Problem Determination and go to "Step 13" on page 92.</p> <p>If you get an SRN, record it, and go to "Step 15" on page 92.</p>
The New Resource menu is displayed.	<p>Follow the displayed instructions.</p> <p>Note: Devices attached to serial ports S1 or S2 do not appear on the New Resource menu. Also, ISA adapters do not appear unless they have been identified and configured.</p> <p>If the Diagnostic Mode Selection menu is displayed, select Problem Determination and go to "Step 13" on page 92.</p> <p>If you get an SRN, record it, and go to "Step 15" on page 92.</p> <p>If you do not get an SRN, go to "Step 18" on page 93.</p>
The system does not respond to selecting diagnostics .	Go to "Step 11" on page 90.

Step 13

Did the Diagnostic Selection Menu display?

- NO** If **Problem Determination** was selected from the Diagnostic Mode Selection menu, and if a recent error has been logged in the error log, the diagnostics automatically begin testing the resource. Follow the displayed instructions.
- If the **No Trouble Found** screen is displayed, press Enter.
 - If another resource is tested, repeat this step.
 - If the **Diagnostic Selection** menu is displayed, go to “Step 14”.
 - If an SRN is displayed, record it, and go to “Step 15”.
- YES** Go to “Step 14”.

Step 14

The **All Resources** option checks most of the configured adapters and devices.

Select and run the diagnostic tests on the resources you are having problems with or select the **All Resources** option to check all of the configured resources. Find the response in the following table and follow the instructions given in the Action column.

Diagnostic Response	Action
An SRN is displayed.	Go to “Step 15”.
The system hangs.	Report SRN 109-200.
The Testing Complete menu and the No trouble was found message displays and you have not tested all of the resources.	Press Enter and continue with the testing.
The Testing Complete menu and the No trouble was found message displays and you have tested all of the resources.	Go to “Step 18” on page 93.

Step 15

The diagnostics produced an SRN for this problem. Do the following:

1. Record the SRN and other numbers read out.
2. Report the SRN to the service organization.
3. **STOP.** You have completed these procedures.

Step 16

When you are loading the Standalone Diagnostics, the attributes for the terminal must be set to match the defaults of the diagnostic programs. The ASCII terminal must be attached to serial port 1 on the system unit.

Are you going to load Standalone Diagnostics and run them from a ASCII terminal?

- NO** Go to "Step 17".
- YES** Be sure your terminal attributes are set to work with the diagnostic programs.
- Return to "Step 17" when you finish checking the attributes. Record any settings that are changed.

Step 17

This step loads the Standalone Diagnostics. If you are unable to load the diagnostics, go to "Step 8" on page 89.

1. Turn on the power.
2. Insert the diagnostic CD-ROM into the CD-ROM drive.
3. When the keyboard indicator displays, press F5 on the directly attached keyboard, or 5 on the ASCII keyboard, to indicate that standalone diagnostics are to be loaded.
4. Enter any requested passwords.
5. Follow any instructions to select a console.

Did the Diagnostics Operating Instructions display without any obvious display problem?

- NO** Go to "Step 8" on page 89.
- YES** Go to "Step 10" on page 90.

Step 18

The diagnostics did not find a hardware problem. If you still have a problem, contact your software support center.

Problem Determination When Unable to Load Diagnostics

Use this procedure to obtain an error code. The service organization uses the error code to determine which field replaceable units (FRUs) are needed to restore the system to correct operation.

Step 1. Considerations before Running This Procedure

- The diagnostics can use a display connected to the video port or an ASCII terminal attached to a serial port.
- Go to “Step 2”.

Step 2

Are the Online Diagnostics installed on this system?

NO Go to “Step 4” on page 95.

YES Go to “Step 3”.

Step 3

This step attempts to load Online Diagnostics in service mode.

1. Turn off the power.
2. Turn on the power.
3. If the keyboard indicator displays, press F6 on the directly attached keyboard, or 6 on the ASCII keyboard, to indicate that online diagnostics are to be loaded.
4. Enter any requested passwords.
5. Follow any instructions to select a console.
6. Wait until the diagnostics load or the system appears to stop.

Did the diagnostics load?

NO Go to “Step 5” on page 95.

YES Go to “Step 6” on page 98.

Step 4

This step attempts to load the Standalone diagnostics.

1. Turn off the power.
2. Turn on the power.
3. Insert the diagnostic CD-ROM into the CD-ROM drive.
4. If the keyboard indicator displays, press F5 on the directly attached keyboard, or 5 on the ASCII keyboard, to indicate that standalone diagnostics are to be loaded.
5. Enter any requested passwords.
6. Follow any instructions to select a console.
7. Wait until the diagnostics load or the system appears to stop.

Did the diagnostics load?

NO Go to "Step 5".

YES Go to "Step 6" on page 98.

Step 5

Starting at the top of the following table, find your symptom and follow the instructions given in the Action column.

Symptom	Action
The power LED does not come on, or comes on and does not stay on.	Check the power cable to the outlet. Check the circuit breakers and check for power at the outlet. Ensure that the room temperature is within 60 - 90°F. If you do not find a problem, record error code M0PS0000 and report the problem to the service organization.
The system appears to be stopped and NO beep was heard from the system unit.	Processor POST failure. Report error code M0CPU000.
The system appears to be stopped and NO beep was heard from the system unit. E122, E123, or E124 is displayed on the operator panel display.	No good memory could be found. Report error code M0MEM000.
The system appears to be stopped. A beep was heard from the system unit.	No good memory could be found. Report error code M0MEM001.
The diagnostics are loaded and there was NO beep heard from the system unit during the IPL sequence.	Record error code M0SPK001.
The system stops with the Diagnostic Operating Instructions displayed.	Go to "Step 6" on page 98.
The diskette LED is blinking rapidly, or E1EA or E1EB is displayed on the operator panel.	The flash EPROM data is corrupted. Run the recovery procedure for the flash EPROM.

Symptom	Action
The system stops with a prompt to enter a password.	Enter the password. You are not allowed to continue until a correct password has been entered. When you have entered a valid password, wait for one of the other conditions to occur.
The system stops with an eight-digit error code(s) displayed on the console.	Record the error code(s) and report the problem to the service organization.
The system login prompt is displayed.	<p>You may not have pressed the correct key, or you may not have pressed the key soon enough when you were to indicate a Service Mode boot of diagnostic programs. If this was the case, start over at the beginning of this step.</p> <p>If you are sure that you pressed the correct key in a timely manner, go to Step 7.</p>
The system does not respond when the password is entered.	Go to Step 7.
The system stopped and an indicator is displayed on the system console and an eight-digit error code is not displayed.	<p>If the indicator (text or icon) represents:</p> <ul style="list-style-type: none"> • A keyboard, record error code M0KBD000 and report the problem to the service organization. • Memory, record error code M0MEM002 and report the problem to the service organization. • SCSI, record error code M0CON000 and report the problem to the service organization. • Network, record error code M0NET000 and report the problem to the service organization. • Speaker/Audio, record error code M0BT0000 and report the problem to the service organization.

Symptom	Action
The System Management Services menu is displayed.	<p>The device or media that you are attempting to boot from might be faulty.</p> <ol style="list-style-type: none"> 1. Check the SMS error log for any errors. To check the error log: <ul style="list-style-type: none"> • Select utilities • Select error log • If an error is logged, check the time stamp. • If the error was logged during the current boot attempt, record it and report it to your service representative. • If no recent error is logged in the error log, continue to the next step below. 2. If you are attempting to load the Online Diagnostics, try loading the Standalone Diagnostics. Otherwise, record error code M0SCSI01 and report the problem to the service organization.
The system appears to be stopped, the disk activity light is on continuously, and a beep was heard from the system unit.	Record error code MOMEM001 and report the problem to the service organization.
The system stops with the message STARTING SOFTWARE PLEASE WAIT displayed.	Report error code M0BT0000.
The message The system will continue the boot process is displayed continuously on the system unit's console.	Report error code M0SCSI01.

Step 6

The diagnostics loaded correctly.

Go to “Problem Determination Using the Standalone or Online Diagnostics” on page 87.

Step 7

There is a problem with the keyboard.

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

Keyboard Type	Action
101-key keyboard. Identify by the type of Enter key used. The Enter key is within one horizontal row of keys.	Record error code M0KBD001 and report the problem to the service organization.
102-key keyboard. Identify by the type of Enter key used. The Enter key extends into two horizontal rows of keys.	Record error code M0KBD002 and report the problem to the service organization.
Kanji keyboard. Identify by the Japanese characters.	Record error code M0KBD003 and report the problem to the service organization.
ASCII-terminal keyboard. This applies to all attached terminals.	Go to the problem-determination documentation for this type of terminal.

Appendix A. Communications Statements

The following statement applies to the Model 6C1. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer is responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

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.

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference—Causing Equipment Regulations.

VCCI Statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 V C C I - A

The following is a summary of the VCCI Japanese statement in the box above.

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

The following is a summary of the EMI Taiwan statement above.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit Dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

The following statement applies to the Model 6E1. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from authorized dealers. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

- International Business Machines Corporation
- New Orchard Road
- Armonk, New York 10504
- Telephone: (919) 543-2193



Tested to Comply
With FCC Standards

FOR HOME OR OFFICE USE

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Canadian Department of Communications Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

The following is a summary of the VCCI Japanese statement in the box above.

This product is a Class B Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). This product is aimed to be used in a domestic environment. When used near a radio or TV receiver, it may become the cause of radio interference. Read the instructions for correct handling.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

Appendix B. Environmental Notices

Product Recycling and Disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product return programs in several countries, for country specific instructions please refer to the following web site:
<http://www.ibm.com/ibm/environment/products/prp.phtml>

This product may contain a sealed lead acid battery(s) or nickel-cadmium battery(s). The battery(s) must be recycled or disposed of properly. Recycling facilities may not be available in your area. In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used sealed lead acid, nickel cadmium and nickel metal hydride batteries and battery packs from IBM equipment. For information on proper disposal of the batteries in this product, please contact IBM at 1-800-426-4333. For information on disposal of sealed lead acid or nickel cadmium batteries outside the United States, contact your local waste disposal or recycling facility.

Environmental Design

The environmental efforts that have gone into the design of this system signify IBM's commitment to improve the quality of its products and processes. Some of these accomplishments include the elimination of the use of Class 1 ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Acoustical Noise Emissions

The equivalent continuous A-weighted sound pressure level at workstations (emission sound pressure level at the 1-meter bystander positions) does not exceed 70 dB(A).

Der Geräuschpegel der Einheit ist kleiner oder gleich 70 db(A).

Declared Acoustical Noise Emissions

Product Configuration	Declared A-Weighted Sound Power Level, <i>LWAd</i> (B)		Declared A-Weighted Sound Pressure Level, <LpAm>(dB) at 1 meter Bystander Position	
	Operating	Idling	Operating	Idling
7028-6E1	6.1	6.1	44	43
7028-6C1	6.2	5.9	46	44

Notes:

1. L_{WA}^d is the declared (upper limit) sound power level for a random sample of machines. (1B = 10dB)
2. L_{pA}^m is the mean value of the A-weighted sound pressure level at the 1-meter bystander positions for a random sample of machines.
3. All measurements made in conformance with ISO 7779 and declared in conformance with ISO 9296.
4. System Configurations
 - 7028-6E1: 1 processor, 2 hard files
 - 7028-6C1: 2 processors, 7 hard files, 3 power supplies

Appendix C. Notices

This information was developed for products and services offered in the U.S.A.

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Appendix D. System Records

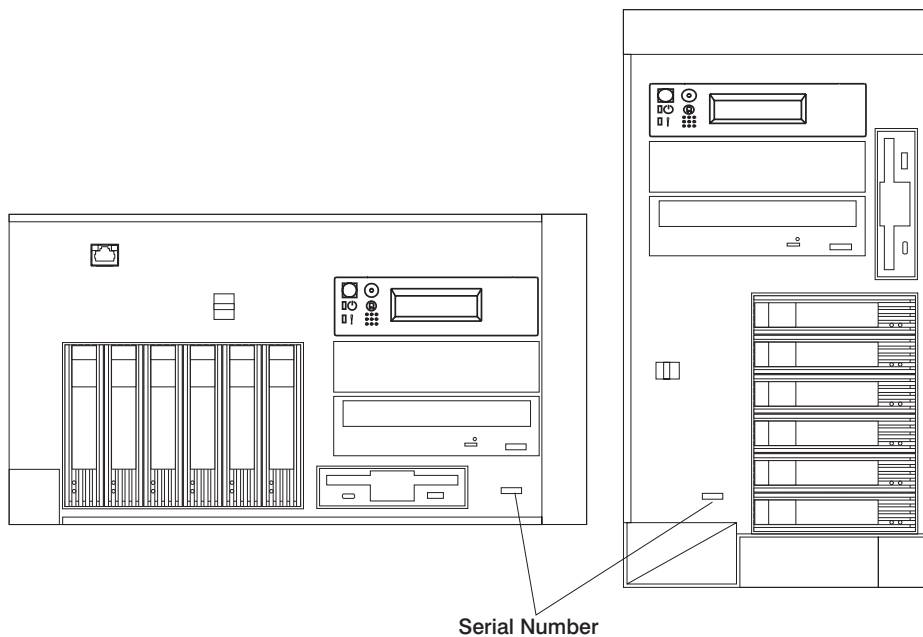
Use this appendix to keep a record of the system's identification information.

Identification Numbers

Record and retain the following information:

Product Name	@server pSeries 610 Model 6C1 and Model 6E1
Serial Number	
Key Serial Number	

The system unit's serial numbers are located on the front of the machine, as shown in the following illustration:



Device Records

Use the following tables to keep a record of the options installed in or attached to your system. This information can be helpful when you install additional options in your system or if your system needs service.

Memory Card

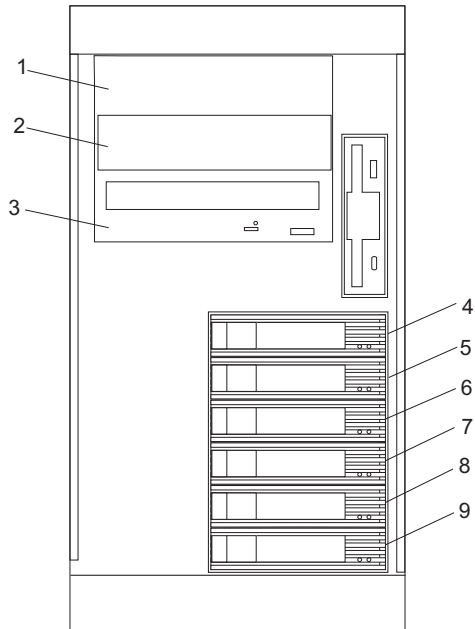
128MB () 256MB () 512MB () J15	J16 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J13	J14 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J11	J12 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J9	J10 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J7	J8 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J5	J6 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J3	J4 128MB () 256MB () 512MB ()
128MB () 256MB () 512MB () J1	J2 128MB () 256MB () 512MB ()

Options

Table 1. Internal and External Options

Location	Option Description
Mouse Connector	IBM Mouse <input type="checkbox"/> Other: _____
Keyboard Connector	Space Saving <input type="checkbox"/> Enhanced <input type="checkbox"/> Other: _____
Expansion Slot 5	_____
Expansion Slot 4	_____
Expansion Slot 3	_____
Expansion Slot 2	_____
Expansion Slot 1	_____
Parallel Port	_____
Serial Port 1	_____
Serial Port 2	_____
Serial Port 3	_____
External SCSI	_____
Ethernet 1	_____
Ethernet 2	_____

SCSI IDs and Bay Locations



- | | |
|---|---------------------------------|
| 1 | Bay D01 (Behind Operator Panel) |
| 2 | Bay D02 |
| 3 | Bay D03 |
| 4 | Disk Bay 1 |
| 5 | Disk Bay 2 |
| 6 | Disk Bay 3 |
| 7 | Disk Bay 4 |
| 8 | Disk Bay 5 |
| 9 | Disk Bay 6 |

Note: If you install a disk drive or other media device in your system, record the definition in the drive definition field in the following table.

Drive	Location	SCSI ID	Drive Description
Disk Drive	Bay D01	0	_____
Media Device	Bay D02	1	_____
CD-ROM Drive	Bay D03	IDE Non-SCSI	CD-ROM Drive
SCSI Media Device	Bay D03	2	_____
Hot-Plug	Disk Bay 1	10	_____
Hot-Plug	Disk Bay 2	11	_____
Hot-Plug	Disk Bay 3	12	_____
Hot-Plug	Disk Bay 4	13	_____
Hot-Plug	Disk Bay 5	14	_____
Hot-Plug	Disk Bay 6	15	_____

Appendix E. General Attributes Required When Using a TTY Terminal

The following general attributes are the default settings for the diagnostic programs. Be sure your terminal is set to these attributes.

Note: Set these attributes before the diagnostic programs are loaded.

General Setup Attributes	3151 /11/31/41 Settings	3151 /51/61 Settings	3161 /3164 Settings	Description
Machine mode	3151	3151 PC	3161 or 3164	The diagnostic programs are set to emulate use of the 3161 ASCII Display Terminal. If your terminal can emulate a 5085, 3161 or 3164 terminal, use these attribute settings. Otherwise, refer to your operator's manual, compare the attribute descriptions with those of your terminal, and set your attributes accordingly.
Generated Code Set		ASCII		
Screen	Normal	Normal		Uses the EIA-232 interface protocol.
Row and Column	24 x 80	24 x 80		Uses the EIA-232 interface protocol.
Scroll	Jump	Jump	Jump	When the last character on the bottom line is entered, the screen moves down one line.
Auto LF	Off	Off	Off	For the "On" setting, pressing the Return key moves the cursor to the first character position of the next line. For the "Off" setting, pressing the Return key moves the cursor to the first character position of the current line. The CR and LF characters are generated by the New line setting.
CRT saver	Off	Off	10	The "10" setting causes the display screen to go blank if there is no activity for 10 minutes. When the system unit sends data or a key is pressed, the screen contents display again.

General Setup Attributes	3151 /11/31/41 Settings	3151 /51/61 Settings	3161 /3164 Settings	Description
Line wrap	On	On	On	The cursor moves to the first character position of the next line in the page after it reaches the last character position of the current line in the page.
Forcing insert	Off	Off		
Tab	Field	Field	Field	The column tab stops are ignored, and the tab operation depends on the field attribute character positions.
Trace			All	Both inbound data (data to the system unit) and outbound data (data from the system unit) to and from the main port can be transferred to the auxiliary port without disturbing communications with the system unit when the Trace key is pressed.

Additional Communication Attributes

The following communication attributes are for the 3151, 3161, and 3164 terminals.

Communication Setup Attributes	3151/11 /31/41) Settings	3151 /51/61, Settings	3161 /3164 Settings	Description
Operating mode	Echo	Echo	Echo	Data entered from the keyboard on the terminal is sent to the system unit for translation and then sent back to the display screen. Sometimes called <i>conversational mode</i> .
Line speed	9600 bps	9600 bps	9600 bps	Uses the 9600 bps (bits per second) line speed to communicate with the system unit.
Word length (bits)	8	8	8	Selects eight bits as a data word length (byte).
Parity	No	No	No	Does not add a parity bit and is used together with the word length attribute to form the 8-bit data word (byte).
Stop bit	1	1	1	Places a bit after a data word (byte).

Communication Setup Attributes	3151/11 /31/41) Settings	3151 /51/61, Settings	3161 /3164 Settings	Description
Turnaround character	CR	CR	CR	Selects the carriage return (CR) character as the line turnaround character.
Interface	EIA-232	EIA-232	EIA-232	Uses the EIA-232 interface protocol.
Line control	IPRTS	IPRTS	IPRTS	Uses the 'permanent request to send' (IPRTS) signal to communicate with system unit.
Break signal (ms)	500	500	500	The terminal sends a break signal to the system unit within 500 ms after the Break key is pressed.
Send null suppress	On	On		Trailing null characters are not sent to the system unit.
Send null			On	Trailing null characters are sent to the system unit.
Response delay (ms)	100	100	100	The terminal waits for 100 ms for the system unit to respond.

Additional Keyboard Attributes

The following keyboard attributes are for the keyboard attached to the 3151, 3161, and 3164 terminals.

Keyboard Setup Attributes	3151/11 /31/41 Settings	3151 /51/61 Settings	3161 /3164 Settings	Description
Enter	Return	Return	Return	The Enter key functions as the Return key.
Return	New line	New line	New line	The cursor moves to the next line when the Return key is pressed.
New line	CR	CR	CR	The Return key generates the carriage return (CR) and the line feed (LF) characters. The line turnaround occurs after the CR and LF characters are generated.
Send	Page	Page	Page	The contents of the current page are sent to the system unit when the Send key is pressed.
Insert character	Space	Space	Space	A blank character is inserted when the Insert key is pressed.

Additional Printer Attributes

The following printer attributes are for a printer attached to the 3151, 3161, and 3164 terminals.

Printer Setup Attributes	3151/11 /31/41 Settings	3151 /51/61 Settings	3161 /3164 Settings	Description
Line speed	9600	9600	9600	Uses 19200 or 9600 bps (bits per second) line speed to communicate with the system unit.
Word length (bits)	8	8	8	Selects eight bits as a data word length (byte).
Parity	Even	Even	No	
Stop bit	1	1	1	Places a bit after a data word (byte).
Characters	ALL	ALL		
Line end			CR-LF	
Print			View port	
Print EOL			Off	
Print null			Off	

Appendix F. Firmware Updates

This section provides information and instruction for updating firmware. You may need to perform these steps if you are installing an option or if your support representative has instructed you to update your firmware.

Checking the Current Firmware Levels

To check the current levels that are installed on the system, do the following:

1. Log in as root user.

2. Enter the following command:

```
lscfg -vp | grep alterable
```

3. Press enter. A report will be produced similar to the following:

```
ROM Level.(alterable).....ct010507 <=== service processor F/W level  
ROM Level.(alterable).....CLT01198 <=== system F/W level
```

Notes:

1. In the preceding example, if the current version of service processor firmware is cl010507, the last six characters of the ROM level represent a date in a yymmdd format, where yy is the last two digits of the year, mm is the month and dd is the day of the firmware (Julian date).
2. Also in the preceding example, if the current version of system firmware is CLT01198, the last five characters of the ROM level represent a date in a yyddd format, where yy is the last two digits of the year and ddd is the Gregorian date of the firmware.

Check the Web site at <http://www.rs6000.ibm.com/support/micro> for the latest level of downloadable firmware. If the version of system firmware installed on your system is older than (has an earlier date than) the system firmware shown on the web site, you should consider downloading and applying the update. If the version of service processor firmware installed on your system is older than (has an earlier date than) the service processor firmware shown on the Web site, consider downloading and applying the update.

Updating System Firmware

To update the system firmware, perform the following steps:

1. Log in as root user.

2. If the directory **/tmp/fwupdate** does not exist, create it by issuing the following command: `mkdir /tmp/fwupdate`

3. The firmware update file must be written into the **/tmp/fwupdate** directory on the server. This can be done by using the **ftp** command to get the image from an ftp server, NFS-mounting the directory on the host server, or downloading it from Web site at <http://www.rs6000.ibm.com/support/micro>.

After the firmware update file has been written into the **/tmp/fwupdate** directory, verify its existence by entering the following command:

```
ls /tmp/fwupdate/cc*.img
```

The update file name will have the format *ccyyddd.img*. The *cc* indicates that this is a combined image for the server, *yy* is the last two digits of the year, and *ddd* is the Julian date of the update file.

4. After the update file has been written to the **/tmp/fwupdate** directory, enter the following commands:

```
cd /usr/lpp/diagnostics/bin
```

```
then
```

```
./update_flash -f /tmp/fwupdate/ccyyddd.img
```

Notes:

- a. *ccyyddd.img* is the file you identified in the previous step.
- b. Make sure that you include the periods (.) in the commands shown above.
- c. AIX commands are case-sensitive. Type them exactly as shown.

You are asked by the system for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system applies the new firmware, reboots, and returns to the AIX prompt. This may take up to ten minutes, depending on the configuration of the system.

Attention: On some systems, the message *Wait for rebooting before stopping* may appear on the system display. *Do not* turn off the system unit until the system has fully rebooted to the AIX login prompt. If a shutdown is necessary at that time, log in as root user and issue the **shutdown** command. While the update is in progress, you will see *Rebooting...* on the display for as long as three minutes.

The firmware update is complete.

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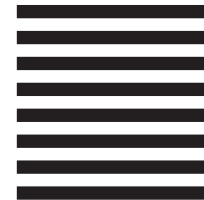
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