IBM

@server

pSeries 630 Model 6C4 and Model 6E4

Installation Guide

SA38-0605-01

IBM

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Installation Guide

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Contents

Safety Notices

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

- viii
- 10
- 124
- 49

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
- 11
- 38
- 49
- 50
- 119

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.

In the system you are about to setup or service:
- The ac power interface connector is considered the main power disconnect device.
- This system has redundant power supply capabilities, meaning that it has the ability to have two power supplies running simultaneously in the same system unit. When instructed to disconnect the power source, ensure that all power cables have been unplugged.

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 630 Model 6C4 and Model 6E4, specifically how to set up and cable the system, install and remove options, and verify system operations. Model 6C4 is a rack mount system. Model 6E4 is a deskside 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:

- The *pSeries 630 Model 6C4 and Model 6E4 User's Guide*, order number SA38-0606, contains information to help users use the system, use the service aids, and solve minor problems.

- The @server *pSeries 630 Model 6C4 and Model 6E4 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 *IBM Hardware Management Console for pSeries Operations Guide* order number SA38-0590, contains information about using a hardware management console to manage a system.

- 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 system 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. Getting Started

This chapter helps you get started with installing and configuring the pSeries 630 Model 6C4 and Model 6E4 environment. The following information is included in the chapter:

- @server pSeries Roadmap
- Documentation Overview - Brief description of the printed and softcopy documentation shipped including targeted audience
- Configuring Online Documentation - How to install and view the online documentation.

The @server pSeries Roadmap helps you locate marketing, service, and customer task information. The roadmap guides you through the tasks and the publications that document those tasks.
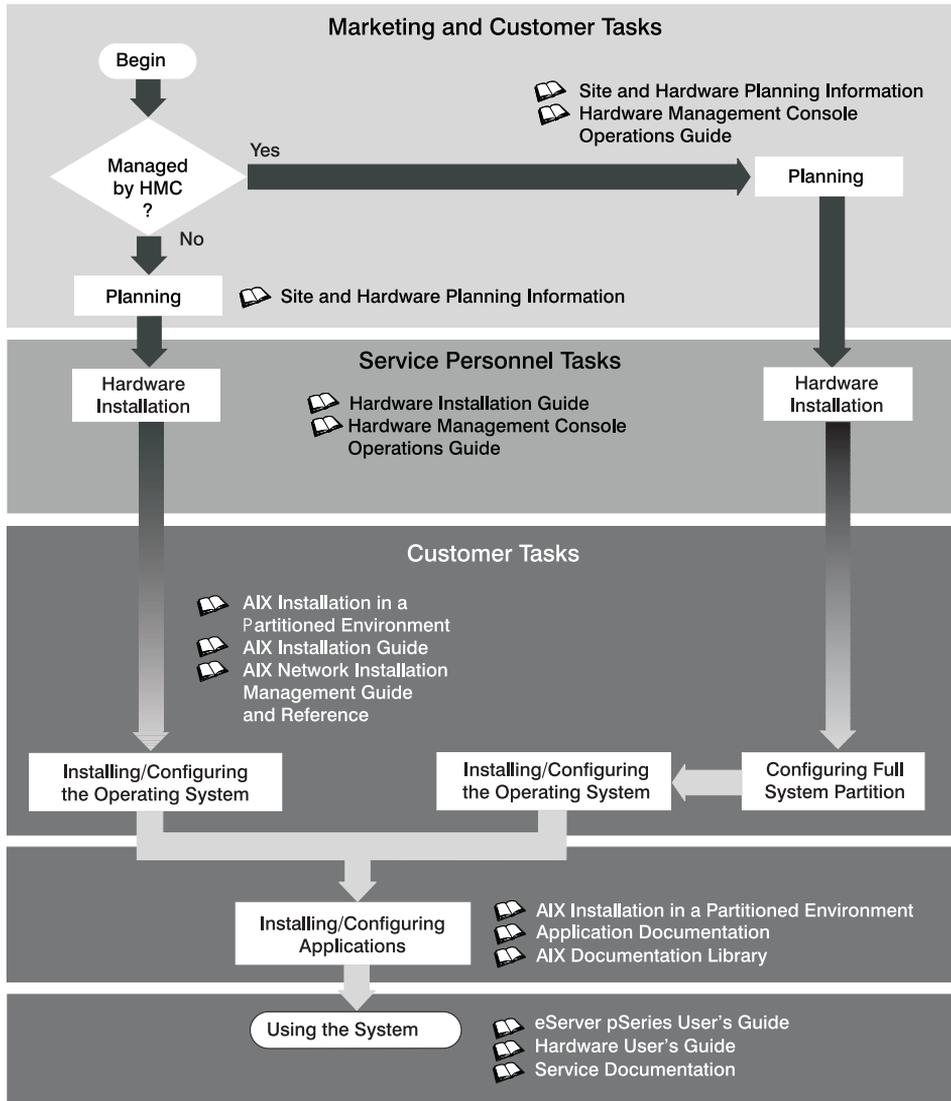
Documentation Overview

This section provides descriptions, and target audience information for the @server pSeries and AIX 5L documentation libraries. Some of the documentation may only be available in printed form or in softcopy form. Based on the documentation content, the books are divided into the following categories: **Planning**, **Installing and Configuring**, and **Using the System**.

Table 1. Planning

Documentation Title	Description	Audience	Type
Site and Hardware Planning Information	Contains information to help plan for site preparation tasks, such as floor-planning, electrical needs, air conditioning, and other site-planning considerations.	Marketing, system administrators	softcopy
IBM Hardware Management Console for pSeries Operations Guide	Provides information on how to configure and use a Hardware Management Console (HMC).	System administrators	printed and softcopy

Table 2. Installing and Configuring

Documentation Title	Description	Audience	Type
@server pSeries 630 Model 6C4 and Model 6E4 Installation Guide	Provides information on how to install system hardware, cable the system, and verify operations.	Service personnel	printed and softcopy
IBM Hardware Management Console for pSeries Operations Guide	Provides information on how to configure and use a Hardware Management Console (HMC).	System administrators	printed and softcopy
AIX 5L Installation Guide	Provides information on how to install, manage, and maintain the AIX 5L operating system.	System administrators	printed and softcopy
AIX 5L Network Installation Management Guide and Reference	Provides information about using Network Installation Management (NIM) to install the AIX 5L operating system.	System administrators	printed and softcopy
PCI Adapter Placement Reference	Outlines system-specific PCI adapter slot placement and adapter support configurations.	Service personnel	printed
AIX 5L Release Notes	Provides late-breaking information for a specific AIX release.	System administrators	printed and softcopy
AIX 5L Documentation CD	AIX documentation library provides information on the following: • system management guides • user guides • application programmer guides • commands and files references • AIX man pages, and so on.	System administrators	softcopy

Table 3. Using the System

Documentation Title	Description	Audience	Type
IBM Hardware Management Console for pSeries Operations Guide	Provides information on how to configure and use a Hardware Management Console (HMC).	System administrators	printed and softcopy
pSeries 630 Model 6C4 and Model 6E4 User's Guide	Provides using, problem determination, and service processor information.	System administrators	printed and softcopy
@server pSeries 630 Model 6C4 and Model 6E4 Service Guide	Contains MAPs, removal and replacement, error code, and parts information to help diagnose and repair the system. Also contains MAPs that are not common to all systems.	Service personnel	printed and softcopy
RS/6000 @server pSeries Diagnostic Information for Multiple Bus Systems	Combines operating instructions for hardware diagnostic programs with common MAPs and SRNs (Service Request Numbers).	Service personnel	printed and softcopy
PCI Adapter Placement Reference	Outlines system-specific PCI adapter slot placement and adapter support configurations.	Service personnel	printed
Hardware Management Console for pSeries Maintenance Guide	Contains MAPs, removal and replacement, error code, and parts information to help diagnose and repair the system.	Service personnel	printed and softcopy
RS/6000 @server pSeries Adapters, Devices, and Cable Information for Multiple Bus Systems	Provides information about adapters, devices, and cables that are attached to or used within the system.	System administrators	printed and softcopy
System Unit Safety Information	Contains the English version of safety notices, as well as translations of those safety notices into other languages.	System administrators, service personnel	printed and softcopy
AIX 5L Documentation CD	AIX documentation library provides information on the following: • system management guides • user guides • application programmer guides • commands and files references • AIX man pages, and so on.	System administrators	softcopy

Configuring Online Documentation

It is not necessary to install the operating system's online documentation onto your system. You can access all of the documentation through the Internet at the following Web address: http://www.ibm.com/servers/aix/library However, if you use the Documentation Library Service to search any online documentation, it searches only the registered documentation that is installed. It does not search the documentation at the above Web site.

Viewing the Online Documentation from the Documentation CD

To view the online documentation, you must have an HTML browser installed on your system. The Netscape browser is located on the AIX 5L Expansion Pack.

Installing the Online Documentation on a System

To install the online documentation, do the the following:

1. Type **smitty install_latest**.
2. Enter INPUT device / directory for software in the field provided and press Enter.
3. In the Install Software menu, use the F4 key to list the documentation packages and filesets that are available to install. Select a package or fileset by highlighting the appropriate choice and pressing the F7 key. Press Enter when you have finished making your selections.
4. Select the appropriate responses for the remaining questions in the Install Software menu or accept the default choices. When you have finished making your selections, press Enter. From the confirmation menu, press Enter to install the software.
5. Press F10 to exit the SMIT menu and return to the command line.

Installing the online documentation on a Documentation Server

For detailed information on how to install and configure a documentation server and install the documentation, refer to the Using the Documentation Library Service section in the *AIX 5L Installation Guide*.

Chapter 2. Setting Up the System

To set up your system, follow the procedures in this chapter.

Step 1. Check Your Inventory

pSeries 630 Model 6C4 and Model 6E4

☐ Books, CD-ROM and Other Media

☐ ″About Your Machine″ Document

☐ Power Cables (1 standard, 2 optional)
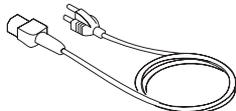
☐ 9-Pin to 25-Pin Serial Converters (2) (optional)
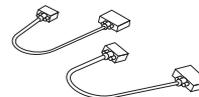
☐ RJ48 to D-Shell Converter Cable (1)
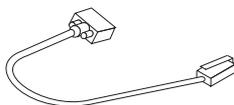
☐ ASCII Terminal (optional)
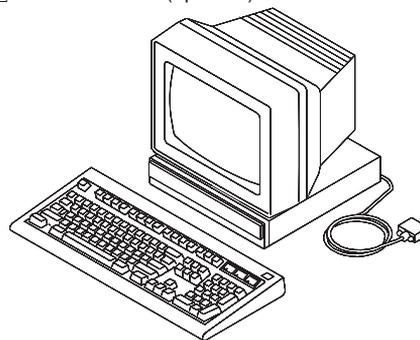
Inventory table continued from the previous page.

☐ Display, Cable (optional), and Cable Toroid (optional)
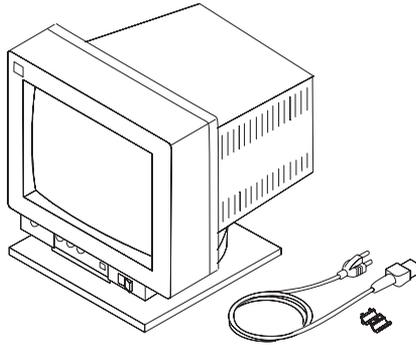
☐ Keyboard (optional) Wrist/Palm Rest (optional)
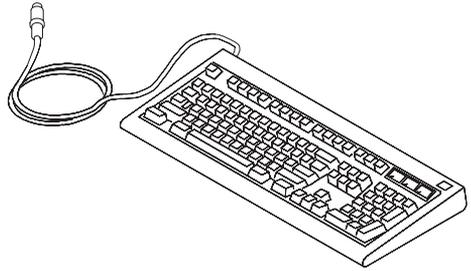
☐ Mouse (optional)
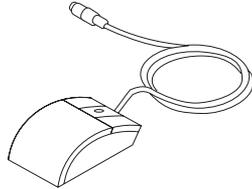
@server pSeries 630 Model 6C4 and Model 6E4

☐ Model 6C4
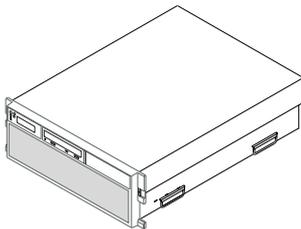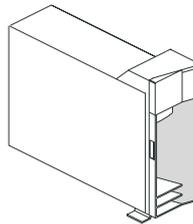
☐ Model 6E4

Model 6C4 (Rack Mount) Only

☐ Rack-Mounting Template

☐ 2 Slide Rail Assemblies
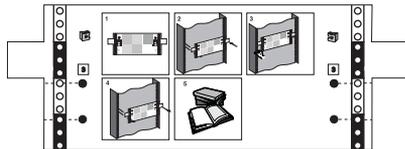
☐ Rack-Mounting Kit contains:
8 system to rail screws,
8 rail to rack screws,
2 nut clips,
2 latch-mounting brackets,
2 system-retaining thumbscrews,
4 alignment pin brackets,
8 assorted alignment pins,
1 strip of self adhesive placement dots
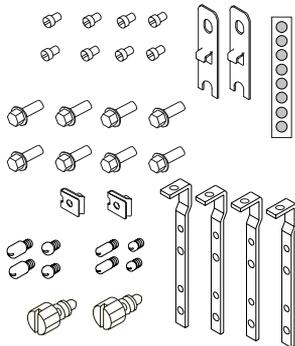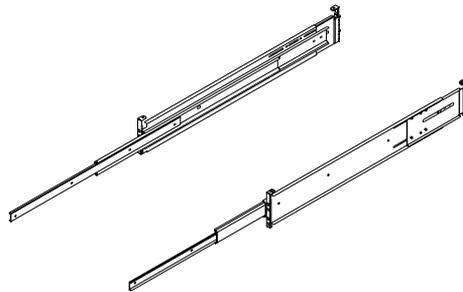
☐ Cable Management Arm
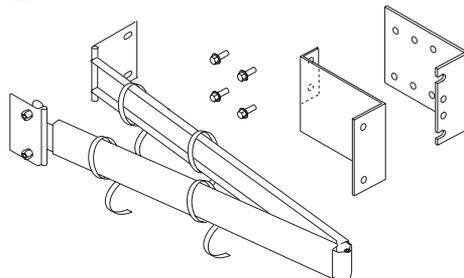
Step 2. Need Help?

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, adapters, or electrical outlets until you have reviewed this information. Make sure none of the power cables are connected before continuing to the next step.

In the system you are about to set up:

- The ac power-interface connector is considered the main power disconnect device.
- This system has redundant power supply capabilities, in that it has the ability to have two power supplies running simultaneously in the same system unit. When instructed to disconnect the power source, ensure that all power cables have been unplugged.

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 6C4 (Rack Mount) or a Model 6E4 (Deskside)?
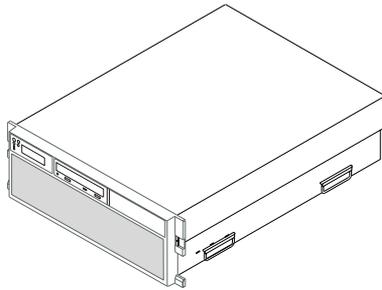
Model 6C4
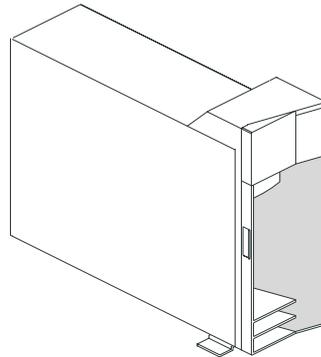
Model 6E4

- If you are installing a Model 6C4, continue to "Step 5. Read the Rack Safety Instructions" on page 12.
- If you are installing a Model 6E4, continue to "Step 9. Are All of the Internal Options Installed?" on page 25.

Step 5. Read the Rack Safety Instructions

Before continuing, make sure you review the following instructions for mounting the system drawer into the rack. If the system drawer was shipped already mounted in a rack, go to Chapter 4, "Installing Options for the Model 6C4 and Model 6E4" on page 49.

Rack Safety Instructions

- Do not install this unit in a rack where the ambient temperatures will exceed 40 degrees C.
- Do not install this unit in a rack where the airflow is compromised. Any side, front or back of the unit used for air flow through the unit must not be in indirect contact with the rack.
- Ensure that a hazardous condition is not created due to uneven mechanical loading when installing this unit in a rack. If the rack has a stabilizer it must be firmly attached before installing or removed this unit.
- Consider the connection of the equipment to the supply circuit so that the overloaded circuits do not compromise the supply wiring or over-current protection.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

When installing the Model 6C4, you will need the following items:

- Rack-Mounting Template
- 2 Slide Rail Assemblies
- Cable Management Arm
- Rack-Mounting Kit Envelope
- Screwdriver or similar tool if available
-

Step 6. Attach the Mounting Hardware to the Rack Enclosure

Before performing this procedure, read through each step and study the illustrations.

Attention: Mounting the rails is a complicated procedure. To install the rack rails correctly, you must read, then perform each procedure step in the order given. Failure to do so may cause rail failure resulting in system drawer damage or bodily injury.

To install the rack-mounting hardware to the rack, do the following:

1. Locate the hardware mounting kit, rack-mounting template and the system rails that were shipped with your system.
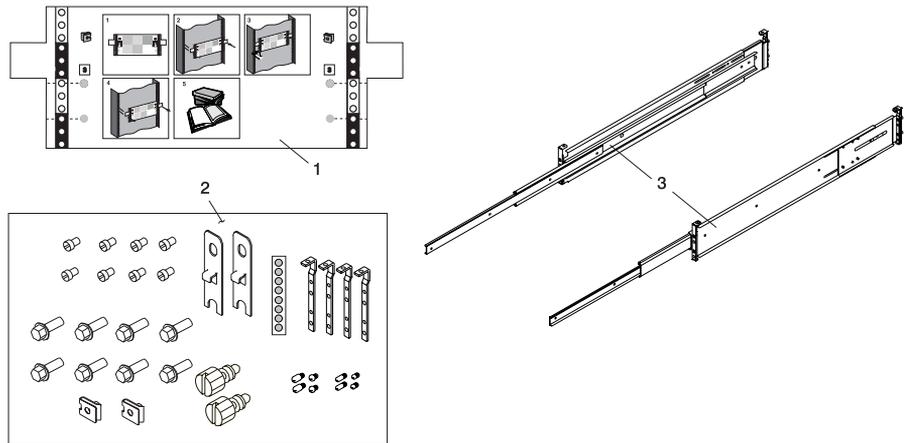
1 Rack-Mounting Template
2 Rack-Mounting Hardware Kit
3 System Rail Assemblies

Notes:

a. The system rails are front-to-back and left-to-right side dependent when you are standing in the front of and facing the rack. The rails are labeled on the front lower corner, left or right. The back of the rails can be identified by the two large alignment pins and the rail-length adjusting plate. The top of the rails can be identified by the screws located on the top of the front and rear rail flange. See the following illustration.

b. The rack-mounting hardware kit has 4 changeable rail brackets and 2 sets of alignment pins. If the alignment pins that came assembled to the rails do not fit your rack, remove the brackets from the rails. To remove the alignment pin bracket from each of the rails, do the following:

   1) Remove the screw located on top of the rail bracket assembly.
   2) Slide the top of the alignment pin bracket from beneath the front-rail bracket.
   3) Lift the bottom tab out of the front-rail bracket slot.

   After determining the correct size alignment pin to use, mount them onto the replacement brackets and install them onto your rails. Rail bracket assembly is the reverse of the removal procedure.

c. Always mount the brackets containing the short alignment pins onto the front of the rail.
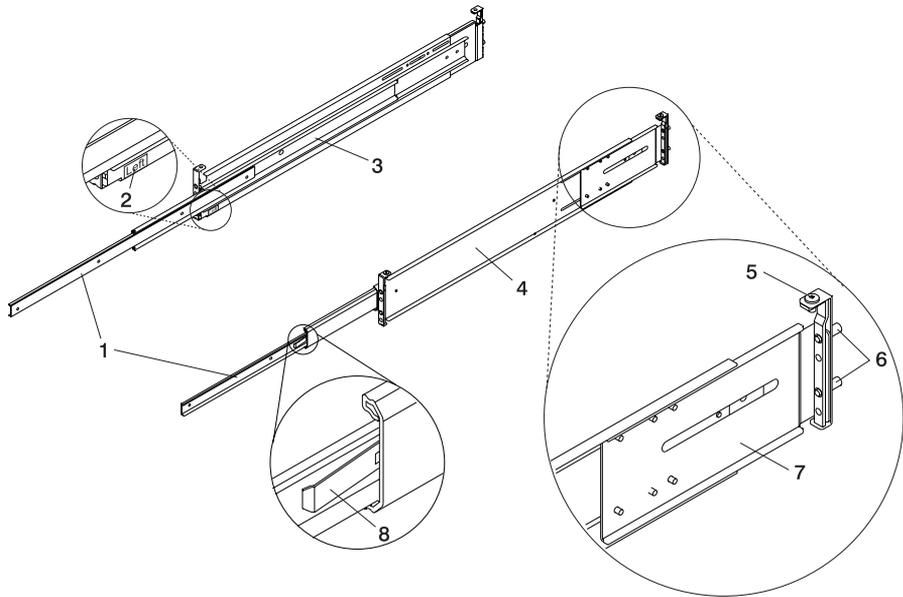
1	Left and Right Inner Rails	**5**	Top-Rail Flange Screw (Rear)
2	Left Rail Label	**6**	Rear-Rail Alignment Pins
3	Left Rail Assembly	**7**	Rail-Length Adjusting Plate

4 Right Rail Assembly	**8** Inner-Rail Safety Release Latch

2. Remove the front rack door, and if necessary, remove the rear rack door. For 7014 Model T00 and T42 racks, refer to *7014 Model T00 and T42 Rack Installation and Service Guide*, order number SA38-0577, for information about removing the rack doors.

3. If you do not have a rack-mounting template, go to step 4. Using the rack-mounting template, determine where in the rack to place the system, make note of the Electronics Industries Association (EIA) location number.

   Note: The rack-mounting template has printed illustrations located on the front of the template. Each illustration is designed to aid you in identifying the EIA location holes used when planning to populate your rack. Under no circumstances use the rack-mounting template without reading and understanding the following steps. Each step must be completed in its entirety. Skipping steps or not following steps in numerical order may cause rail failure resulting in system drawer damage or bodily injury.

   a. Align the black and white strip located on each side of the rack-mounting template with the EIA locations on each side of the rack. Each black or white section on the template is equal to 1 EIA. Each EIA consists of 3 holes.

   b. Remove the protective coating from each adhesive strip located on the back of the rack-mounting template. Lightly press the template into position on the rack. Ensure that both the left and right side are at corresponding EIA locations.

   c. Install the nut clips into the holes as indicated by the template. The nut clips aid in securing your system drawer to the rack while in transit.

      Note: Anytime a populated rack is being moved, your system drawers should be secured with two retaining thumbscrews threaded through the nut clips. This secures the system front bezel and system chassis to the rack.
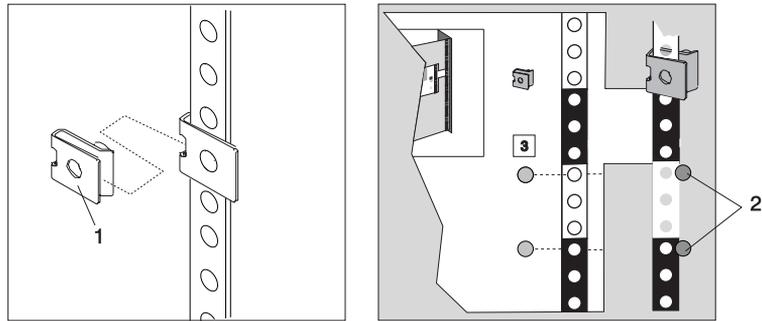
1 Nut Clip   **2** Adhesive Dot Placement

   d. Locate the 4 dots, two printed on each side of the template. Put a self-adhesive dot directly across from the templates printed dots on or near the rack's EIA strip. You will be using these dots to aid in correctly positioning the rail alignment pins located on the front of each rail.

   e. Remove the rack-mounting template from the front of the rack. You should now have placed on the front of your rack 2 nut clips and 4 self-adhesive dots.

   f. Continue to step 5.

The following illustration shows a 1 EIA section and a 4 EIA section. Depending on the rack manufacture the EIA sections may be separated by either color or by a line. Note the holes along the rail are not evenly spaced. If your rack has no color or line separation between EIAs, then assume that each EIA section begins where the hole spacing is closest together.

2 Adhesive Dot Placement　　　　　**4** EIA Hole Spacing
3 Nut Clip
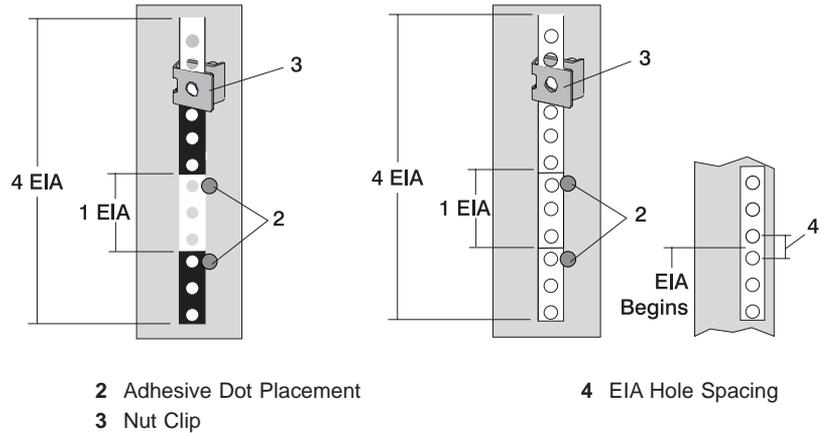
4. If you do not have a rack mounting template do the following:

   a. Determine where in the rack to place the system, make note of the EIA location number.

      Note: An EIA section on your rack consist of a grouping of three holes. Each EIA section may be separated by either a color or a line. The system you are about to install is 4 EIA.

   b. Facing the front of the rack and working from the right side, place a supplied self-adhesive dot next to the top hole of the bottom EIA.

      Note: The self-adhesive dots are used to aid in identifying locations on the rack. If you no longer have any of the dots use some other form of marking tool to aid you in identifying hole locations. (for example: marker, pencil)

   c. Place another self-adhesive dot next to the top hole of the above EIA.

      Note: If you are counting the holes, begin with the hole identified by the first dot and count up four holes and place the second dot next to the fourth hole.

   d. Secure a nut clip to the rack 4 holes up from the top dot. The nut clip aids in securing your system drawer to the rack while in transit.

      Notes:

      1) If you are counting the holes, begin with the hole identified by the top dot and count up four holes and place the nut clip next to the fourth hole.

2) Anytime a populated rack is being moved, your system drawers should be secured with two retaining thumbscrews threaded through the nut clips. This secures the system front bezel and system chassis to the rack.

3) There is an 8 hole span when counting from the nut clip to the bottom dot.

e. Do the same procedure to corresponding holes located on the left side of the rack.

5. Beginning with the right slide rail, remove the inner slide portion, as shown in the following illustration.
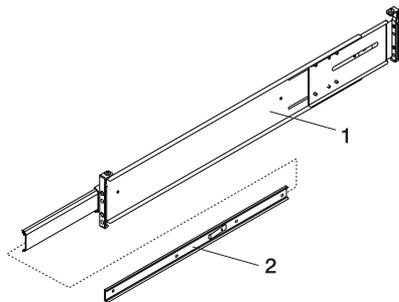
1 Right Outer Rail Assembly
2 Right Inner Rail

6. Position yourself at the front of the rack.

7. Facing the rack, note the EIA position of the two placement dots previously installed. Insert the rail's rear alignment pins into the corresponding EIA holes located on the rear flange.

8. Insert the rail's front alignment pins into the rack front flange holes that have been identified by the adhesive placement dots. Ensure the EIA location is the same from front to back.

9. Loosely thread one of the rail retaining screws into the rail's bottom screw hole. This is the screw hole located one position below the bottom alignment pin.

   Attention: To install the rack rails correctly, you must read, then perform each procedure step in the order given. Failure to do so may cause rail failure resulting in system drawer damage or bodily injury.

10. Locate one of the latch brackets and place the bottom slot of the latch bracket over the rail retaining screw. Finger-tighten the screw.
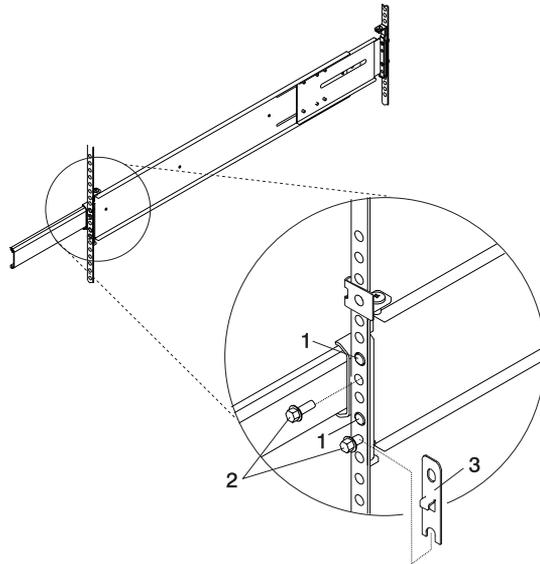
1 Front Slide Rail Alignment Pin
2 Retaining Screws
3 Latch Bracket

11. Finger-tighten a second retaining screw through the top screw hole of the latch-bracket. After the latch bracket is in place, ensure that both screws are finger-tight.

    Attention: Do not tighten any of the screws more than finger-tight until instructed to do so. Tightening the screws prevents the rails from self-aligning when the system drawer is attached.

12. Repeat steps 6 through 13 when installing the left rail. After both rails have been installed, ensure that none of the rail's front retaining screws are more than finger-tight. The rails must be level from front to back and from left to right.

13. Go to the back of the rack.

14. Loosen, but *do not remove*, the 6 retaining screws that secure the rail-length adjusting plate to the rail.

    Note: The rail-length adjusting plate should not move freely when loosened; however, you should be able to make an adjustment by moving the adjustment plate with one hand and holding the remaining portion of rail in the other hand.
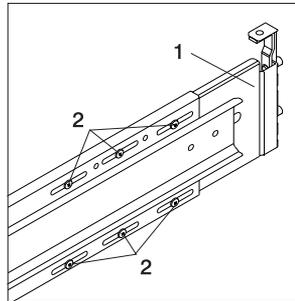
1 Rail-Length Adjusting Plate
2 Retaining Screws for Rail-Length Adjusting Plate

15. Facing the back of the rack; ensure that the left rail's two alignment pins are positioned in the correct EIA holes. Use 2 retaining screws to attach the rail brackets to the rack flanges. Finger-tighten both screws.

16. Using a screwdriver, tighten the six screws that secure the rail length adjusting plate.

17. Again, facing the back of the rack; ensure that right rail's two alignment pins are positioned in the correct EIA holes. Finger-tighten one retaining screw into the bottom screw hole of the rail flange. This is the screw hole located one position below the bottom alignment pin.
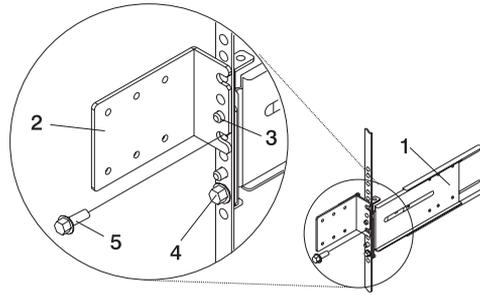
1 Rail Assembly (Labeled ″Left″ in the Front Lower Corner)
2 Rack to Cable Management Arm Bracket
3 Top Rear Alignment Pin
4 Bottom Screw
5 Top Screw

18. Locate the bracket that attaches the cable management arm to the rack flange.

19. Position the bracket's bottom hole over the rail's top alignment pin.

    Note: The bracket's bottom slot should now align with the top screw hole of the rail flange.

20. Attach a second retaining screw through the screw hole located below the top alignment pin. Finger-tighten the screw.

21. Using a screwdriver, tighten the six screws that secure the rail length adjusting plate.

22. The rails are now completely installed. All screws used to attach the rails to the rack must be finger-tight only.

    Notes:

    a. Both slide rails *must* be completely retracted into the rack.

    b. The rails *must* be level from front to back and from left to right.

23. Before continuing to the next step, be sure to read and understand the following caution notices:

    CAUTION:
    The stabilizer must be firmly attached to the bottom front of the rack to prevent the rack from turning over when the drawers are pulled out of the rack. Do not pull out or install any drawer or feature if the stabilizer is not attached to the rack.

    CAUTION:
    This unit weighs between 32 kg (70.5 pounds) and 55 kg (121.2 pounds). Three persons are required to safely move it. Using fewer than three persons to move it can result in injury.

You are now ready to mount the system drawer into the rack.

Step 7. Install the Model 6C4 into the Rack Enclosure

Attention: When installing this system drawer into a rack, ensure that a hazardous condition is not created due to uneven mechanical loading If your rack uses a stabilizer bar, it must be firmly attached before installing or removing this system.

To mount the Model 6C4 into the rack, do the following:

1. Using eight retaining screws, four on each side, mount the inner rails to each side of the system drawer. Tighten each of the screws with a screwdriver or similar tool.

   Note: The safety release tab, located on each inner rail, is mounted onto the side of the system facing away from the system drawer. See the illustration on page 14.

2. Using three persons, grasp the two handles located on each side of the system drawer, and lift the system drawer.

3. Insert the inner rails located on the system drawer into the rails mounted in the rack.

   Attention: When matching the inner rails to the outer rails, ensure that both rail-face plates glide past each other. *Do not*, under any circumstances, force the rails. If the system drawer does not glide freely into the rack, completely remove the drawer away from the outer rails. After the drawer is clear of the outer rails, reposition the system, then reinsert the inner rails. Do this until the system drawer glides freely into the rack.

4. Simultaneously depress safety latches, located on each side of the system drawer, and push the system into the rack.

5. Slide the system drawer in and out of the rack 2 or 3 times. This allows the system drawer to align the rails to itself. The system drawer should glide on the rails.

6. Push the system drawer back into the rack. Using a screwdriver or similar tool, tighten the back four retaining screws that secure the slide rails to the rack's back flange.

7. Slide the system drawer about halfway out of the rack.

8. Using a screwdriver or similar tool, tighten the front four retaining screws that secure the slide rails to the rack's front flange.

   Note: After the system rails are installed, do not extend them past their safety latches. The safety release latches stop the rails from over-extending and separating. This action prevents the system drawer from being accidentally pulled out too far and dropped.

   Attention: If any binding is detected, loosen the eight rail retaining screws (front and back) and repeat steps 4 through 7.

9. If you are planning to move the rack after installing the system, fasten the system drawer to the rack enclosure by inserting transport retaining screws through each side of the bezel and chassis bracket. Each screw is held in place with a nut clip positioned over a predetermined rack flange hole.
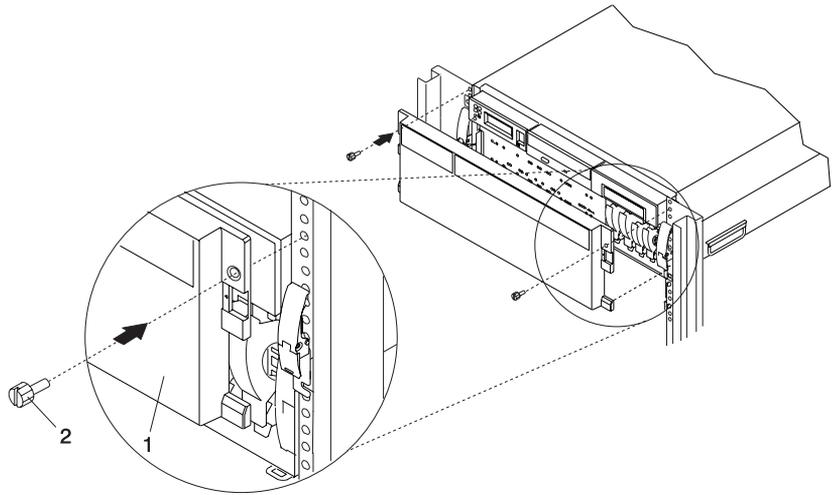
1 Model 6C4 Front Bezel
2 Transport Retaining Screw for System Drawer

Step 8: Install the Cable Management Arm

To install the Model 6C4 cable management arm, do the following:

1. Attach the cable carrier support bracket to the back of the chassis with two screws.

2. Place the two captive snap buttons, located on the cable management arm, into the unlocked (pulled out) position.

3. Align and insert the two captive snap buttons into the holes located on the cable carrier support bracket. Pushing in on the head of the snap buttons locks them into position.
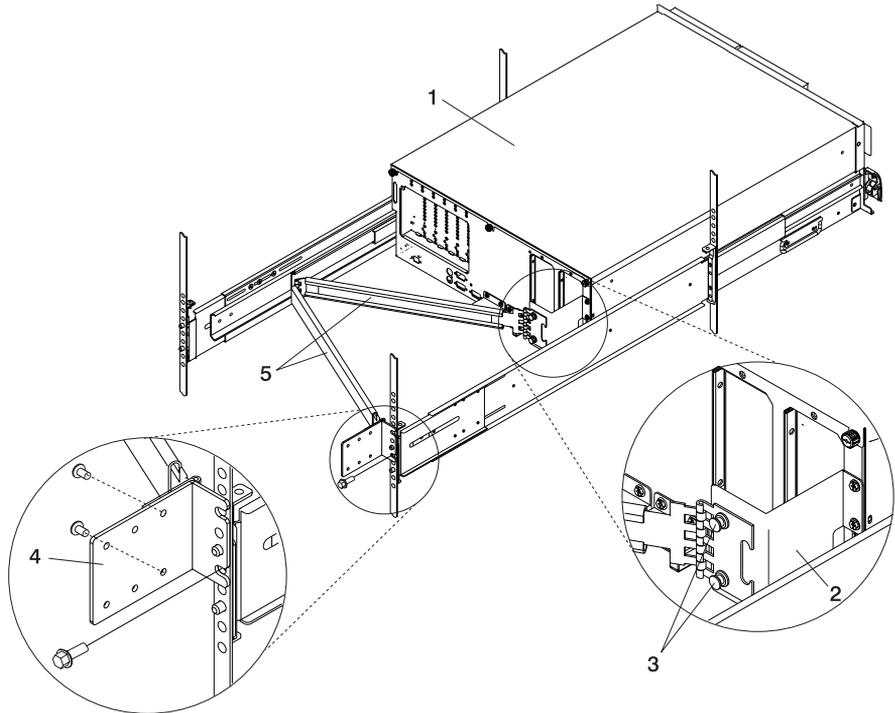
1	Model 6C4	**4**	Rack Flange Mounting Bracket
2	Cable Carrier Support Bracket	**5**	Cable Management Arm
3	Captive Snap Button (Qty. 2)		

4. Open the cable management arm so that the hinged mounting plate lies flat against the flange-mounting bracket.

5. Align the holes, located on the cable management arm mounting plate, with the threaded holes on the rack-flange mounting bracket. Secure the bracket with two screws.

   Note: To avoid any binding of the cable management arm, ensure that the cable management arm is level.

Step 9. 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 4, "Installing Options for the Model 6C4 and Model 6E4" on page 49, and then return here.

Step 10. Positioning the Model 6E4 and Display

If you are setting up a Model 6C4, continue on to "Step 11. Check Your Display or Console Type" on page 26.

Position the Model 6E4 system unit and display (optional) at or near their installed location.

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

- This unit weighs between 32 kg (70.5 pounds) and 55 kg (121.2 pounds). Three persons are required to safely move it. Using fewer than three persons to move it can result in injury.
- Displays and 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 11. Check Your Display or Console Type

Notes:

1. If you are using an ASCII terminal with a keyboard as the console for this system, and do not have a graphics display to connect, refer to "Step 16. Connect the Serial and Parallel Devices" on page 31.

2. If you are using a graphics display with a keyboard and mouse, continue with "Step 13. Attach the Display Cable Toroid" on page 28.

3. If you are connecting to a Hardware Management Console (HMC), continue on to "Step 12. Are You Connecting to an Hardware Management Console (HMC)?" on page 27.

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 13. Attach the Display Cable Toroid" on page 28, 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.

Step 12. Are You Connecting to an Hardware Management Console (HMC)?

If your HMC is already connected, continue with this step. If your HMC has not been previously installed refer to "Install the Hardware Management Console (HMC)" on page 64. After you complete the HMC installation procedure, return here and complete this step.

Notes:

1. Before doing this step, read and understand "Step 3. Read the Safety Notices" on page 10.
2. This system drawer is equipped with two HMC connectors located on the back of the system. The connectors are labeled HMC1 and HMC2.

To connect your HMC to the Model 6C4 or Model 6E4, connect the HMC serial cable to the HMC1 connector. If this is your second HMC being connected to the Model 6C4 or Model 6E4, connect the HMC serial connector to the HMC2 connector.

After connecting the HMC, go to "Step 16. Connect the Serial and Parallel Devices" on page 31.
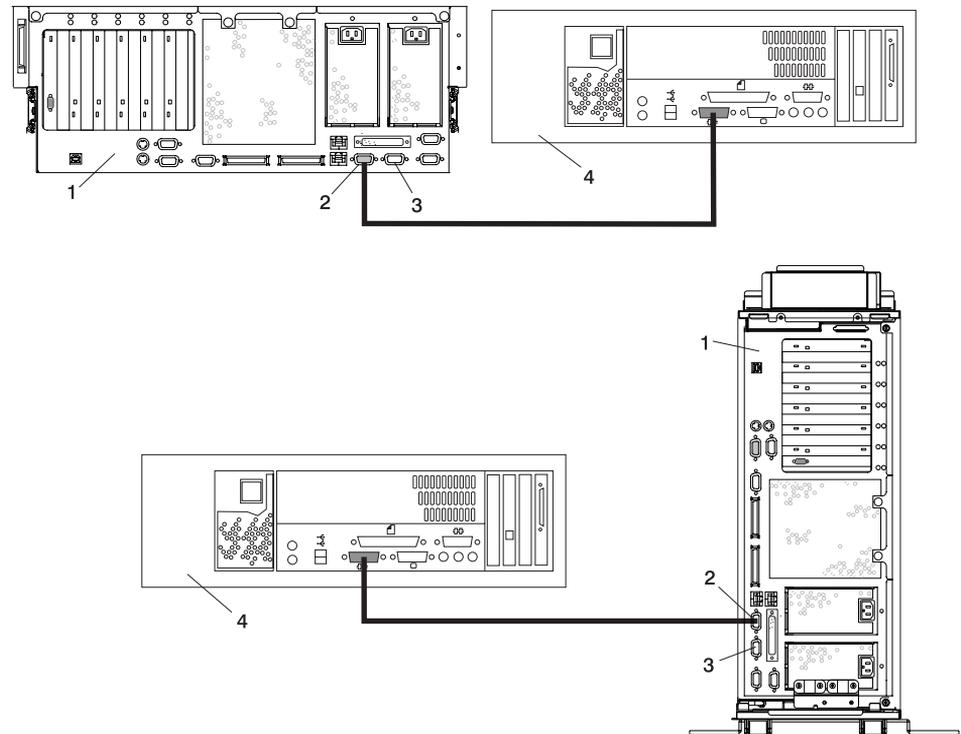
1	Model 6C4 or Model 6E4	**3**	HMC2 Connector
2	HMC1 Connector	**4**	Hardware Management Console (HMC)

Step 13. Attach the Display Cable Toroid

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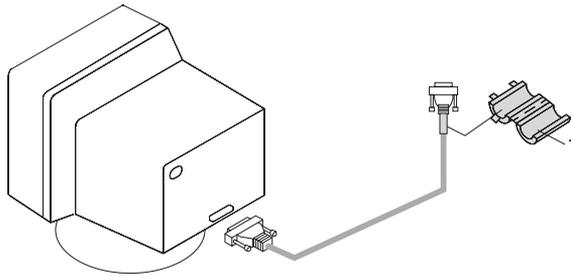
1 Display Cable Toroid

Step 14. Connect the Graphics Display

Note: If you are using an ASCII terminal as the console for this system, and do not have a graphics display to connect, continue with "Step 16. Connect the Serial and Parallel Devices" on page 31.

As shown in "Step 13. Attach the Display Cable Toroid" on page 28, connect the graphics display cable to the back of the display and to the graphics adapter connector. For the locations of installed adapters, consult the ″About Your Machine″ document.

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

Notes:

1. The PCI graphics adapter can be installed in any of the four PCI slots.
2. Some displays require an additional cable.
3. If you have an ASCII terminal, you must connect it to the serial connector S1.
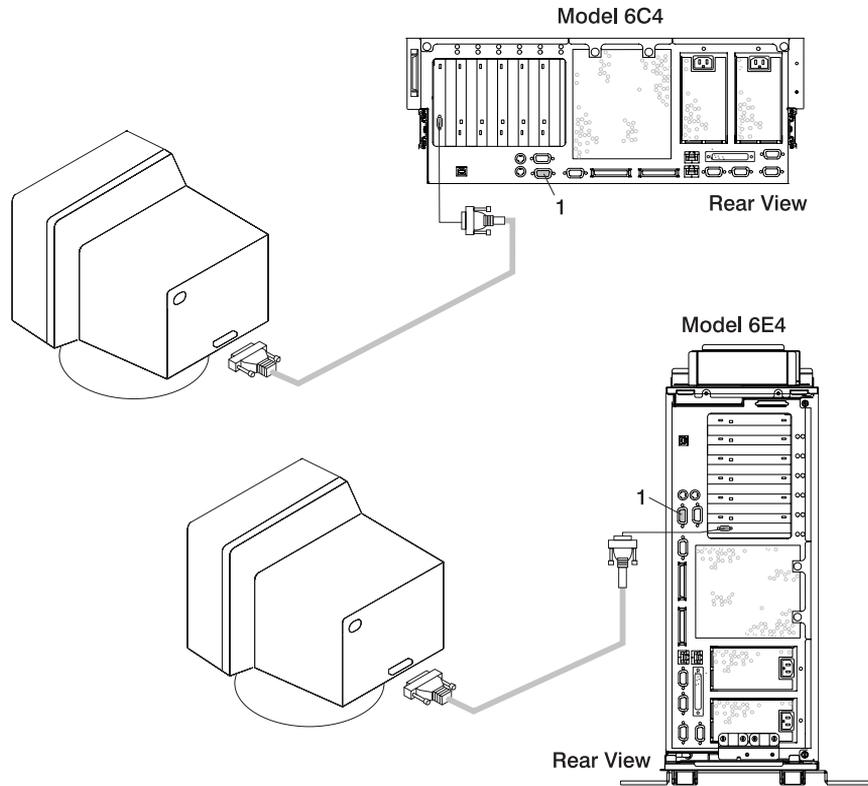
1 Serial Connector S1

Step 15. Connect the Keyboard and Mouse (When Using a Graphics Display)

Note: Before doing this step, read and understand "Step 3. Read the Safety Notices" on page 10.

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 illustration, connect the keyboard and mouse to the connectors on the rear of the system unit.

Model 6C4

Model 6E4

Model 6C4

Model 6E4
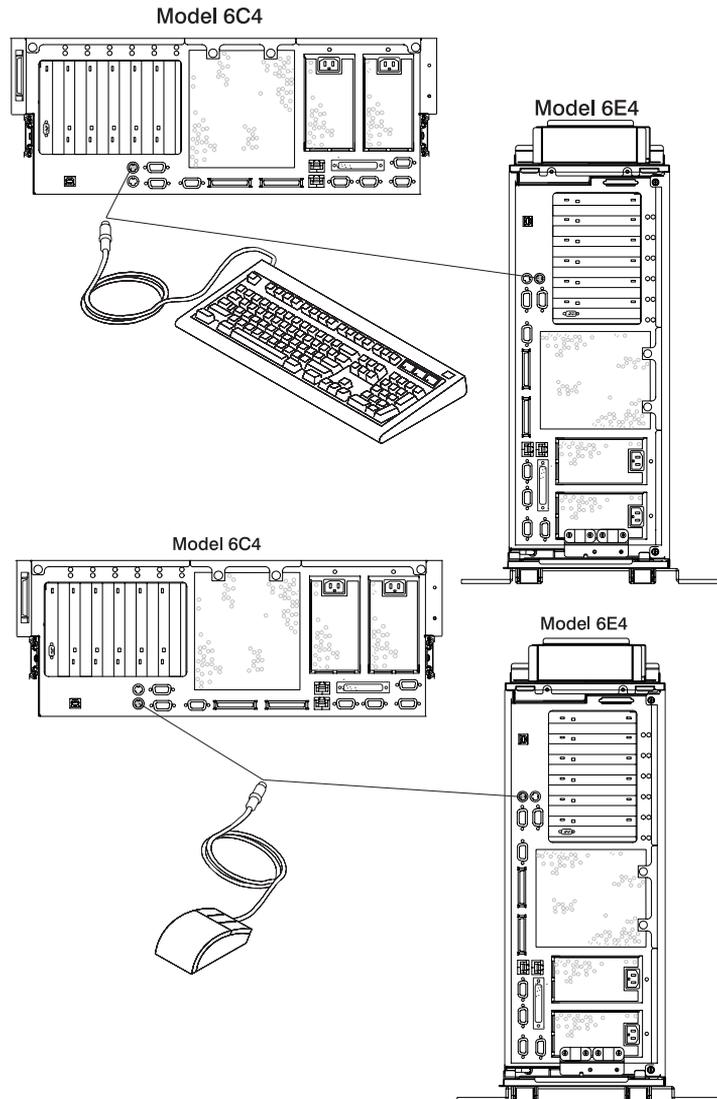
Step 16. Connect the Serial and Parallel Devices

Notes:

1. Before doing this step, read and understand "Step 3. Read the Safety Notices" on page 10.
2. This system drawer is equipped with serial port 1 located in the front and rear of the system.
3. To access the front serial port 1, use the RJ48 to 9-pin converter cable supplied with your system.
4. When using the front serial port 1, the rear serial port 1 is deactivated.
5. Use a 9-pin to 25-pin serial converter cable when activating the rear serial port 1. The 9-to-25-pin serial converters are a customer-purchased option.
6. 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 port 2 connector S2 (**2**).

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

You can connect additional serial devices to the two remaining serial ports (S2 and S3) that are located at the rear of the system.

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

Model 6C4

Rear View   Front View   1a

Model 6E4

Rear View   Front View   1a
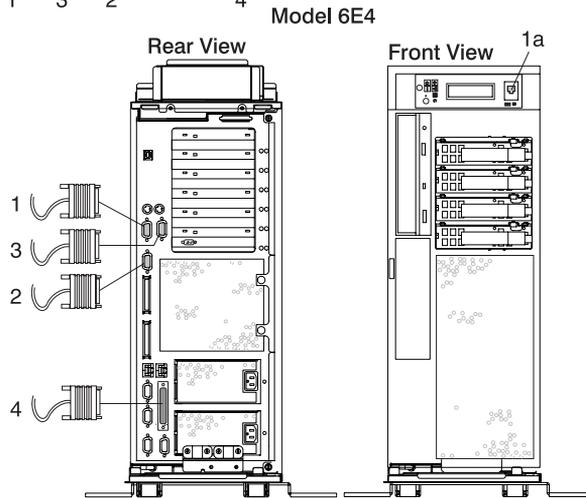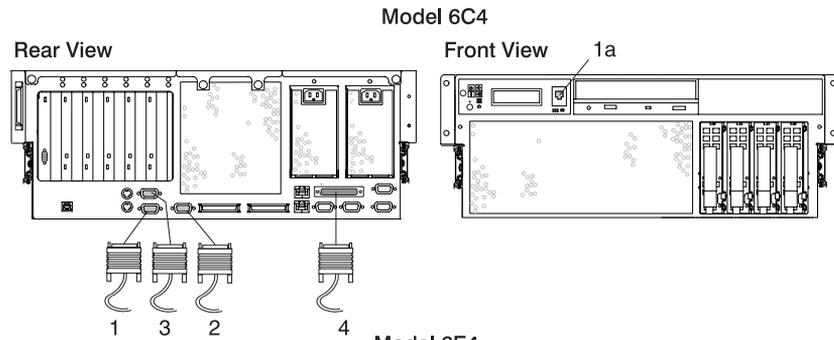
1 Serial Port 1 Connector
1a Serial Port 1 Front Connector (RJ48)
2 Serial Port 2 Connector
3 Serial Port 3 Connector
4 Parallel Connector

Step 17. Connect the Adapter Cables

Note: Before doing this step, read and understand "Step 3. Read the Safety Notices" on page 10.

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. For the locations of installed adapters, consult the ″About Your Machine″ document.

Model 6E4

Model 6C4

Rear View

Rear View
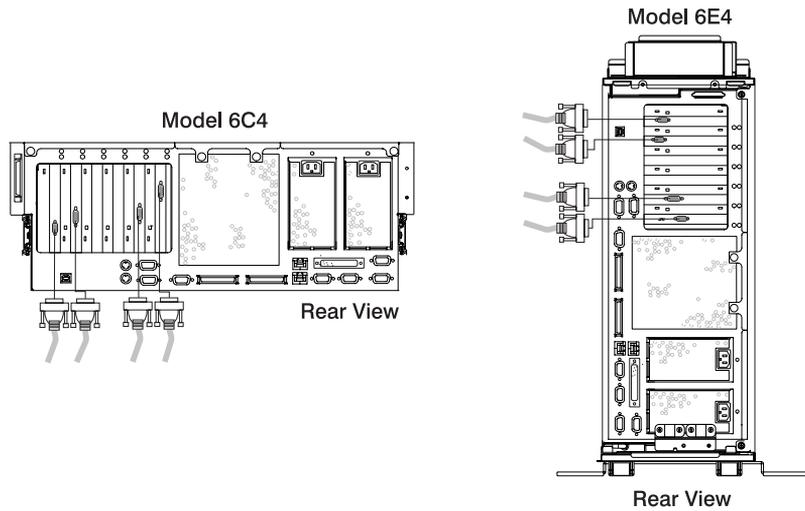
Step 18: Connect the First External SCSI Device

1. Connect the SCSI cable to the SCSI connector.

2. Connect the other end of the SCSI cable to the SCSI device.

3. If this is the last device connected, connect the SCSI device terminator. If this is not the last device connected, go to the next step.

   Note: The built-in SCSI interface is Ultra3 SCSI. When a cable is not attached to the SCSI connector on the system, the SCSI bus is automatically terminated.

4. Refer to the SCSI device documentation to set the SCSI device address. For future reference, you can record the address in Appendix E, "System Records" on page 145.
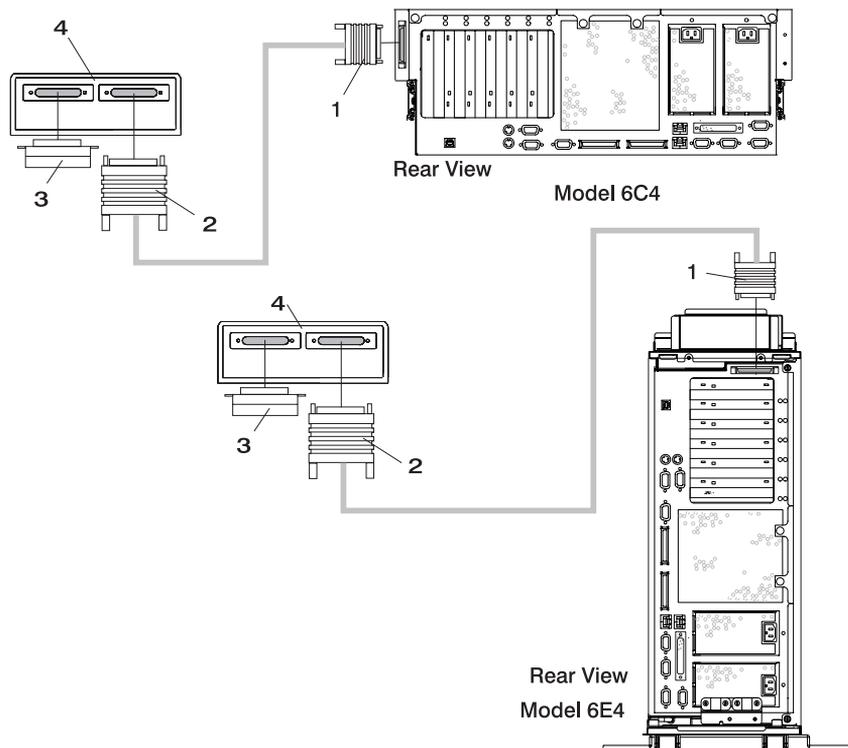
1 External SCSI Connector   **3** SCSI Terminator
2 SCSI Cable to SCSI Device   **4** SCSI Device

Step 19: Connect Any Additional External SCSI Devices

1. Locate the last SCSI device in the chain from the system.

2. Remove the SCSI terminator (**1**) from the last SCSI device in the chain.

3. Connect the new SCSI cable (**2**) to the SCSI connector on the last SCSI device.

4. Connect the other end of the SCSI cable (**3**) to the new SCSI device.

5. Repeat steps 1, 2, and 3 for each additional SCSI device that you attach.

6. Connect the SCSI device terminator (**4**) to the last SCSI device (**5**).

7. Refer to the SCSI device documentation to set the SCSI device address. For future reference, you can record the address in Appendix E, "System Records" on page 145.
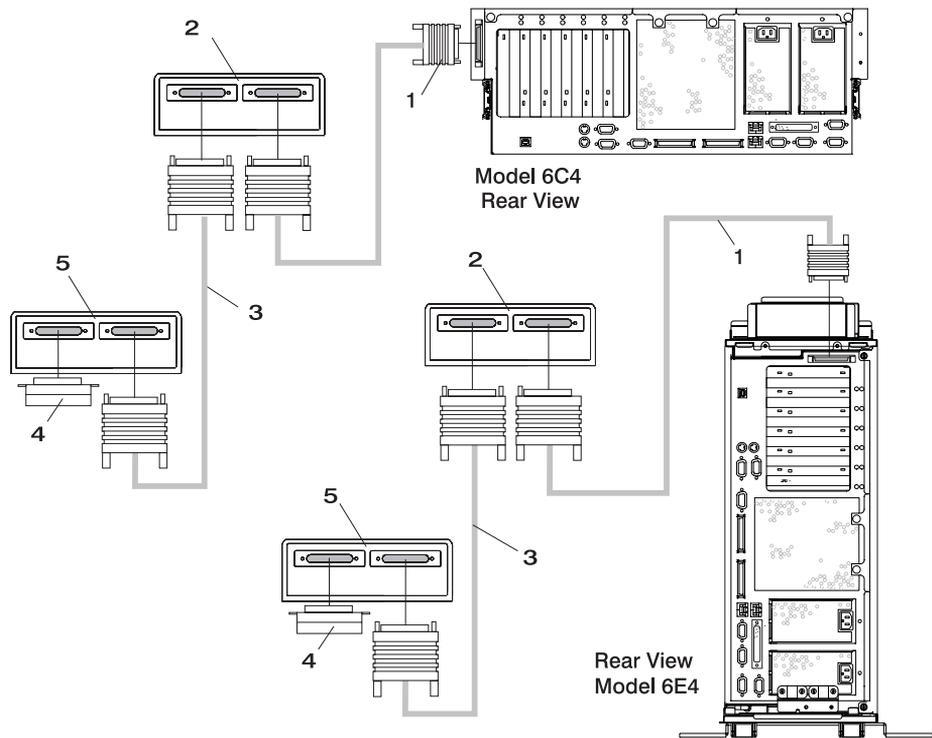
1	System Unit to First SCSI Device Cable	**4**	SCSI Terminator
2	First External SCSI Device	**5**	Last SCSI Device
3	SCSI Cable to Last SCSI Device		

Step 20. 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 to "Step 21: Are You Using an Ethernet Connection?" on page 37.

Connect the rack indicator cable as shown in the following illustration.

Model 6C4

Rear View

Rear View
Model 6E4
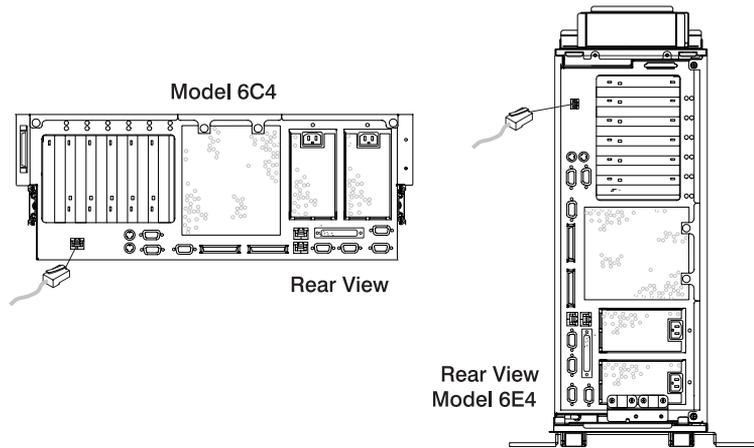
Step 21: Are You Using an Ethernet Connection?

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 to "Step 22: Connect the Power Cables to the System" on page 38.

To connect the Ethernet cable, do the following:

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 one of two RJ45 connectors located on the rear of the system drawer. For RJ45 connector locations, see the following illustration.

2. The twisted-pair Ethernet cable is now installed. Continue with "Step 22: Connect the Power Cables to the System" on page 38.

Model 6C4

Rear View

Rear View
Model 6E4
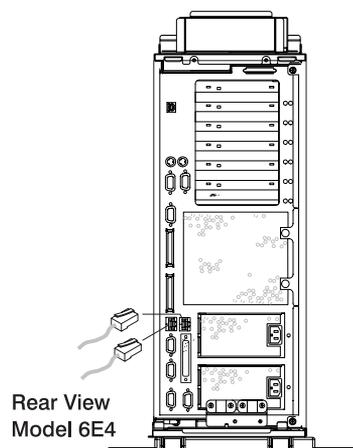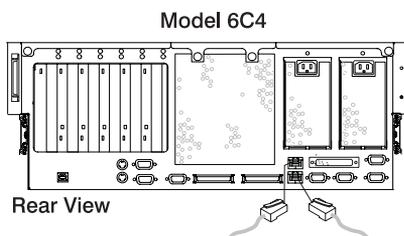
Step 22: Connect the Power Cables to the System

Plug the power cables into the system, display, and attached devices.

Notes:

1. This system drawer could be equipped with two power supplies. Each power supply needs its own power cable.

2. If your system is equipped with one power supply, connect the power cable to the power receptacle. A second power receptacle is available when a second (redundant) power supply has been added to the system drawer. See the following illustration.
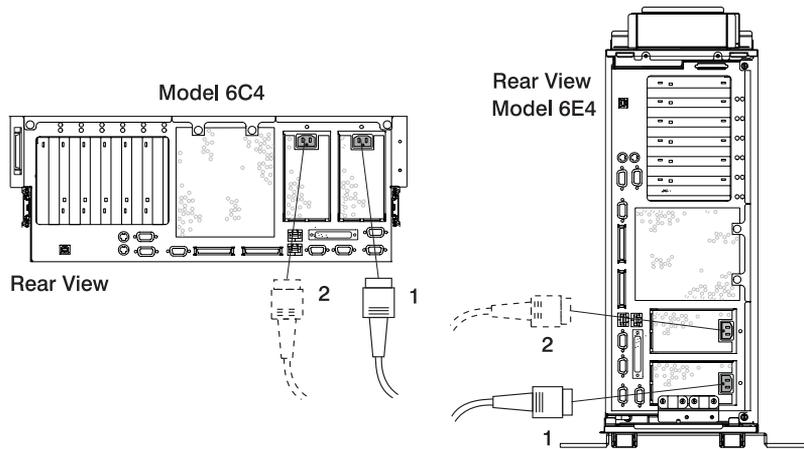
1 Default Power Supply Cable
2 Redundant Power Supply Cable

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

Step 23: Attaching Cables to the Model 6C4 Cable Management Arm

To attach the external cables to the cable management arm, do the following:

1. Put the system into the service position. Refer to "Placing the Model 6C4 into the Service Position" on page 53.

   Note: The rails lock in the fully extended position with a click.
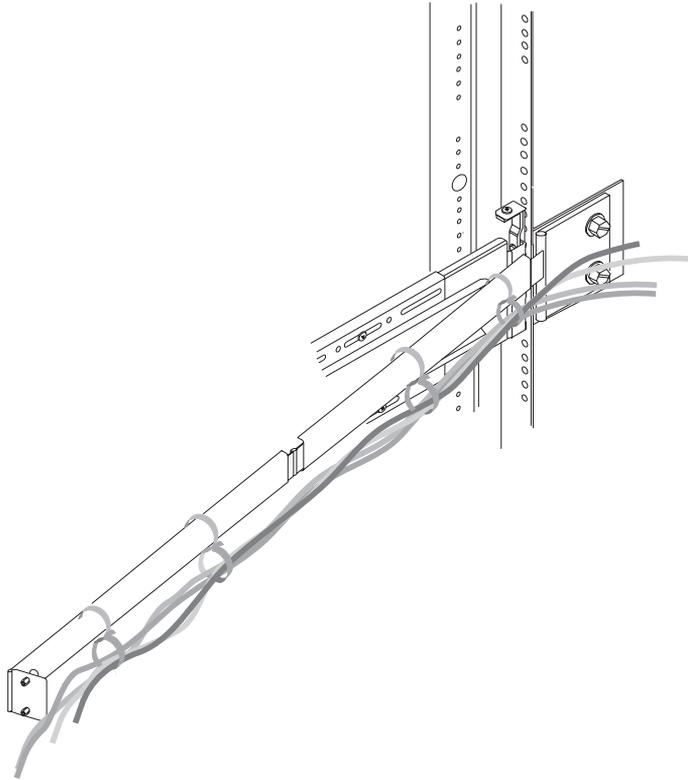
2. Loosely wrap the Velcro strips around the external cables. The Velcro strip was already premounted on your cable management arm.

   Note: To allow for cable movement, *do not* tightly wrap the Velcro strip around the cables.

3. After attaching the cables to the cable management arm, go to the front of the rack and move the system drawer in and out. Observe cable and cable management arm movement and check for cable binding.

Step 24. Connect the Power Cables to Electrical Outlets

Connect the power source to the system unit.

When connected to the power source, the operator panel displays `OK`, and the green power LED blinks at a fast rate. 9xxx checkpoints appear in the operator panel display.

When the power-on sequence is complete, the power LER on the operator panel stops blinking and remains on.

The following illustration shows the operator panel in standby mode with the `OK` displayed in the operator panel.
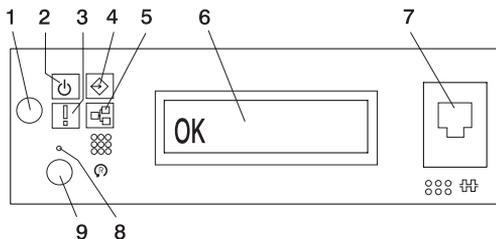
1 Power-On Button		**6** Operator Panel Display	
2 Power LED		**7** (FS1) Front Serial Connector (RJ48 Connector)	
3 Attention LED		**8** CSP Reset Button (Pinhole)	
4 SCSI Port Activity		**9** System Reset Button	
5 Ethernet Port Activity			

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 25. 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 26: Start Your System

1. If an operating system has been preinstalled in your Model 6C4 or Model 6E4 system, or if you plan to install one now, refer to the operating system installation documentation.

   Note: Operating system installation is handled in one of the following ways:
   - Preinstalled at the manufacturing site.
   - Installed from a CD-ROM if a CD-ROM drive is installed. The CD-ROM drive is a customer-installable option for the pSeries 630 Model 6C4 and Model 6E4.
   - Installed from a NIM server. Refer to *Network Installation Management Guide and Reference* for information on installing your operating system from a NIM server.

2. If you want to run diagnostics on your system, go to Chapter 3, "Verifying the Hardware Operation" on page 43.

3. Power on the system, as follows:

   a. Look for OK in the operator panel display, which indicates that the system is in standby mode. The green power LED should be blinking slowly.

   b. Press the power button on the operator panel. The power LED on the operator panel stops blinking and stays on. 9xxx checkpoints appear in the operator panel display.
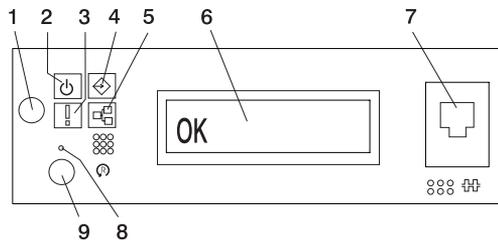
1	Power-On Button	**6**	Operator Panel Display
2	Power LED	**7**	(FS1) Front Serial Connector (RJ48 Connector)
3	Attention LED	**8**	CSP Reset Button (Pinhole)
4	SCSI Port Activity	**9**	System Reset Button
5	Ethernet Port Activity		

   c. 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 27. 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 28: Run System Verification

- If your system displays the login prompt and you want to test your hardware, go to Chapter 3, "Verifying the Hardware Operation" on page 43.
- If the login prompt does not display, recheck your installation procedures and try starting your system again.
- If your system fails, call your service representative.

Chapter 3. 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.

Running System Verification When Not Connected to an Hardware Management Console (HMC)

If you running this procedure and are not connected to an HMC, perform the following.If you are connected to an HMC, go to "Running System Verification When Connected to an HMC" on page 46.

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 communication with the other systems is 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.
- This procedure requires a display connected to a graphics adapter, an ASCII terminal attached to the S1 port, or an HMC connected to an HMC port on the system.
- This procedure runs the AIX online diagnostics in service mode. If the system console is an ASCII terminal, see the documentation for your type of ASCII terminal to find the key sequences you need in order to respond to the diagnostics.
- If a console display is not selected, the diagnostics stop. The instructions for selecting a console display are displayed on all of the graphic displays and any terminal attached to the S1 port. Follow the displayed instructions to select a console display.
- If your system is connected to an HMC, refer to "Step 1. Running Online Diagnostics in Service Mode" on page 46.

Step 2. Loading the Diagnostics

Note: If the system is in standby mode (Power-On LED on the operator panel is slowly blinking and the operator panel displays OK), or if your system is not running and is not connected to a HMC, go to step 4. If you are connected to an HMC, go to "Step 1. Running Online Diagnostics in Service Mode" on page 46.

To begin loading the diagnostics on a system not connected to an HMC, do the following:

1. Stop all application programs running on the operating system.
2. Stop the operating system by logging in as root user and typing shutdown.
3. Wait for the system to go into standby mode.
   - The operator panel LED starts to blink at a slow rate.
   - The OK message displays in the operator panel.

The following figure shows the operator panel and the locations of operator panel components that are referred to in this procedure.
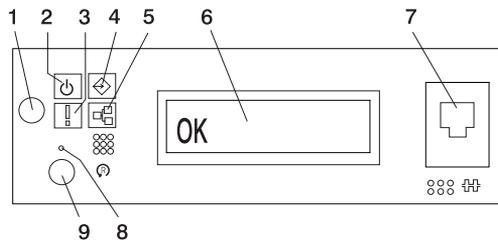
1 Power-On Button	**6** Operator Panel Display
2 Power LED	**7** (FS1) Front Serial Connector (RJ48 Connector)
3 Attention LED	**8** CSP Reset Switch (Pinhole)
4 SCSI Port Activity	**9** System Reset Button
5 Ethernet Port Activity	

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 the Verification Procedure

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

1. Press Enter.

2. If the terminal type has not been defined, you must use the **Initialize Terminal** option on the Function Selection menu to initialize the operating system environment before you can continue with the diagnostics.

3. If you want to do a general checkout, with minimal operator action, select the **Diagnostic Routines** option on the Function Selection menu.

   If you want 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 diagnostics may instruct you to install wrap plugs to better isolate a problem.

4. Select the **System Verification** option on the Diagnostic Mode Selection menu.

5. If you want to run a general checkout of all installed resources, select the **All Resource** option on the Diagnostic Selection menu.

   If you want to check one particular resource, select that resource on the Diagnostic Selection menu.

The checkout programs end with either of the following results:

- The Testing Complete menu displays with 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.

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".

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

Running System Verification When Connected to an HMC

Run the following procedure only if you are connected to an HMC.

Step 1. Running Online Diagnostics in Service Mode

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

1. From the HMC, select the **Partition Manager**.
2. Right-click on the mouse and select **Open Terminal Window**.
3. From the Service Processor Menu on the VTERM, select Option 2 **System Power Control**.
4. Select option 6. Verify that the state changes to `currently disabled`. Disabling fast system boot automatically enables slow boot.
5. Select Option 98 to exit the system power control menu.
6. Use the HMC to power on the managed system in a full system partition by selecting the managed system in the Contents area.
7. Right-click or select the desired system in the Contents area. Next, on the menu, choose **Selected**.
8. Select **Power On**.
9. Select the **Power on Diagnostic Stored Boot list** option (refer to Full System Management Tasks in the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590, for more information on full system partitions).
10. Make sure that there are no media in the devices in the media subsystem.
11. Enter any passwords, if requested.

> **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 2. Running the Verification Procedure

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

1. Press Enter.
2. If the terminal type has not been defined, you must use the **Initialize Terminal** option on the Function Selection menu to initialize the operating system environment before you can continue with the diagnostics.
3. If you want to do a general checkout, with minimal operator action, select the **Diagnostic Routines** option on the Function Selection menu.

   If you want 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 diagnostics may instruct you to install wrap plugs to better isolate a problem.
4. Select the **System Verification** option on the Diagnostic Mode Selection menu.
5. If you want to run a general checkout of all installed resources, select the **All Resource** option on the Diagnostic Selection menu.

   If you want to check one particular resource, select that resource on the Diagnostic Selection menu.

The checkout programs end with either of the following results:

- The Testing Complete menu displays with 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.

Step 3. 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 4. Stopping the Diagnostics".

Step 4. 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 system passed all the diagnostic tests, the verification process is complete and your system is ready to use.

Chapter 4. Installing Options for the Model 6C4 and Model 6E4

This chapter provides instructions to help you add options to your system. 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.

Before performing any of the installation or removal procedures in this chapter, read the following notice.

Safety Considerations

Observe the following safety precautions anytime you work with this system unit.

In the system you are about to setup or service:
- The ac power interface connector is considered the main power disconnect device.
- This system has redundant power supply capabilities, meaning that it has the ability to have two power supplies running simultaneously in the same system unit. When instructed to disconnect the power source, ensure that all power cables have been unplugged.

DANGER

> **An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system unit or the devices that attach to the system unit. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electric shock.**
>
> **Before installing or removing signal cables, ensure that the power cables for the system drawer and all non hot-plug 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 unit 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 system drawer uses 3-wire power cables and plugs for the user's safety. Use these power cables with properly grounded electrical outlets to avoid electrical shock.

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

Note: This unit will only have two power cables if the redundant power supply feature is installed.

Notes:

1. Servicing of the Model 6E4 can be performed with the system either in the vertical or horizontal position. Servicing of the Model 6C4 is performed with the system in the rack and placed into the service position. The service position for the Model 6C4 is described in "Placing the Model 6C4 into the Service Position" on page 53.

2. A highlighted number in a procedure step is referring to the numbered components found in the illustration for that particular procedure.

Handling Static-Sensitive Devices

Attention: Electronic boards, 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.
- With the device still in its antistatic bag, touch it to a metal frame of the system.
- Grasp cards and boards by the edges. Hold drives by the frame. Avoid touching the solder joints or pins.
- If you need to lay the device down while it is out of the antistatic bag, lay it on the antistatic bag. Before picking it up again, touch the antistatic bag and the metal frame of the system at the same time.
- Handle the devices carefully to prevent permanent damage.

Options and Task List

Option/Task	Option/Task Name and Page Location
Adapters	"PCI Adapters" on page 73
Battery	"Replacing the Battery" on page 119
Bezels	"Bezels" on page 61
Bezel Door	"Bezel Door (Model 6E4)" on page 60
CD-ROM Drive	"Media Drives (Diskette, CD-ROM, Tape, or Disk Drive)" on page 100
Covers	"Covers" on page 55
Disk Drive	"Hot-Plug Disk Drives" on page 104
Disk Drive Configuration or Deconfiguration	"Deconfiguring (Removing) or Configuring a Disk Drive" on page 104
Diskette Drive	"Media Drives (Diskette, CD-ROM, Tape, or Disk Drive)" on page 100
Fans	"Fans" on page 92
HMC Installation	"Install the Hardware Management Console (HMC)" on page 64
Media Drives	"Media Drives (Diskette, CD-ROM, Tape, or Disk Drive)" on page 100
Memory DIMMs	"Memory DIMMs" on page 113
Operating Position	"Returning the Model 6C4 to the Operating Position" on page 54
Power Supply	"Power Supplies" on page 124
Processor Card	"Processor Card" on page 108
Service Position	"Placing the Model 6C4 into the Service Position" on page 53
Starting the System	"Starting the System" on page 52
Static-Sensitive Devices	"Handling Static-Sensitive Devices" on page 50
Stopping the System	"Stopping the System" on page 52

Stopping the System

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, ensure that the shutdown 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. The option-installation procedures in this chapter will direct you here if stopping the system is required.

1. Log in to the system as root user.
2. Ask the customer to stop all 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.

Starting the System

To power on the system, perform the following steps in sequence.

1. On a Model 6C4, open the front rack door.

   On a Model 6E4, open the bezel door.
2. Look for the `OK` in the operator panel. The `OK` indicates that the system is in standby mode.
3. Press the power-on button on the operator panel.
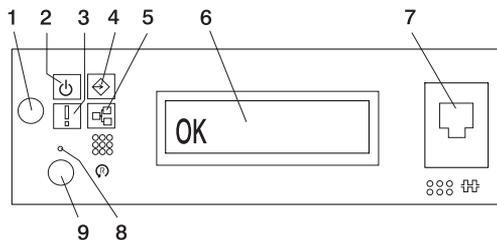
1	Power-On Button	**6**	Operator Panel Display
2	Power LED	**7**	(FS1) Front Serial Connector (RJ48 Connector)
3	Attention LED	**8**	CSP Reset Button (Pinhole)
4	SCSI Port Activity	**9**	System Reset Button
5	Ethernet Port Activity		

The power LED on the operator panel starts blinking at a fast rate. 9xxx checkpoints appear in the operator panel display.

When the power-on sequence is complete, the power LED on the operator panel stops blinking and remains on.

Placing the Model 6C4 into the Service Position

Attention: When placing the Model 6C4 into the service position, it is essential that all stability plates are firmly in position to prevent the rack from toppling. Ensure that only one system drawer is in the service position at a time.

Before doing any service actions inside the Model 6C4, you must put the system into the service position. To place the system into the service position, do the following:

1. Open the front rack door.
2. If your system is equipped with two thumbscrews securing it to the rack, remove the thumbscrews at this time. The screws are located on the bezel, just above each system release latch.
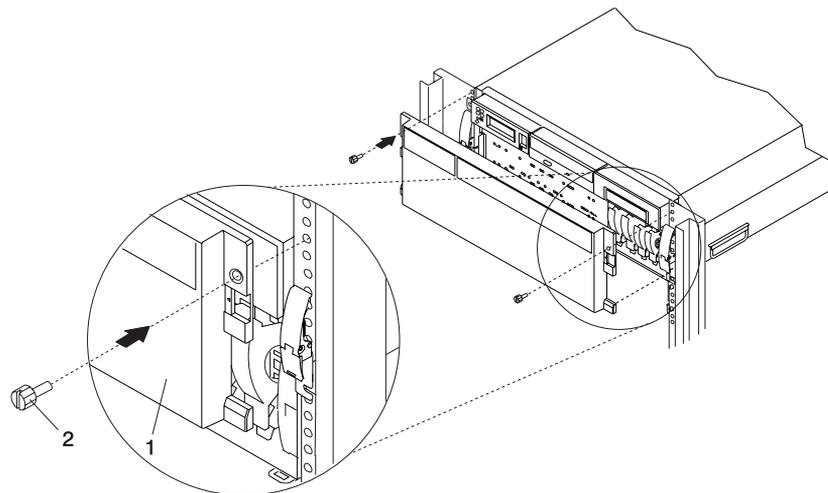
1 Model 6C4 Front Bezel
2 Transport Retaining Screw for System Drawer

3. Release the left and right side system release latches.
4. Pull the system drawer out from the rack until the rails are fully extended.

Note: When the system rails are fully extended, safety latches on the slide rails lock into place. This prevents the system from being accidentally pulled out too far and dropped. The following illustration shows a system drawer in the service position.
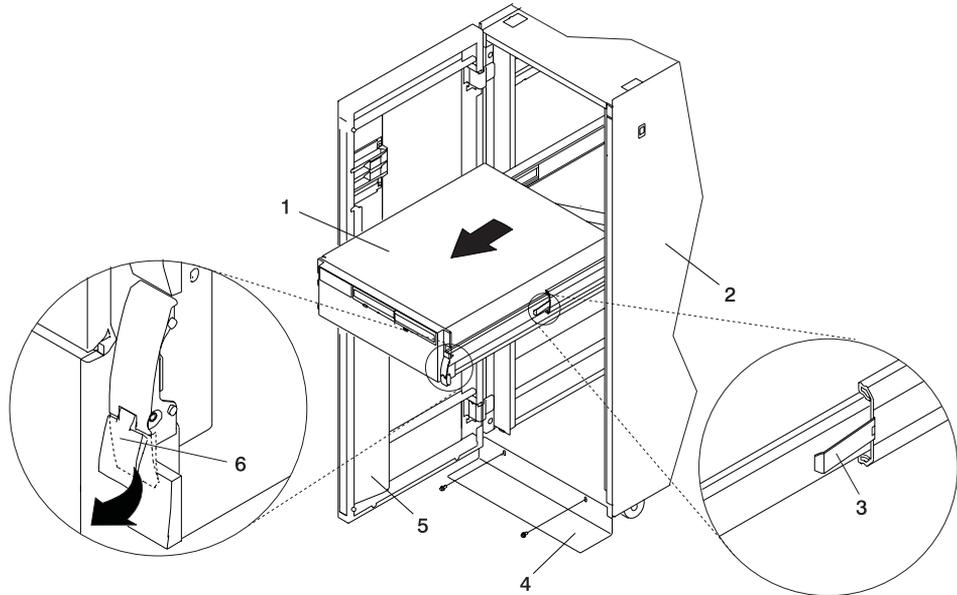
1 Model 6C4	**4** Stabilizing Bar
2 19 Inch Rack	**5** Front Rack Door
3 Extension Rail Safety Release Tab	**6** System Drawer Release Latch

After completing the service actions, return the system to the operating position.

Returning the Model 6C4 to the Operating Position

To return the Model 6C4 to the operating position, do the following:

1. Press in both spring-loaded release tabs, located on each rail. See the illustration on page 54 for the location of the release tabs.
2. Ensure the system drawer release latches, located on the system drawer, are in the open position. See the illustration on page 54 for the location of the system release latches.
3. Push the system drawer straight back into the rack until both release latches on the system have locked into position.
4. If you removed two thumbscrews from the bezel front, replace them at this time.
5. Close the front rack door.

Covers

Before performing the following procedure, read the "Safety Notices" on page vii.

Service Access Cover Removal (Model 6C4)

To remove the service access cover, do the following:

1. Ensure the rack has been correctly stabilized before opening the front and rear rack doors.
2. Open the front rack door and place Model 6C4 into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.
3. Loosen the three captive thumbscrews located on the rear of the cover. See the following illustration for thumbscrew locations.
4. Placing both hands on each side of the cover, slide the cover toward the rear of the system drawer. After the front of the service access cover has cleared the upper chassis ledge, lift the cover up and off the system drawer.

Attention: For proper cooling and airflow, replace the cover before turning on the system. Operating the system for extended periods of time (over 30 minutes) with the cover removed might damage the system components.
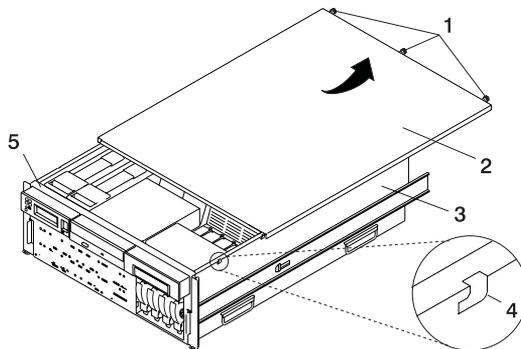
1 Thumbscrews		**4** Access Cover Locking Tab	
2 Service Access Cover		**5** Upper Chassis Ledge	
3 Model 6C4			

Service Access Cover Replacement (Model 6C4)

To replace the service access cover, do the following:

1. Align the service access cover with the top of the system, about 25 mm (1 inch) from the front of the system. The flanges on the left and right sides of the cover should be on the outside of the system chassis.
2. While holding the service access cover against the system drawer, slide it toward the front of the system. The front edge of the service access cover should slide beneath the upper chassis ledge.
3. Tighten the three thumbscrews located on the rear of the cover.

Outer Side Cover Removal (Model 6E4)

To remove the outer side cover, do the following:

1. Loosen the thumbscrew on the rear of the cover. See the following illustration for the thumbscrew location.
2. Slide the cover toward the rear of the system. This releases the 4 locking tab slots located on the top flange of the outer side cover.
3. Grasp the top back corner of the outer side cover.
4. Pull the top edge of the outer side cover out.

   Note: The top edge of the outer side cover must be clear of the top cover.

5. Pull up to release the bottom edge of the outer side cover.
6. Put the cover in a safe place.
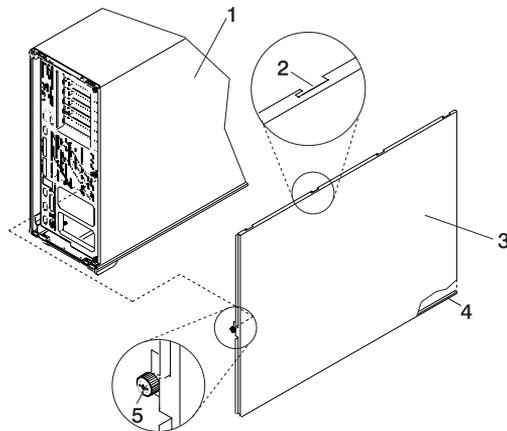
1	Model 6E4	**4**	Cover Retaining Slot
2	Outer Side Cover Locking Tab Slot	**5**	Thumbscrew
3	Outer Side Cover		

Outer Side Cover Replacement (Model 6E4)

To replace the outer side cover, do the following:

1. Place the bottom edge retaining slot of the outer side cover over the outer edge of the system base.
2. Pivot the outer side cover up toward the top of the system.
3. Align the 4 top locking tabs slots, located on the outer side cover, with the locking tabs, located on the bottom side of the top cover.
4. Push the cover in. When correctly seated, push the outer side cover forward toward the front of the chassis. The four top locking tabs are now locked in place.
5. Align the thumbscrew, located on the rear of the outer side cover, with the screw hole located on the back of the chassis.
6. Tighten the thumbscrew.

Service Access Cover Removal (Model 6E4)

To remove the service access cover, do the following:

1. Remove the Model 6E4's outer side cover as described in "Outer Side Cover Removal (Model 6E4)" on page 56.

2. Loosen the three captive thumbscrews located on the rear of the cover. See the following illustration for thumbscrew locations.

3. Slide the cover toward the rear of the system drawer. After the front of the service access cover has cleared the front chassis ledge, lift the cover out of the system.

Attention: For proper cooling and airflow, replace the cover before turning on the system. Operating the system for extended periods of time (over 30 minutes) with the cover removed might damage the system components.
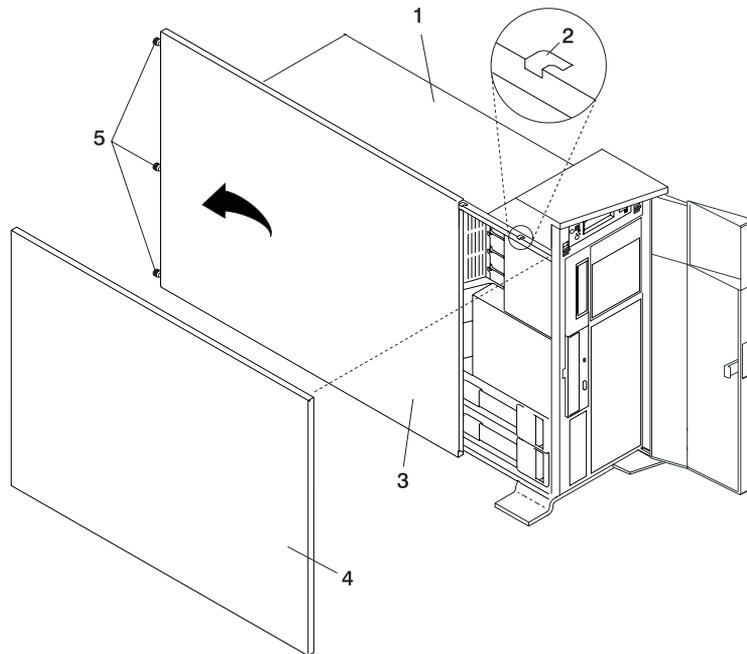
1	Model 6E4	**4**	Outer Side Cover
2	Service Access Cover Locking Tab	**5**	Thumbscrews
3	Service Access Cover		

Service Access Cover Replacement (Model 6E4)

To replace the service access cover, do the following:

1. Align the service access cover with the side of the system, about 25 mm (1 inch) from the front of the system. The flanges on the top and bottom of the cover wrap around the system chassis.

2. Hold the service access cover against the system drawer and slide it toward the front of the system. The front edge of the service access cover should slide beneath the chassis ledge.

3. Tighten the three thumbscrews located on the rear of the cover.

Model 6E4 Back Cover Removal

To remove the back cover, do the following:

1. Grasp each side of the back cover and pull straight up then away from the system. This action releases the two top and two bottom tabs that secure the cover to the back of the system. See the following illustration for the tab locations.

2. Put the back cover in a safe place.
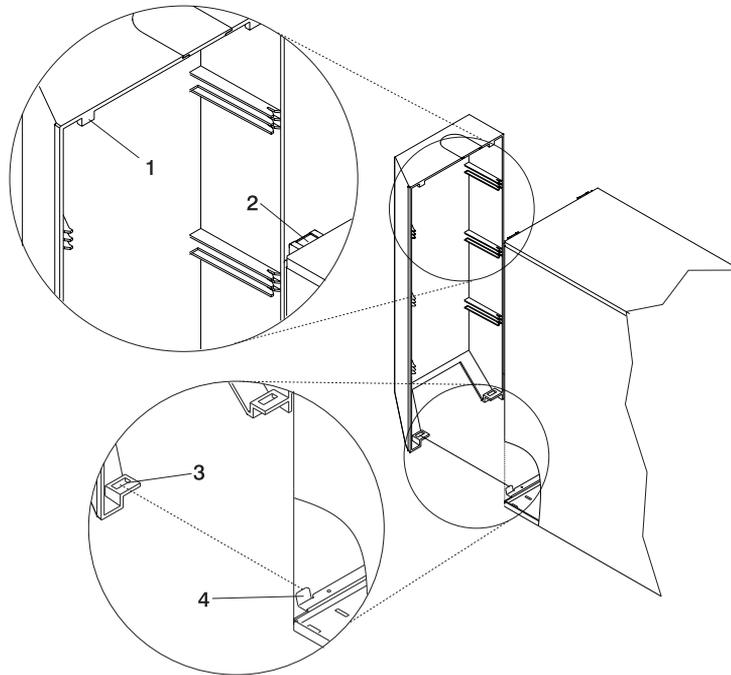
1 Back Cover Top Retaining Tab (Qty. 2)	**3** Back Cover Bottom Locking Slot (Qty. 2)
2 Back Cover Top Locking Slot (Qty. 2)	**4** Back Cover Bottom Retaining Tab (Qty. 2)

Model 6E4 Back Cover Replacement

To replace the back cover, do the following:

1. Ensure all cables have been connected and are correctly seated.
2. Align the back cover side edges with the side edges of the system chassis back.
3. Raise the back cover about 1 inch higher than the system, ensuring tab to slot clearance.
4. Push the back cover straight down. This seats the tabs into their retaining slots.

Disk Drive Access Cover Removal

To remove the disk drive access cover on a Model 6E4, do the following:

1. Open the bezel door.
2. Locate the disk drive access cover on the front bezel of the system. As shown in the following illustration.
3. Press down on the release tab located at the top of the access cover.
4. Gently pull the top of the access cover out and away from the system.

   Note: Lift up the two alignments tabs located on the bottom front edge of the access cover, then lift them out of their slots.

5. Put the cover in a safe place.
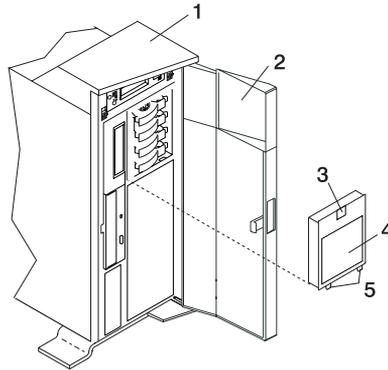
1 Model 6E4	**4** Disk Drive Access Cover
2 Bezel Door	**5** Alignment Tabs
3 Disk Drive Access Cover Release Tab	

Disk Drive Access Cover Replacement

To replace the disk drive access cover on a Model 6E4, do the following:

1. Insert the two alignment tabs, located on the bottom front edge of the access cover, into the two slots located on the front bezel.
2. With the alignment tabs inserted into the slots, pivot the access cover up until the release tab clicks into the closed position.
3. Close the bezel door.

Bezel Door (Model 6E4)

The following procedure covers removal and replacement of the bezel door.

Bezel Door Removal (Model 6E4)

To remove the bezel door, do the following:

1. Open the bezel door by grasping the bezel door handle. Pull the bezel door out, and away from the system.
2. Press down on the top back edge of the door.
3. Gently swivel the top back edge of the door forward, out past the top of the system.
4. Lift the door up to release it from the bottom post.
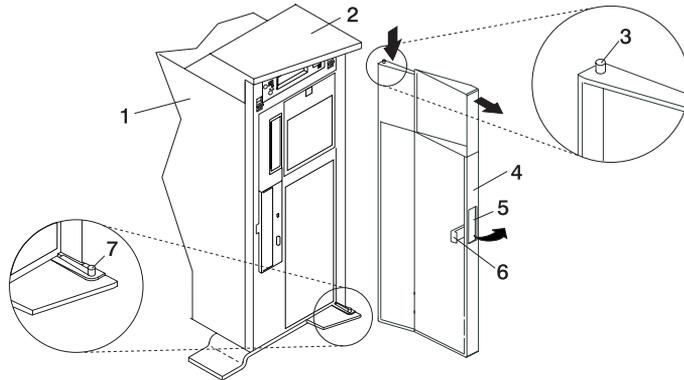
1	Model 6E4	**5**	Bezel Door Handle
2	System Handle Assembly	**6**	Bezel Door Lock Tab
3	Bezel Door Top Retaining Post	**7**	Bezel Door Lower Retaining Post
4	Bezel Door		

Bezel Door Replacement (Model 6E4)

To replace the bezel door, do the following:

1. Set the bezel door on the lower post. See the above illustration.
2. Rotate the bezel door toward the top of the system.
3. Press down on the back edge of the bezel door and seat the top post in the matching hole.

   Note: The matching hole for the top post is located on the bottom side of the system handle assembly.

4. Close the bezel door.

Bezels

Before performing the following procedure, read the "Safety Notices" on page vii.

Front Bezel Removal (Model 6C4)

To remove the bezel, do the following:

1. Open the front rack door and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

2. Simultaneously press in both bezel-release tabs. See the following illustration for bezel-release lever locations.

3. Pivoting the bezel from the bottom, swing the top of the bezel out and away from the system chassis.

4. Pull the bottom of the bezel up, then away from the system chassis. This releases the two tabs located on the bottom of the bezel.

5. Put the bezel in a safe place.
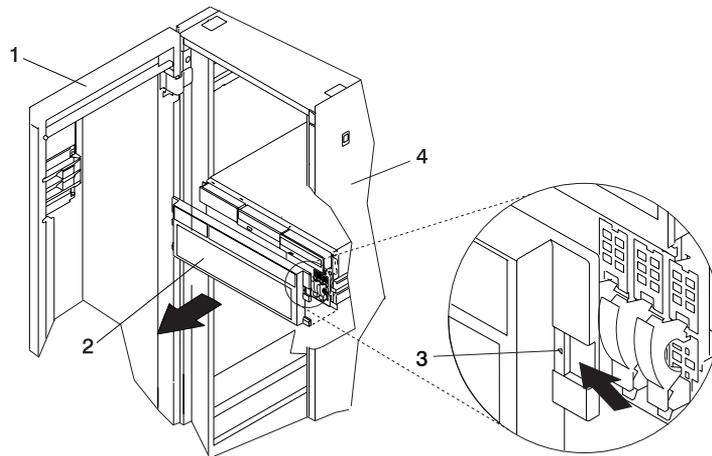
1	Rack Door	**3**	Bezel Release Tab (Located on each side of bezel)
2	Bezel	**4**	19 Inch Rack

Front Bezel Replacement (Model 6C4)

To replace the front bezel, do the following:

1. Open the front rack door and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

2. Put the two tabs located on the bottom edge of the bezel into their locking slots, located on the chassis.

3. Pivot the bezel up toward the top of the chassis.

4. Align the release tabs to the matching slots located on the front of the system.

5. Gently push the tabs into the slots until the bezel seats against the front of the system.

6. Push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

7. Close the rack door.

Front Bezel Removal (Model 6E4)

To remove the front bezel, do the following:

1. Remove the bezel door as described in "Bezel Door (Model 6E4)" on page 60.
2. Press down on the two bezel-release levers.
3. Pull the top of the bezel out and away from the system chassis.
4. Gently pull the bezel up off the base, releasing the lower bezel locking tabs.
5. Put the bezel and bezel door in a safe place.
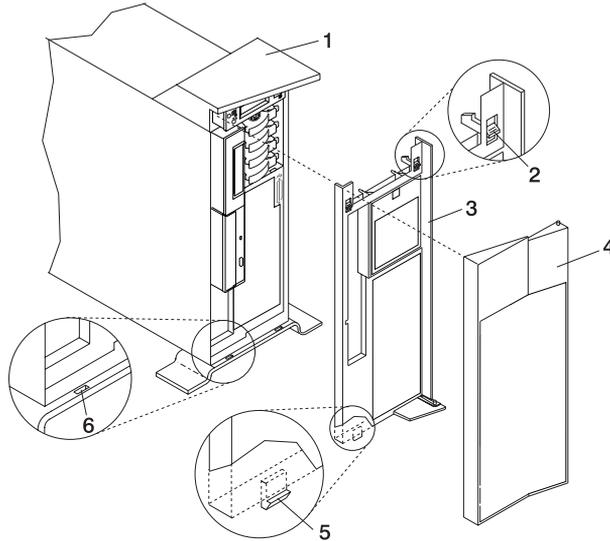
1	Model 6E4	**4**	Front Door
2	Bezel-release lever	**5**	Lower Bezel Locking Tab
3	Front Bezel	**6**	Lower Bezel Retaining Slots

Front Bezel Replacement (Model 6E4)

To replace the front bezel, do the following:

1. Put the two lower bezel locking tabs into the retaining slots located on the chassis base.
2. Rotate the bezel up toward the top of the chassis, ensuring that the aligning pins are aligned with their matching holes located on the chassis.
3. Gently push the bezel in until the two bezel release levers are seated in their respective slots.
4. Replace the bezel door as described in "Bezel Door (Model 6E4)" on page 60.

Install the Hardware Management Console (HMC)

The Hardware Management Console (HMC) user interface provides the functions needed to create and maintain a multiple-partitioned environment.

Position the HMC and Monitor

Position the HMC and monitor at or near their desired location.

- The HMC weighs between 34 kg (75 pounds) and 41 kg (90 pounds). Do not try to lift the HMC by yourself.
- Monitors can weigh as much as 35 kg (77 pounds). Use caution when lifting or moving the monitor.
- Leave enough space around the HMC 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.
- Put the HMC in a location where all necessary power outlets and network connections can safely be reached.
- Put the display in a stable and sturdy location.

Connect the Cables

Use the following steps to connect the cables to your HMC. Look for the small icons on the back of your HMC, that show where to attach the keyboard, mouse and display cables.

1. Attach the monitor cable to the monitor connector and tighten the screws.
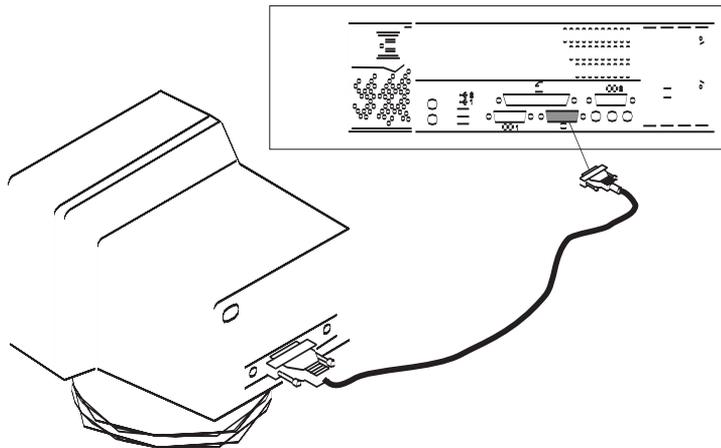
2. If a label for the monitor was provided with your system, attach the label to the bottom right corner of the monitor.

3. Attach the power cables to the monitor (**1**). If the HMC has a voltage switch, ensure that it is in the correct position for the supply voltage.

   Attention: *Do not* plug the power cables into an electrical outlet at this point.
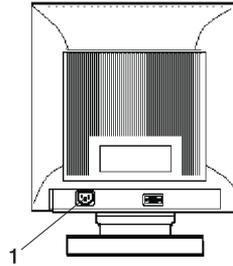
4. Connect the mouse and keyboard to their connectors, as shown in the following illustration.
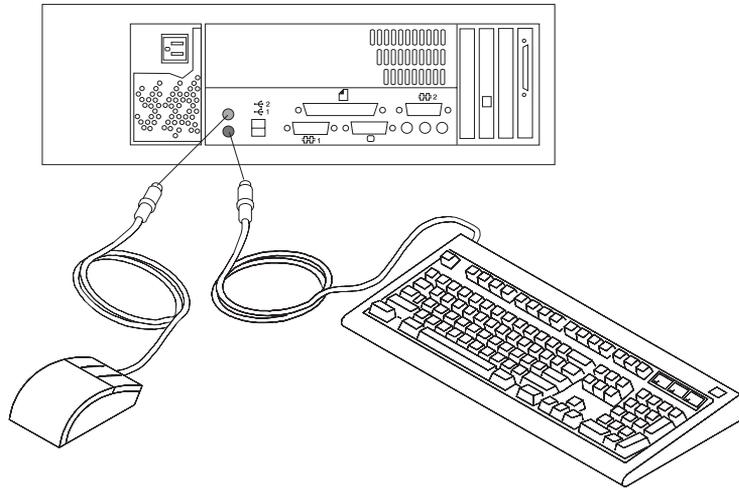
5. Connect the HMC serial cable into the HMC1 connector, located on the back of your system unit. For two HMCs, connect the redundant HMC serial cable into the HMC2 connector, located on the back of your system unit. The following illustration shows the location of the serial ports on the back of the HMC and the HMC1 and HMC2 connectors located on back of your system unit.
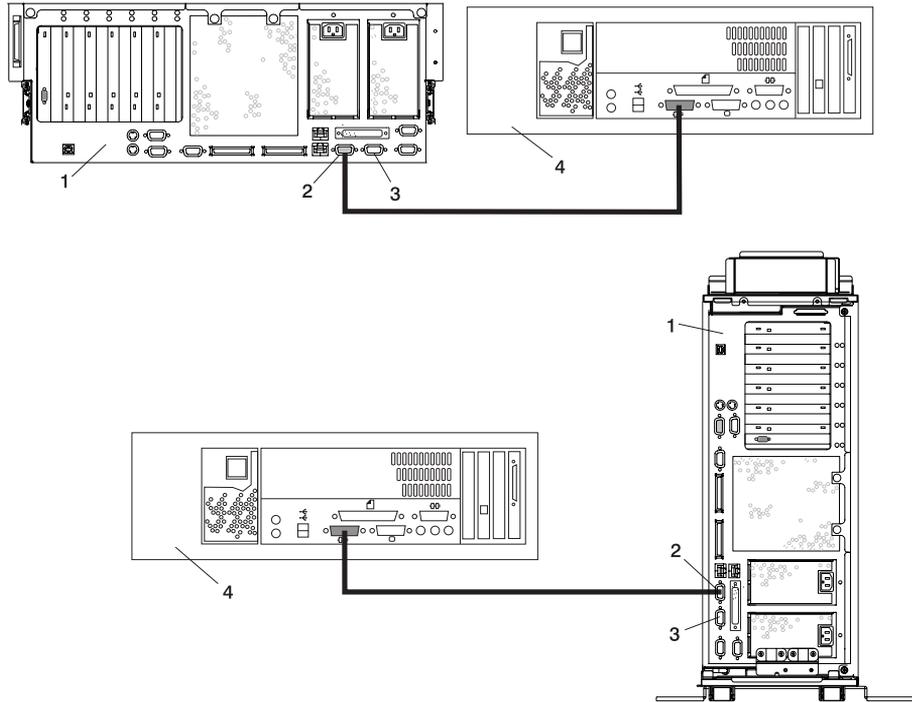
1 Model 6C4 or Model 6E4

2 HMC1 Connector

3 HMC2 Connector

4 Hardware Management Console (HMC)

To order the correct-length serial cables to connect the pSeries 630 Model 6C4 and Model 6E4 to the HMC, call your service representative

Connect the 8-Port Adapter Cables

If you are using any optional 8-port adapters, connect the cables to the appropriate connectors in slots 1 through 4.
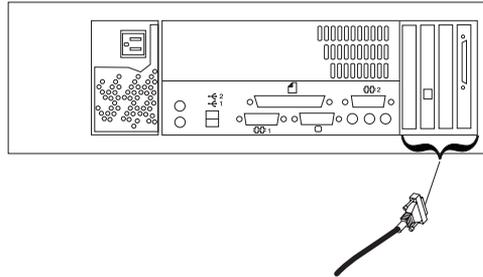
Connect the External Modem

The external modem is used in conjunction with the HMC's Service Agent and Call Home features. To properly service your machine, it is important that you configure the Service Agent feature correctly the first time. For more information about configuring the modem and the Service Agent feature, see "Configure the Service Agent" on page 71.

To connect the external HMC modem, do the following:

1. Connect the modem cable to the external HMC modem (1).
2. Connect the other end of the modem cable to serial port 2.
3. Connect the phone cable line port of the external modem (2).
4. Connect the other end of the phone cable to the analog jack on your wall.
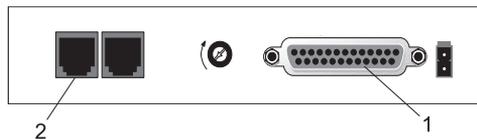
Check the Microswitch Setting on the Modem

Check the microswitch settings on the modem. The settings should be set as follows:

Switch	Position	Function
1	Up	Force DTR
2	Up	Flow Control &E4
3	Down	Result Codes Enabled
4	Up	Modem Emulation Disabled
5	*Down	Auto Answer Enabled
6	Up	Maximum Throughput Enabled
7	Up	RTS Normal Functions
8	Down	Enable Command Mode
9	Down	Remote Digital Loopback Test Enabled
10	Up	Dial-Up Line Enabled
11	Down	AT Responses Enabled (Extended Responses Disabled)
12	*Down	Asynchronous Operation
13	UP	28.8KB Line Speed
14	Up	
15	Up	CD and DSR Normal Functions
16	Up	2-Wire Leased Line Enabled
Note: * Only switches 5 and 12 are changed from the factory default settings.		

Connect the LAN Cable (If Applicable)

The LAN cable is recommended because each active partition reports errors to the HMC's Service Focal Point application through the LAN network. The HMC must be attached to the system's LAN, and each partition should have a LAN adapter assigned as a resource.

Connect the LAN to the adapters assigned to each partition and to the LAN connection on the HMC system hardware.

Plug in the HMC Power Cable

1. Plug in the power cable, as shown in the following illustration.
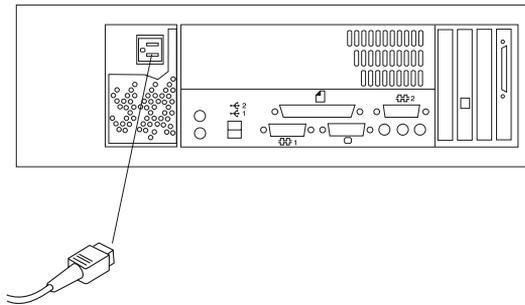
2. Plug the power cables for the monitor, HMC, and modem into electrical outlets.

Configure the Network

To configure the network, do the following:

- Log in to the (HMC) using the user ID hscroot and password abc123.

  Note: User IDs and passwords are case-sensitive. Enter the user ID and password exactly as shown.
- Select the **System Configuration** Application in the Navigation area.
- Select **Customize Network Settings** in the Contents area.
- Type the appropriate network information in the **IP Address**, **Name Services**, and **Routing** tabs on the Network Configuration window.
- Select **OK**.

For more information on configuring the network, refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590.

Configure Inventory Scout Services

Inventory Scout Services is an AIX tool that surveys managed systems for hardware and software information.

To set up Inventory Scout Services for each system managed by the HMC, and for each logical partition running an instance of AIX, all partitions must be configured in order to conduct microcode surveys or collect Vital Product Data (VPD).

To set up Inventory Scout Services for each managed system and partition, you must be a member of one of the following roles:

- System Administrator
- Advanced Operator
- Service Representative

Refer to the *IBM Hardware Management Console for pSeries Operations Guide* for more information on the previous roles.

Note:

- The partition password requested in step 7 is actually the password for Inventory Scout (invscout) User ID password on the AIX images.
- The Inventory Scout listening port is set by starting the invscoutd daemon on the AIX images. This port will default to 808.
- If a system has been powered on using the Full System Partition power-on option, you must configure the Full System Partition to use Inventory Scout Services.

To set up Inventory Scout Services for each managed system and partition, do the following:

1. In the Navigation area, double-click the **Inventory Scout Services** icon.
2. In the Contents area, select **Inventory Scout Profile Configuration.**
3. From the list, select a managed system.
4. Select **Next**.
5. From the list, select the partition you want to configure.
6. Select **Next**.
7. The next window identifies the selected partition. Type the following:
   - Partition password
   - Inventory Scout listening port
   - IP address of the AIX partition

Click **Finish** if you have completed configuration of all partitions.

OR

Click **Back** to continue to configure additional partitions until all are configured.

Collect Vital Product Data Information

Use this task to collect the Vital Product Data (VPD) for the specified managed system into a file.

To collect the managed system's VPD, you must be a member of one of the following roles:

- System Administrator
- Advanced Operator

- Service Representative

To collect the managed systems VPD, do the following:

1. In the Navigation area, double-click the **Inventory Scout Services** icon.
2. In the Contents area, select **Collect VPD Information**.
3. From the list, select the name of the managed system for which you want to collect the Vital Product Data.
4. Select **Next**.
5. The wizard requests confirmation about the managed system, and then prompts you to insert a blank, DOS-formatted diskette into the HMC diskette drive.
6. Click **Finish**. This file is then copied to the diskette in the specified drive.

To conduct a microcode survey, please refer to the *IBM Hardware Management Console for pSeries Operations Guide*.

Configure the Service Agent

Note: You must configure the network before you configure the Service Agent.
To start the Service Agent, click on the **Service Agent** icon on the HMC virtual terminal window.

If you are configuring Service Agent for the first time, select **Start Service Agent Processes** to start the service agent processes. Select **Service Agent UI**. You are prompted to type specific information or parameters pertinent to Service Agent .

To configure the Service Agent, do the following:

1. Read and accept the License Agreement.
2. Type the word

   ```
   password
   ```

   for the initial password prompt. The word password is the default password supplied by IBM.

   Note: User IDs and passwords are case-sensitive. Enter the user ID and password exactly as shown.

3. Type the information as follows:

   Customer Contact Name
   > The person that IBM can reach when an error is reported to IBM by the Service Agent.

   Customer Phone Number
   > The phone number associated with the person whose name is placed in the **Customer Contact Name** field.

   Customer Email
   > The e-mail address of the person whose name is placed in the **Customer Contact Name** field.

Queue Country/Region
> The country or region in which the HMC is located. Click the drop-down list to expand the country or region choices. Type the first letter of the desired country or region to move to the first occurrence of a country or region whose first letter matches your choice.

Gateway Type
> The machine type of the processor subsystem.

Gateway Serial Number
> The serial number of the processor subsystem that you designate to be the machine to send Service Agent information to IBM.

Gateway Model Number
> The model number of the processor subsystem that you designate to be the machine to send Service Agent information to IBM.

4. Select **Continue**. The Service Agent interface displays.
5. Select **Network**. Fill in the appropriate information.

   Note: Some of the fields are prefilled with information taken from the Service Agent initial configuration panel.

6. Select **OK**.
7. Expand the contents of the Gateway category by clicking the key next to your Gateway machine.
8. Select **Dialer**.
9. Select **Location**. Select the location phone number closest to your physical location. Several of the fields are then completed by Service Agent based on the location phone number you selected.
10. Select **Modem**. Select the modem that you will use for Service Agent communications. After your selection, several of the remaining fields are filled in by Service Agent.
11. Select **OK** to save the Dialer configuration.
12. Expand the contents of the Administration category by clicking the key to its left.
13. Select **Register**.
14. Select your Gateway machine by clicking it.
15. Select **Register**. The ″Would you like to IGN now″ window displays.
16. Select **Yes**. The Service Agent is now attempting to connect to the IBM Service Agent server, using the modem you have selected.
17. Select **CallLog**. Check the details pane to view the status of the just-attempted call. To determine the success or failure of the connection attempt, examine the Description column.

For more information on the Service Agent, refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590.

PCI Adapters

Before performing this procedure, read "Safety Notices" on page vii.

Notes:

1. Some PCI adapter cards are shipped from the manufacturer with a blue handle or support along the back edge of the card. To use in this system unit you *must* remove the blue handle or support from the card.

2. With this system, you can install PCI adapters with the power on. These adapters are referred to as hot-pluggable PCI adapters. Some adapters are not hot-pluggable and the system must be powered off for this type of adapter installation.

Before you install the adapter, determine if the PCI adapter you are installing is hot-pluggable. See the *PCI Adapter Placement Reference*, order number SA38-0538.

If you are removing a PCI adapter that is:

- Non-hot-pluggable, go to "Non-Hot-Pluggable PCI Adapter Removal" on page 75.
- Hot-pluggable, go to "Hot-Pluggable PCI Adapter Removal" on page 80.

PCI Hot-Plug Manager Access

The installation instructions for hot-pluggable PCI adapters refer you to these procedures when it is appropriate to perform them.

Note: A PCI adapter is only hot-pluggable if the PCI adapter is supported for hot-plug applications. See the *PCI Adapter Placement Reference*, order number SA38-0538 for complete information regarding your PCI adapter.

Accessing Hot-Plug Management Functions

Note: Removing or installing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is available at the following Web address: `http://www-1.ibm.com/servers/aix/library/`. Select **Technical Publications.** This publication is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

To access the hot-plug menus, do the following:

1. Log in as root user.
2. At the command line, type `smitty`.
3. Select **Devices**.
4. Select **PCI Hot Plug Manager** and press Enter.

5. The PCI Hot-Plug Manager menu displays. Return to the procedure that directed you here. The following section describes the menu options.

PCI Hot-Plug Manager Menu

The following options are available from the PCI Hot Plug Manager menu:

Note: For information about the PCI slot LED states, see "Component LEDs" on page 142.

List PCI Hot-Plug Slots

Provides a descriptive list of all slots that support PCI hot-plug capability. If the listing for a slot indicates it holds an "Unknown" device, select the **Install/Configure Devices Added after IPL** to configure the adapter in that slot.

Add a PCI Hot-Plug Adapter

Allows the user to add a new PCI hot-plug-capable adapter to the slot with the system turned on. You will be asked to identify the PCI slot that you have selected prior to the actual operation. The selected PCI slot will go into the Action state and finally into the On state.

Note: The system will indicate the slot holds an "Unknown" device until you perform the **Install/Configure Devices Added After IPL** option to configure the adapter.

Replace/Remove a PCI Hot-Plug Adapter

Allows the user to remove an existing adapter, or replace an existing adapter with an identical one. For this option to work, the adapter must be in the Defined state (see "Unconfigure a Device" option below).

You will be asked to identify the PCI slot prior to the actual operation. The selected PCI slot will go into the Action state.

Identify a PCI Hot-Plug Slot

Allows the user to identify a PCI slot. The selected PCI slot will go into the Identify state. See "Component LEDs" on page 142.

Unconfigure a Device

Allows the user to put an existing PCI adapter into the Defined state if the device is no longer in use.

This step must be completed successfully before starting any removal or replacement operation. If this step fails, the customer must take action to release the device.

Configure a Defined Device

Allows a new PCI adapter to be configured into the system if software support is already available for the adapter. The selected PCI slot will go into the On state.

Install/Configure Devices Added After IPL

The system attempts to configure any new devices and tries to find and install any required software from a user-selected source.

The add, remove, and replace functions return information to the user indicating whether the operation was successful. If additional instructions are provided on the screen, complete the recommended actions. If the instructions do not resolve the problem, do the following:

- If the adapter is listed as Unknown, perform the **Install/Configure Devices Added After IPL** option to configure the adapter.
- If you receive a warning indicating that needed device packages are not installed, the system administrator must install the specified packages before you can configure or diagnose the adapter.
- If you receive a failure message indicating a hardware error, the problem might be either the adapter or the PCI slot. Isolate the problem by retrying the operation in a different PCI slot, or trying a different adapter in the slot. If you determine that you have failing hardware, call your service representative.
- *Do not* use **Install/Configure Devices Added After IPL** if your system is setup to run HACMP clustering. Consult with your system administrator, or software support for the correct method to configure the replacement device.

Non-Hot-Pluggable PCI Adapter Removal

To remove a PCI adapter, do the following in the order listed:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.
2. Shut down the system as described in "Stopping the System" on page 52.
3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57. See the following illustration.
4. Determine which adapters you plan to remove, then label and disconnect all cables attached to that adapter.
5. Record the slot number and location of each adapter being removed.

   Note: Adapter slots are numbered on the rear of the system unit.

6. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

7. If you are removing a long adapter, make note of how the back edge of the adapter slides into molded grooves located on the back wall of the PCI cooling fan bracket.
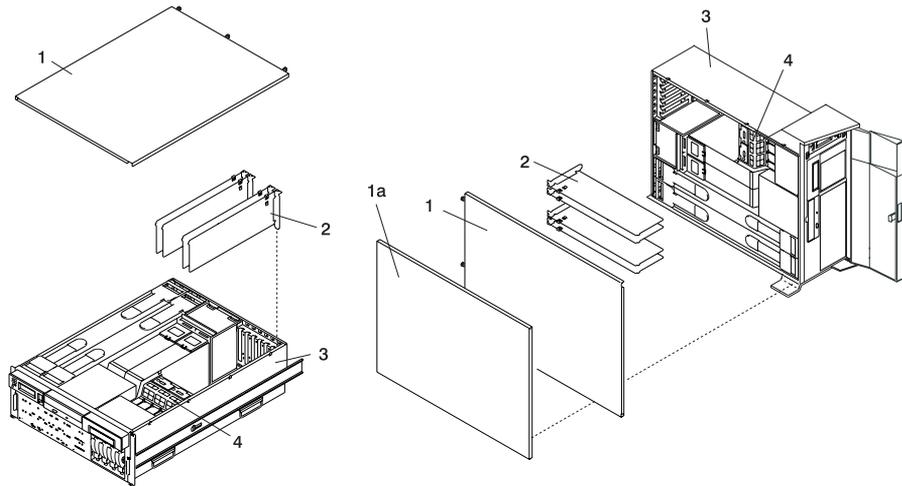
1	Service Access Cover	**3**	System Unit
1a	Outer Access Cover	**4**	PCI Cooling Fan Bracket
2	PCI Adapters		

8. Rotate the adapter retainer clip counterclockwise, as shown in the following illustration.

9. The tab resting on the adapter retention seat should spring to a vertical position, coming to a rest next to the adapter retention latch.

10. Carefully grasp the PCI adapter by its top edge or upper corners, and remove it from the system. Store the adapter in a safe place.
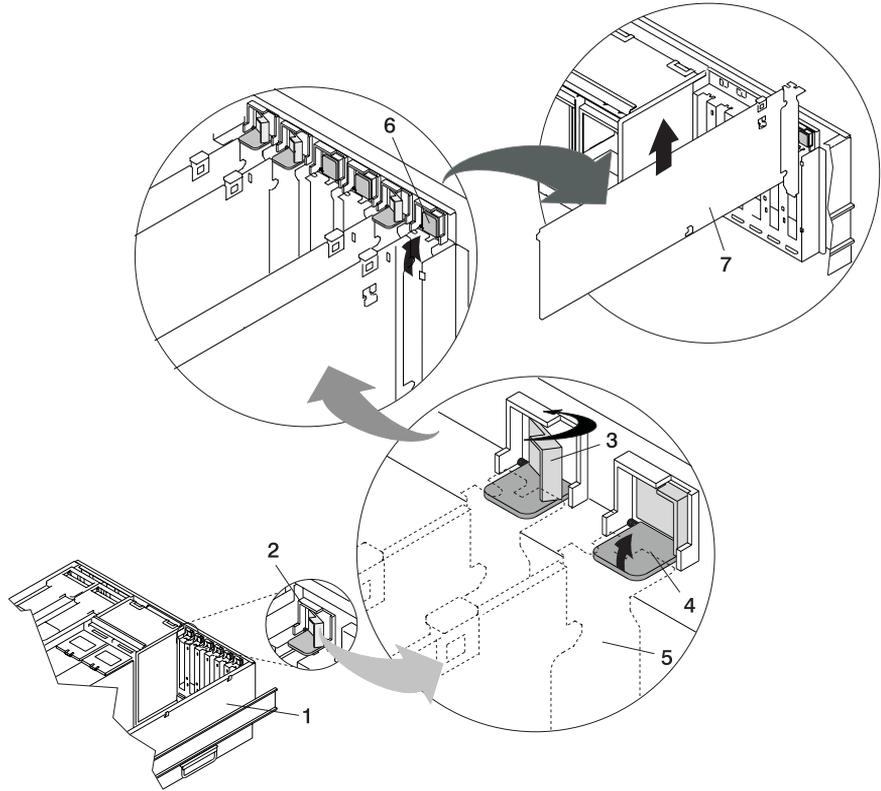
1 System Unit

2 Adapter Retainer Assembly

3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)

4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)

5 PCI Adapter (dotted lines) being locked into position

6 Adapter Retainer Assembly (in the unlocked position)

7 PCI Adapter

11. If you do not plan to install another adapter into the vacated slot, seal the expansion slot using an expansion-slot cover. If you are installing another adapter, go to "Adding or Replacing a Non-Hot-Pluggable PCI Adapter".

12. If you have other options to install, refer to "Options and Task List" on page 51. If you do not have other options to install, continue on to the next step.

13. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

14. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

15. Connect the adapter cables.

16. On a Model 6C4, route the cables through the cable management arm.

17. Power on the system as described in "Starting the System" on page 52.

18. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Adding or Replacing a Non-Hot-Pluggable PCI Adapter

To add or install an adapter, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 52.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

4. Refer to the *PCI Adapter Placement Reference* for information regarding slot restrictions for adapters that can be used in this system.

5. If necessary, remove the adapter expansion slot shield.

6. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

7. If necessary, remove the adapter from the antistatic package.

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

8. Place the adapter, component-side up, on a flat, static-protective surface.

9. Set any jumpers or switches as instructed by the adapter manufacturer.

10. Carefully grasp the adapter by its top edge, and align the adapter with the expansion slot and its connector on the PCI riser card.

11. Press the adapter *firmly* into its connector.

> **Attention:** When you install an adapter into the system, be sure that it is completely and correctly seated in its connector located on the PCI riser card. Improper insertion and seating of the adapter card might cause damage to the PCI riser card or the adapter.

12. Rotate the adapter retainer clip clockwise until it covers the tab at approximately a 45 degree angle. See the following illustration.
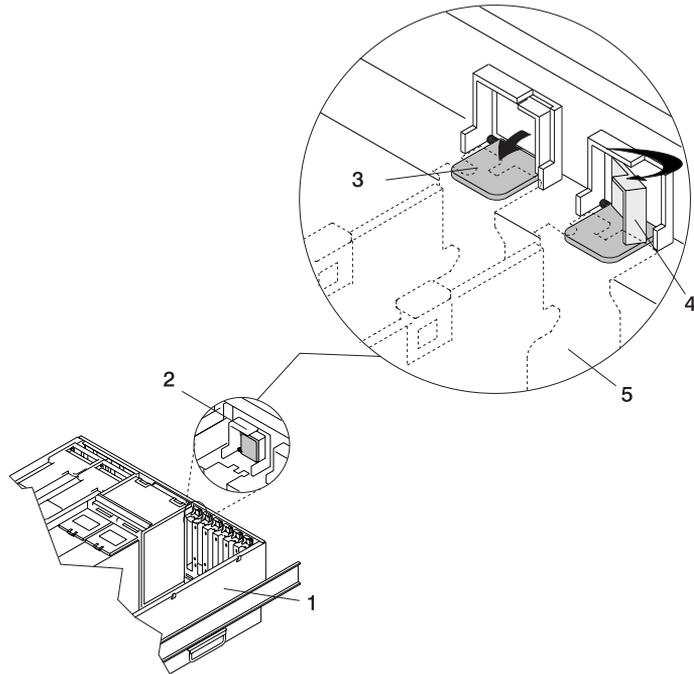
1 System Unit

2 Adapter Retainer Assembly (in the unlocked position)

3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)

4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)

5 PCI Adapter (dotted lines) being locked into position

13. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

14. If you are servicing a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

15. Connect the adapter cables.

16. If you are servicing a Model 6C4, route the cables through the cable management arm.

17. Power on the system as described in "Starting the System" on page 52.

18. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Hot-Pluggable PCI Adapter Removal

Note: Removing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot-plug procedures. Before taking an adapter offline, the devices attached to the adapter must also be taken offline. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*. This publication is available at the following Web address: `http://www-1.ibm.com/servers/aix/library/`. Select **Technical Publications**. This publication is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

To remove a hot-pluggable PCI adapter, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

    On a Model 6E4, open the bezel door.

2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

3. Determine which adapters you plan to remove. Label and disconnect all cables attached to that adapter.

4. Record the slot number and location of each adapter being removed.

    Note: Adapter slots are numbered on the rear of the system unit.

5. Ensure that any processes or applications that might use the adapter are stopped.

6. Refer to "PCI Hot-Plug Manager Access" on page 73, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.

7. Select **Unconfigure a Device** and press Enter.

8. Press F4 to display the Device Names menu.

9. Select the adapter you are removing from the menu.

10. Use the Tab key to answer NO to **Keep Definition** and YES to **Unconfigure Child Devices**. Press Enter.

11. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the **Command** field at the top of the screen.

12. Press F3 to return to the PCI Hot-Plug Manager menu.

13. Select **Replace/Remove a PCI Hot-Plug Adapter** and press Enter. The Replace/Remove a PCI Hot-Plug Adapter menu displays.

14. Move the cursor to select the adapter that you are removing and press Enter. (The description entry displays as unknown).

15. Press the Tab key until the entry field displays the remove operation and then press the Enter key. Follow the instructions that display on the screen until you are instructed to remove the adapter.

16. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.

17. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

18. If you are removing a long adapter, make note of how the back edge of the adapter slides into molded grooves located on the back wall of the PCI cooling fan bracket.
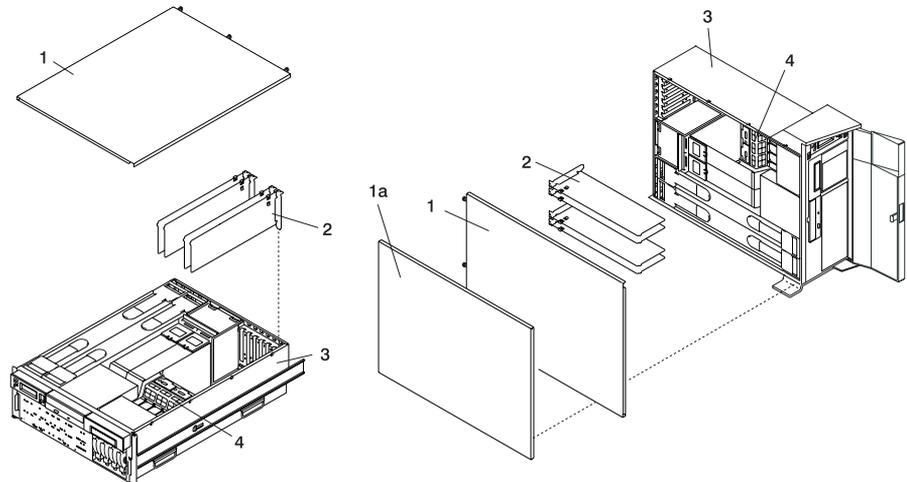
1	Service Access Cover	**3**	System Unit
1a	Outer Side Cover	**4**	PCI Cooling Fan Bracket
2	PCI Adapters		

19. Turn the locking latch and lift the plastic retainer seat off the adapter.
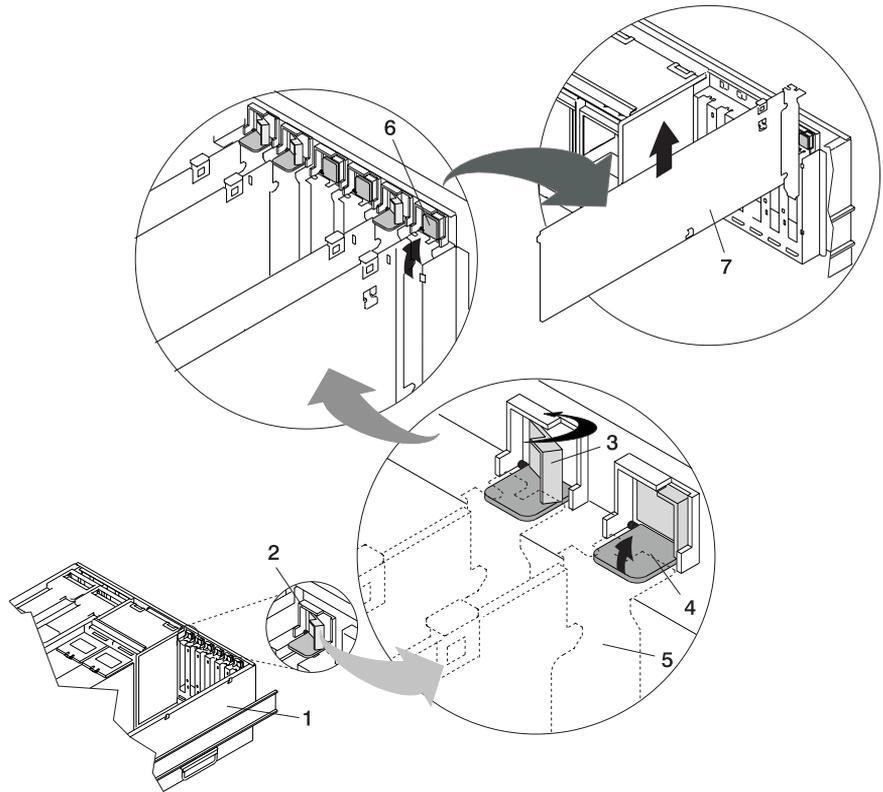
1 System Unit

2 Adapter Retainer Assembly

3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)

4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)

5 PCI Adapter (dotted lines) being locked into position

6 Adapter Retainer Assembly (in the unlocked position)

7 PCI Adapter

20. Carefully grasp the adapter by the edges and pull it straight out from the PCI riser card.

21. If you are not installing another adapter in this slot, place an expansion slot cover in the adapter slot and then lower the plastic retainer seat over the adapter bracket. Rotate the locking latch clockwise until it clicks into the locked position.

22. Continue to follow the screen instructions until you receive a message that the adapter removal is successful. Successful removal is indicated by the OK message displayed next to the **Command** field at the top of the screen.

23. If you do not have other adapters to remove, continue with the next step.

    OR

    If you have other adapters to remove, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 13 on page 81.

24. Press F10 to exit the Hot-Plug Manager.

25. If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.

26. If you have other options to install, refer to "Options and Task List" on page 51. If you do not have other options to install, continue on to the next step.

27. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

28. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

29. Connect the adapter cables.

30. On a Model 6C4, route the cables through the cable management arm.

31. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Replacing a Hot-Pluggable PCI Adapter

Notes:

1. Use this procedure only when you are replacing an adapter with an identical adapter. If you are replacing an adapter with an adapter that is not identical to the adapter removed, go to "Hot-Pluggable PCI Adapter Removal" on page 80 and "Installing a Hot-Pluggable PCI Adapter" on page 89.

2. Removing a hot-pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot-plug procedures. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

   For additional information about taking an adapter offline or removing it from the system configuration, see the AIX *System Management Guide: Operating System and Devices*. This publication is available at the following Web address: `http://www-1.ibm.com/servers/aix/library/`. Select **Technical Publications.** This publication is also contained on the AIX Documentation CD. The documentation is made accessible by loading the documentation CD onto the hard disk or by mounting the CD in the CD-ROM drive.

To replace a hot-plug PCI adapter, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

3. Refer to the *PCI Adapter Placement Reference*, order number SA38-0538, for information regarding slot restrictions for adapters that can be used in this system.

4. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

5. Determine the slot from which you are removing the adapter.

6. Ensure that any processes or applications that might use the adapter are stopped.

7. Refer to "PCI Hot-Plug Manager Access" on page 73, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.

8. Select **Unconfigure a Device** and press Enter.

   Note: If the adapter or device has a problem that prevents it from being replaced by hot-plug, it must be replaced by shutting down the system. Go to "Adding or Replacing a Non-Hot-Pluggable PCI Adapter" on page 78.

9. Press F4 to display the Device Names menu.

10. Select the adapter you are removing from the menu.

11. Use the tab key to answer YES to **Keep Definition** and YES to set **Unconfigure Child Devices**. Press Enter.

12. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the **Command** field at the top of the screen.

13. Press F3 to return to the PCI Hot-Plug Manager menu.

14. Select **Replace/Remove a PCI Hot-Plug Adapter** and press Enter. The Replace/Remove a PCI Hot-Plug Adapter menu displays.

15. Move the cursor to select the adapter that you are removing and press Enter.

16. Press the Tab key until the entry field displays the replace operation and then press the Enter key. Follow the instructions that display on the screen until you are instructed to remove the adapter.

17. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.

18. Turn the locking latch and lift the plastic stop for the adapter.

19. Carefully grasp the adapter by the edges and pull it straight out from the PCI riser card.

20. If necessary, remove the replacement adapter from the antistatic package.

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

21. Place the adapter, component-side up, on a flat, static-protective surface.

22. Set any jumpers or switches as instructed by the adapter manufacturer.

23. Replace the adapter in the adapter slot. Carefully grasp the adapter by the edges and align the adapter in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.

1 System Unit

2 Adapter Retainer Assembly

3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)

4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)

5 PCI Adapter (dotted lines) being locked into position

6 Adapter Retainer Assembly (in the unlocked position)

7 PCI Adapter

24. Lower the plastic retaining seat over the adapter bracket and rotate the locking latch clockwise until it clicks into the locked position. Some full-length cards can be supported by rotating the blue adapter latch on the right end of the adapter counterclockwise.
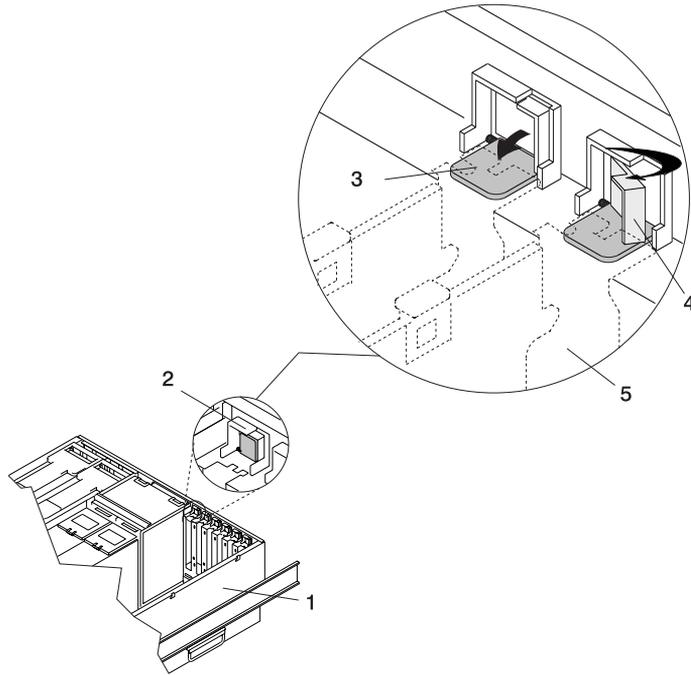
1 System Unit

2 Adapter Retainer Assembly (in the unlocked position)

3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)

4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)

5 PCI Adapter (dotted lines) being locked into position

25. Connect appropriate cables and devices to the adapter.

26. Continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.

27. Press the F3 key to return to the PCI Hot-Plug Manager menu.

28. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful replacement is indicated by the 0K message displayed next to the **Command** field at the top of the screen.

    If your system is set up to run HACMP clustering, *do not* use **Install/Configure Devices Added After IPL**. Consult with your system administrator, or software support for the correct method to configure the replacement device.

29. If you do not have other adapters to replace, continue with the next step.

    OR

    If you have other adapters to replace, press the F3 key to return to the PCI Hot-Plug Manager menu and then return to step 14 on page 85.

30. Press F10 to exit the Hot-Plug Manager.

    If you have added, removed, or replaced any adapters, run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.

31. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

32. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

33. Connect the adapter cables.

34. On a Model 6C4, route the cables through the cable management arm.

35. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Installing a Hot-Pluggable PCI Adapter

Note: This system contains PCI hot-pluggable adapters, so the system does not need to be shut down and the power cables removed before adding or replacing an adapter.

To add or install an adapter, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Remove the service access cover (**1**) as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

3. Refer to the *PCI Adapter Placement Reference*, order number SA38-0538, for information regarding slot restrictions for adapters that can be used in this system.

4. If necessary, remove the adapter expansion slot shield.

5. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

6. If necessary, remove the adapter from the antistatic package.

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

7. Place the adapter, component-side up, on a flat, static-protective surface.

8. Set any jumpers or switches as described by the adapter manufacturer.

9. Refer to "PCI Hot-Plug Manager Access" on page 73 and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.

10. From the PCI Hot-Plug Manager menu, select **Add a PCI Hot-Plug Adapter** and press Enter. The Add a Hot-Plug Adapter window displays.

11. See the *PCI Adapter Placement Reference*, order number SA38-0538, for adapter placement information. Then select an empty PCI slot for the adapter.

12. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.

13. Rotate the locking retainer clip, lift the plastic stop, and remove the expansion slot cover.

1 System Unit

2 Adapter Retainer Assembly

3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)

4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)

5 PCI Adapter (dotted lines) being locked into position

6 Adapter Retainer Assembly (in the unlocked position)

7 PCI Adapter

14. Follow the instructions on the screen to install the adapter until the LED for the specified PCI slot is set to the Action state. See "Component LEDs" on page 142.

15. When you are instructed to install the adapter in the adapter slot, carefully grasp the adapter by the edges and align the adapter in the slot guides. Insert the adapter fully into the adapter slot connector. If you are installing a full-length adapter, ensure that both ends of the adapter engage the card guides.

16. Rotate the adapter retainer clip clockwise until it covers the tab at approximately a 45 degree angle. See the following illustration.
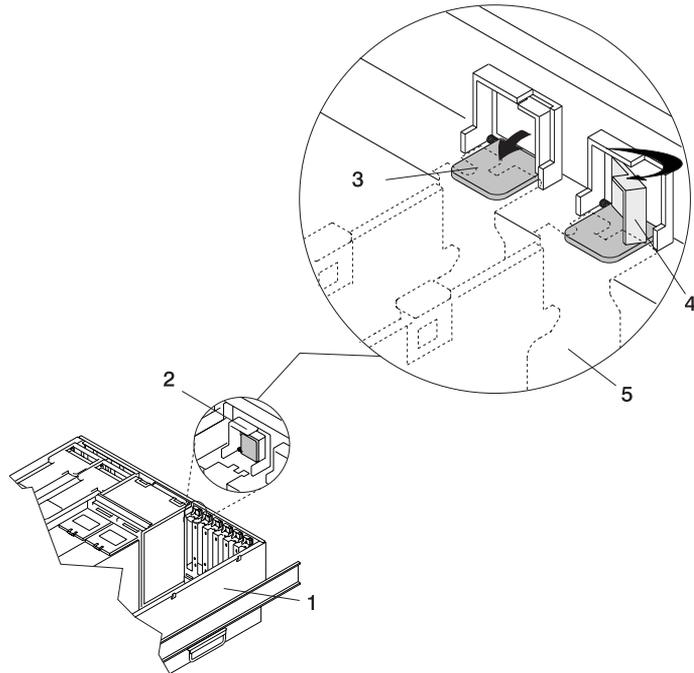
1 System Unit
2 Adapter Retainer Assembly (in the unlocked position)
3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)
4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)
5 PCI Adapter (dotted lines) being locked into position

17. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.
18. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.
19. Connect the adapter cables.
20. On a Model 6C4, route the cables through the cable management arm.
21. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Fans

Before performing the following procedure, read "Safety Notices" on page vii.

Removing a Processor Fan in a Non-Hot-Swap Environment

Note: A processor fan in a non-hot-swap environment means that your system is configured at the factory with one processor fan installed. To put your system into an environment that enables the hot-swapping of the processor fans, you must purchase a second processor fan and insert it into the unused docking connector. It is not necessary to shut down the system when adding the second processor fan.

To remove a processor fan in a non-hot-swap environment, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. If the system is not in the standby state, shut down the system as described in "Stopping the System" on page 52.

3. Continue with the procedure in "Hot-Swap Fan Assembly Removal" on page 95.
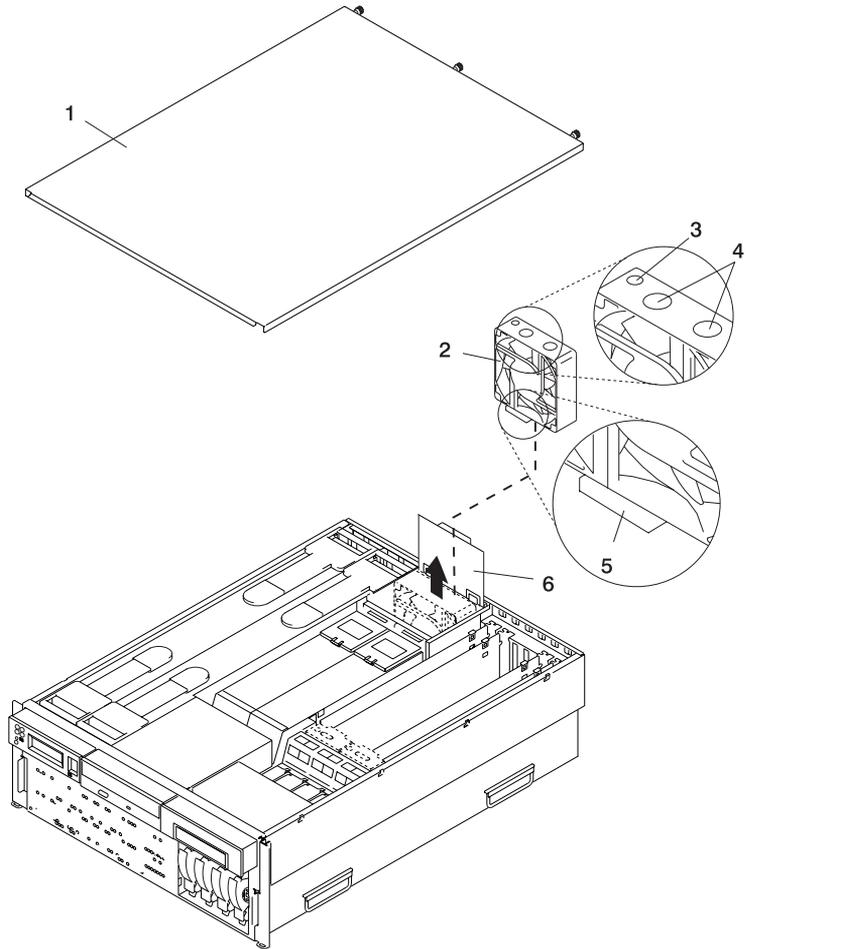
1	Service Access Cover	**4**	Finger Holes
2	Processor Card Cooling Fan (Fan #1)	**5**	Processor Fan Bottom Connector
3	Processor Fan Amber LED	**6**	Processor Cooling Fans Access Cover
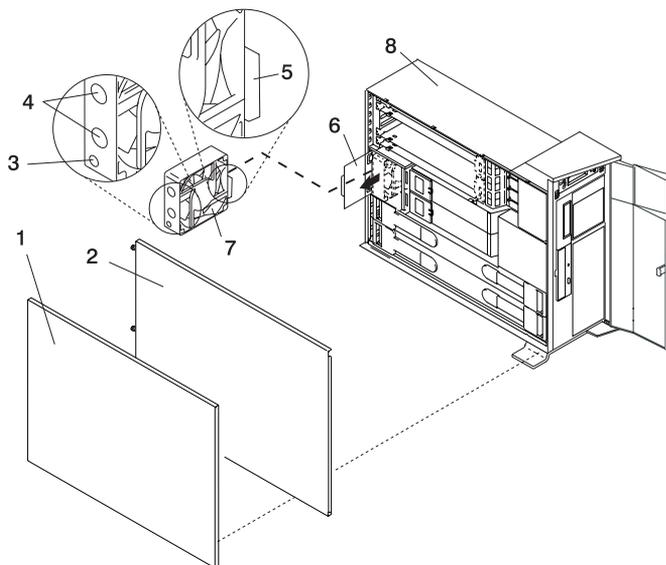
1	Outer Side Cover	**5**	Processor Fan Bottom Connector
2	Service Access Cover	**6**	Processor Cooling Fans Access Cover
3	Processor Fan Amber LED	**7**	Processor Card Cooling Fan (Fan #1)
4	Finger Holes	**8**	Model 6E4

Replacing a Processor Fan in a Non-Hot-Swap Environment

To replace a processor fan in a non-hot-swap environment, do the following:

1. Lift the processor fan access cover.
2. Place your thumb and index finger into the two holes located on the top of the replacement fan.
3. Align the connector located on the fan assembly with the docking connector located on the CEC backplane.
4. Insert and firmly press the replacement fan into the docking connector closest to the back of the chassis.
5. Ensure the cooling fan access cover springs back to the closed position.
6. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.
7. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.
8. Power on the system as described in "Starting the System" on page 52.
9. If the Model 6C4 has successfully powered on, close the rack doors.

   If the Model 6E4 has successfully powered on, close the bezel door.

Hot-Swap Fan Assembly Removal

This section contains multiple procedures for processor cooling fans and PCI adapter cooling fans. Select the removal procedure according to the hot-swap fan assembly you are servicing.

To remove a hot-swap fan, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

3. Locate the cooling fan assemblies, as shown in the illustration on page 97.

4. The failing fan assembly has an amber-colored LED that is lit.

   Note: All of the hot-swap fan assemblies used in your system have an amber colored LED located on the top of the fan assembly. When lit this LED is indicating that its fan assembly has a problem. The fan might not be spinning or is not spinning fast enough to help cool the system unit.

Hot-Swap Processor Fan Removal

If you are servicing one of the processor cooling fan assemblies, do the following:

1. Lift the processor fan access cover.

2. Place your thumb and index finger into the two finger holes that are located on the top of the faulty fan.

3. Lift the faulty fan out of the system.

   Note: The processor cooling fans have a docking connector, located on the bottom of the fan assembly. The docking connectors automatically disconnect as the fan is being removed from the chassis.

Hot-Swap PCI Adapter Fan Removal

Attention: The system will power off in the event that the failing PCI cooling fan has not been exchanged within five minutes.

If you are servicing one of the PCI adapter cooling fan assemblies, do the following:

1. Disconnect the cooling fan's power cable from the connector, located on the front of the fan assembly.

2. Place your index finger below the front connector and slide the fan out of the fan cage.

   Note: The adapter cooling fan assemblies come in stacked pairs. You cannot replace a single fan in the stacked pair.
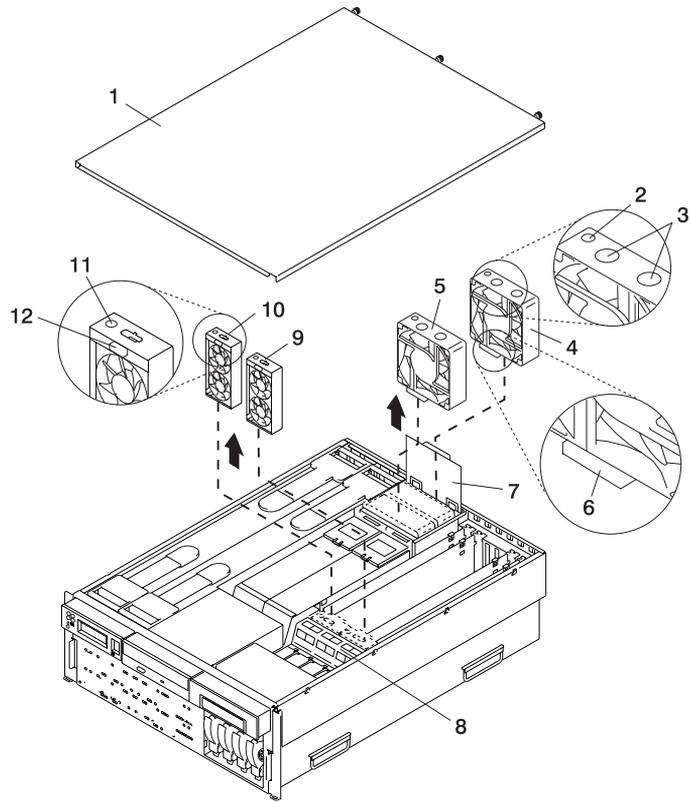
1	Service Access Cover	**7**	Processor Cooling Fans Access Cover
2	Processor Fan Amber LED	**8**	Adapter Cooling Fan Retaining Bracket
3	Finger Holes	**9**	PCI Adapter Cooling Fan Assembly (Fan #4)
4	Processor Card Cooling Fan (Fan #1)	**10**	PCI Adapter Cooling Fan Assembly (Fan #3)
5	Processor Card Cooling Fan (Fan #2)	**11**	PCI Adapter Fan Amber LED
6	Processor Fan Bottom Connector	**12**	Adapter Cooling Fan Front Connector

1 Outer Side Cover

2 Service Access Cover

3 Processor Fan Amber LED

4 Finger Holes

5 Processor Card Cooling Fan (Fan #1)

6 Processor Fan Bottom Connector

7 Model 6E4
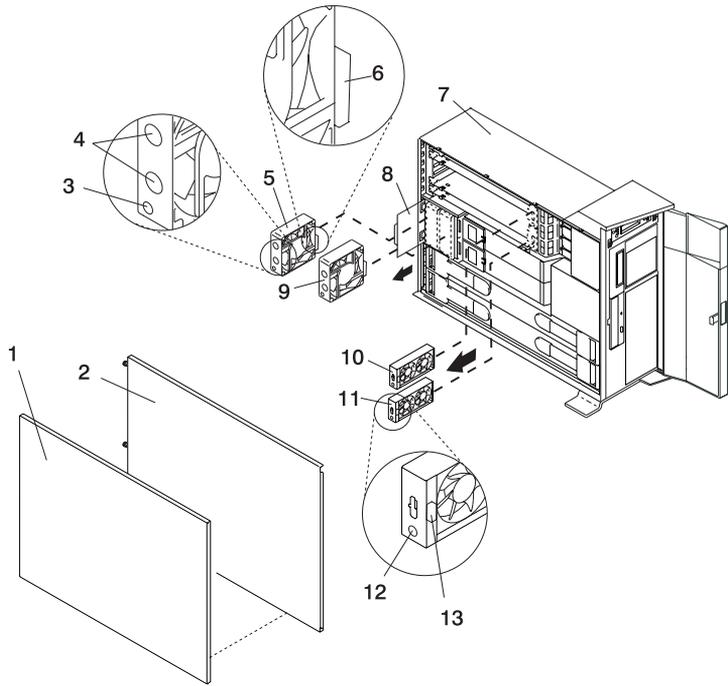
8 Processor Cooling Fans Access Cover

9 Processor Card Cooling Fan (Fan #2)

10 Adapter Cooling Fan Assembly (Fan #4)

11 Adapter Cooling Fan Assembly (Fan #3)

12 PCI Adapter Fan Amber LED

13 PCI Adapter Cooling Fan Front Connector

Hot-Swap Fan Assembly Replacement

Note: If a fan assembly is being replaced for a redundant failure, after the service repair action is completed, ask the customer to check the **crontab** file for any power/cooling warning messages. When a power or cooling error is encountered, AIX adds an entry to the **crontab** file to ″wall″ a warning message every 12 hours, to alert or remind the customer of the problem. Replacing the faulty part does not clear this **crontab** entry, so unless the **crontab** file is edited to remove this entry, the customer continues to be reminded of the failure despite its having been repaired. The **crontab -l** command reads the **crontab** file to determine if an entry exists. The **crontab -e** command edits the file.

Hot-Swap Processor Fan Replacement

To replace your system's hot-swap cooling fans, do the following:

1. Lift the processor fan access cover.
2. Place your thumb and index finger into the two holes located on the top of the replacement fan.
3. Align the connector located on the fan assembly with the docking connector located on the CEC backplane.
4. Insert the replacement fan and firmly press it into its docking connector.
5. Verify that the replaced cooling fan's LED is not lit. If the fan LED is lit, reseat the fan or the fan cable.
6. Ensure the cooling fan access cover springs back to the closed position.
7. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.
8. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54 and close the rack doors.

   On a Model 6E4, close the bezel door.

Hot-Swap PCI Adapter Fan Replacement

Attention: The system will power off in the event that the failing PCI cooling fan has not been exchanged within five minutes.

To replace a hot-swap PCI adapter cooling fan, do the following:

1. Before inserting the fan assembly into the fan cage, ensure that the fan connector located on the fan housing is facing the front of the system.

2. Insert the replacement adapter cooling fan assembly into the cooling fan cage.

   Note: When seated correctly, the top edge of the fan assembly and the fan cage are flush with each other.

3. Reconnect the power cable to the connector located on the front of the fan assembly.

4. Verify that the replaced cooling fan's LED is not lit. If the fan LED is lit, reseat the fan or the fan cable.

5. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

6. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54 and close the rack doors.

   On a Model 6E4, close the bezel door.

Media Drives (Diskette, CD-ROM, Tape, or Disk Drive)

Note: The two media bays can be used to house an Integrated Drive Electronics (IDE) CD-ROM, or a SCSI CD-ROM, diskette, tape drive or DVD. See the following illustration for the location of the two media bays. However, if your system has an IDE CD-ROM, it should be placed in media bay 1.

Before performing this procedure, read the following:
- "Safety Notices" on page vii
- "Laser Safety Information" on page ix

Media Drive Removal

To remove any of the media drives located in either media bay 1 or media bay 2, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. If you are servicing a Model 6E4, open the bezel door.

3. Shut down the system as described in "Stopping the System" on page 52.

4. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

5. Remove the front bezel as described in "Front Bezel Removal (Model 6C4)" on page 61 or "Front Bezel Removal (Model 6E4)" on page 63.

6. Disconnect the power and signal cables from the media device that you are servicing.

7. Grasping the top front of the media device, depress the release tab located on the bottom of the media drive and slide it out of the media bay.

8. Remove the 4 retaining screws holding the carrier tray assembly to the media drive.

9. Put the media drive and carrier tray assembly in a safe place.
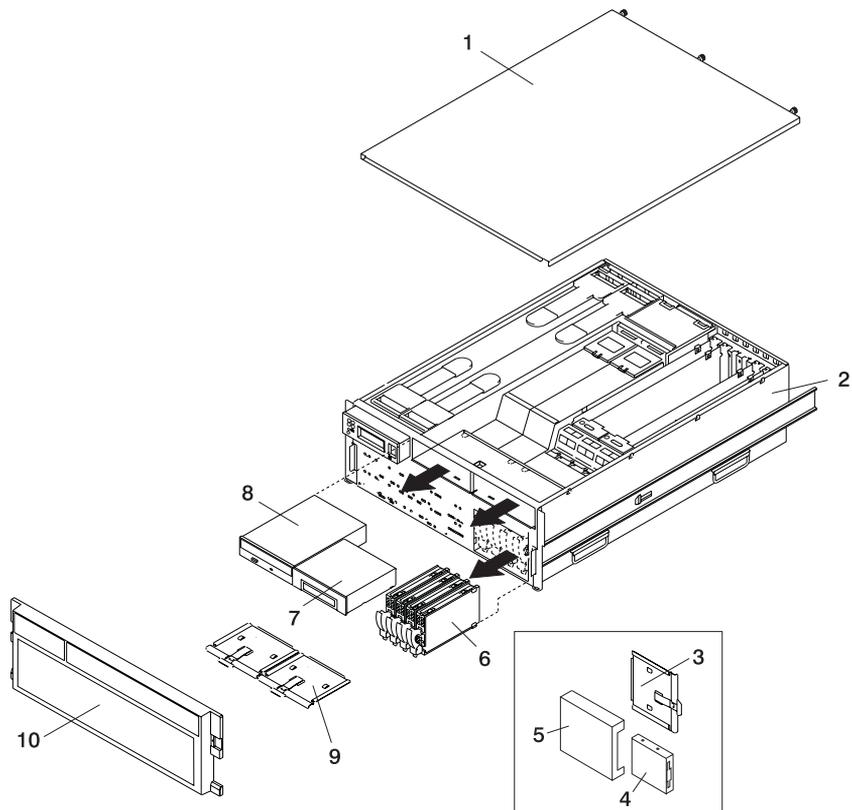
1	Service Access Cover	**6**	Disk Drive (4 Pack)
2	Model 6E4	**7**	Optional Media Device (for example: Tape Drive, DVD, CD-ROM, Diskette Drive)
3	Diskette Drive Carrier Tray (Media Carrier)	**8**	IDE CD-ROM
4	Diskette Drive (Optional)	**9**	Media Carrier Trays
5	Diskette Drive Cage	**10**	Front Bezel
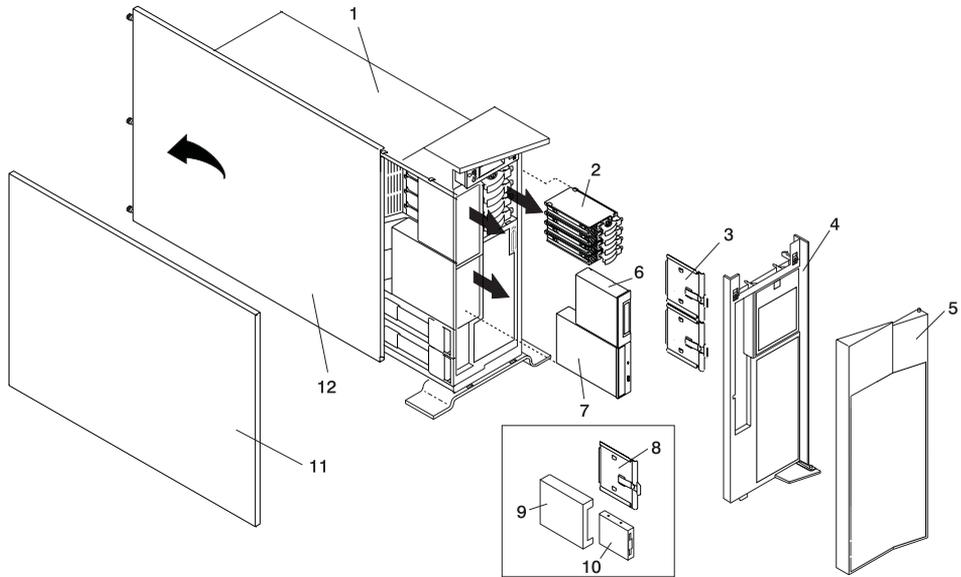
1 Model 6E4Service Access Cover
2 Disk Drive (4 Pack)
3 Media Carrier Trays
4 Front Bezel
5 Bezel Door
6 Optional Media Device (for example: Tape Drive, DVD, CD-ROM, Diskette Drive)
7 IDE CD-ROM
8 Diskette Drive Carrier (Optional)
9 Diskette Drive Cage (Optional)
10 Diskette Drive (Optional)
11 Outer Side Cover
12 Service Access Cover

Media Drive Replacement

To replace a media drive, do the following:

1. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

2. Set any jumpers or switches on the device according to the documentation provided with the drive.

3. Using 4 retaining screws, secure the media carrier tray to the bottom of the media drive.

4. Insert the media drive into the media bay, pushing the drive in until the release tab clicks into the locked position.

5. Connect the media signal and power cables to the drive.

6. Replace the bezel as described in "Front Bezel Replacement (Model 6C4)" on page 62 or "Front Bezel Replacement (Model 6E4)" on page 63.

7. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

8. If you are servicing a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

9. Power on the system as described in "Starting the System" on page 52.

10. If the Model 6C4 has successfully powered on, close the rack doors.

    If the Model 6E4 has successfully powered on, close the bezel door.

Hot-Plug Disk Drives

Before performing the following procedure, read "Safety Notices" on page vii.

Note: You do not have to power off the system to remove a hot-plug disk drive. Before you perform these procedures, ensure that the customer has taken appropriate actions to back up the data for the drive you are removing, and that the drive has been removed from the configuration. Physically removing a hot-plug drive from the system before it has been removed from the system configuration can cause unrecoverable data corruption.

Deconfiguring (Removing) or Configuring a Disk Drive

Use this procedure if you are removing or installing a drive while the system power is turned on.

Deconfiguring (Removing)

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

Configuring (Replacing)

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.ibm.com/systems/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**.

Hot-Plug Disk Drive Removal

Attention: Before you perform these procedures, ensure that the customer has taken appropriate actions to back up the data for the drive you are removing, and that the drive has been removed from the configuration. Physically removing a hot-plug drive from the system before it has been removed from the system configuration can cause unrecoverable data corruption. Refer to "Deconfiguring (Removing) or Configuring a Disk Drive" on page 104.

To remove a hot-plug disk drive, do the following:

1. Before removing the disk drive, ensure all data has been saved.

2. Deconfigure the disk drive you are removing from the system. See "Deconfiguring (Removing) or Configuring a Disk Drive" on page 104.

3. Open the rack front door on a Model 6C4.

   Open the front bezel door on a Model 6E4.

4. Remove the front bezel as described in "Front Bezel Removal (Model 6C4)" on page 61 or the disk drive access cover as described in "Disk Drive Access Cover Removal" on page 59.

5. Locate the hot-plug disk drive you plan to remove. If you are removing a faulty disk drive, a lit amber colored LED located at the front right side of each disk drive will help you isolate the faulty drive.

6. Log in as root user.

7. At the command line, type `smitty`.

8. Select **System Storage Management (Physical and Logical Storage)**.

9. Select **Removable Disk Management**.

10. Select **Remove a Disk**.

11. Select the desired disk from the list on the screen and press Enter.

12. Remove the disk drive by placing the handle on the drive to the open position (perpendicular to the drive) and pulling the hot-plug tray from the bay. The lit LED on the disk drive will turn off when the disk drive is removed.

13. Press F10 to exit **smitty**.
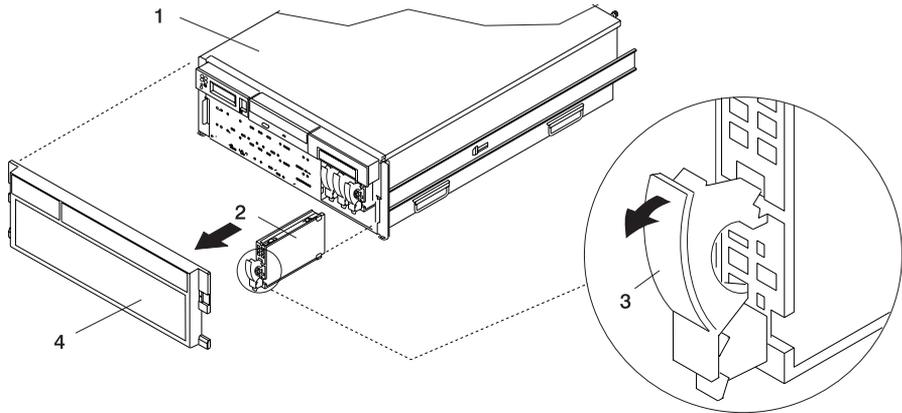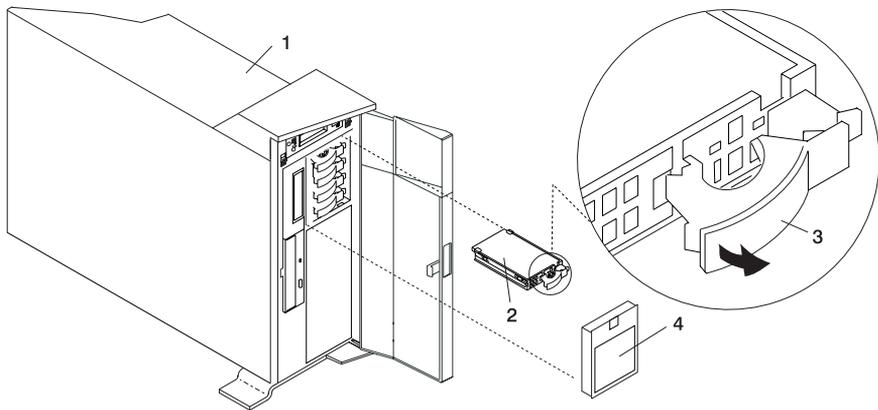
| **1** Model 6C4 | **3** Disk Drive Release Handle |
| **2** Disk Drive | **4** Front Bezel |

| **1** Model 6E4 | **3** Disk Drive Release Handle |
| **2** Disk Drive | **4** Disk Drive Access Cover |

Hot-Plug Disk Drive Replacement

Attention: Before you perform these procedures, ensure that the customer has taken appropriate actions to back up the data for the drive you are removing, and that the drive has been removed from the configuration. Physically removing a hot-plug drive from the system before it has been removed from the system configuration can cause unrecoverable data corruption. Refer to "Deconfiguring (Removing) or Configuring a Disk Drive" on page 104.

If your system is set up to run HACMP clustering, *do not* use **Install/Configure Devices Added After IPL**. Consult with your system administrator, or software support for the correct method to configure the replacement disk.

1. To install a hot-plug disk drive, do the following:
    a. Ensure the tray handle is open (perpendicular to the drive).
    b. Align the drive/tray assembly so that it engages the guide rails in the bay.
    c. Push the drive assembly into the bay until the tray handle engages the lock mechanism.
    d. Push the tray handle in until it locks. The LED on the disk drive will turn on.
2. Log in as root user.
3. At the command line, type `smitty`.
4. Select **Devices**.
5. Select **Install/Configure Devices Added After IPL** and press Enter. Successful configuration is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
6. Press F10 to exit **smitty**.
7. Replace the front bezel as described in "Front Bezel Replacement (Model 6C4)" on page 62 or "Disk Drive Access Cover Replacement" on page 59.
8. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Processor Card

Before performing the following procedure, read "Safety Notices" on page vii.

Processor Card Removal

To remove the processor card, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 52.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

4. Remove the front bezel as described in "Front Bezel Removal (Model 6C4)" on page 61 or "Front Bezel Removal (Model 6E4)" on page 63.

5. Disconnect all power and signal cables from the media drives, located in media bay 1 and media bay 2, then remove the media drives as described in "Media Drive Removal" on page 100.

6. Remove the media support shelf by loosening the thumbscrew and grasping the back edge of the shelf, sliding it back, then lifting it up and out of the system chassis.

   Note: The support leg located on the bottom of the support shelf is used to deactivate a microswitch. The microswitch is located on the CEC backplane and when deactivated, cuts off power to many of the components and connectors located on the CEC backplane. This support shelf must be correctly seated and secured in position after any new FRU is added to the system and you perform a system boot.

7. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

8. Grasp the ends of both processor assembly release handles. Lift each handle until it is perpendicular (90 degrees) to the top of the processor assembly. By placing the handle perpendicular to the top of the processor assembly, the base or hinged portion of each handle acts as a cam and will gently pry the processor card connector from the docking connector located on the CEC backplane.

9. Remove the processor assembly from the system unit.

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

10. Lay the processor assembly, cover side up, on a flat, static-protective surface.

11. From the bottom of the processor assembly lift the side access cover. The cover is held to the top of the processor assembly by four hinges. Pivot the cover up to reveal the memory DIMMs or DIMM connectors.

12. Remove all memory DIMMs as described in "Memory DIMM Removal" on page 113. Put the DIMMs in a safe place, you will need to install these DIMMs onto the new processor card.
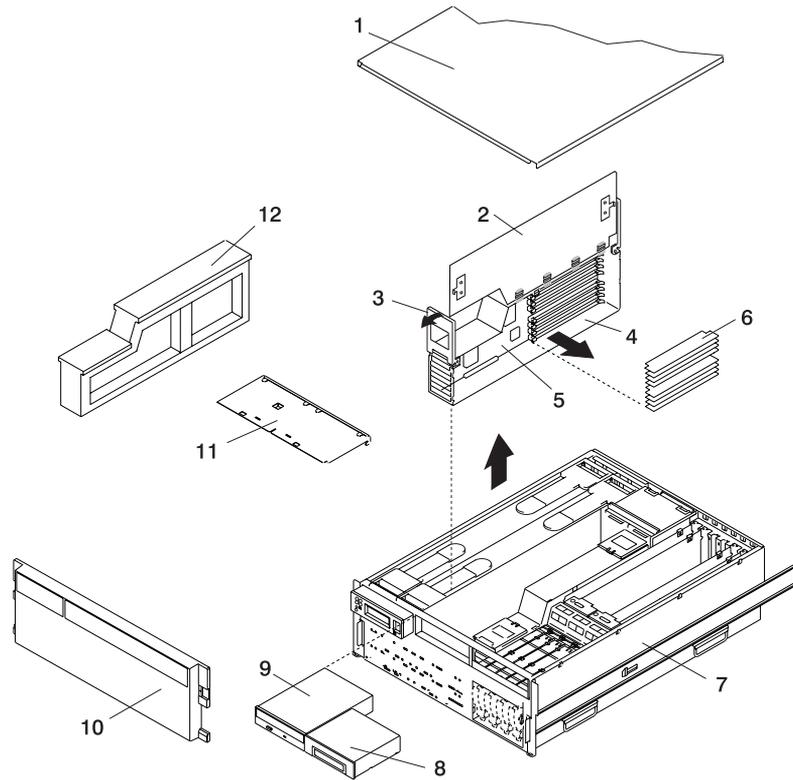
1	Service Access Cover	**7**	Model 6C4
2	Processor Access Cover	**8**	Optional Media Device (for example: Diskette Drive or Tape Drive)
3	Processor Cage Lifting and Release Handles	**9**	IDE CD-ROM Drive
4	Processor Assembly	**10**	Front Bezel
5	Processor Card	**11**	Media Device Support Shelf
6	Memory DIMMs	**12**	Processor Filler

1 Model 6E4	**9** Service Access Cover
2 Media Device Support Shelf	**10** Outer Side Cover
3 Media Carrier Trays	**11** Processor Access Cover
4 Optional Media Device (for example: Diskette Drive or Tape Drive)	**12** Processor Assembly Lifting and Release Handles
5 IDE CD-ROM Drive	**13** Processor Card
6 Front Bezel	**14** Processor Cage
7 Bezel Door	**15** Memory DIMMs Release Tab
8 Processor Filler	

Adding or Replacing a Processor Card

Notes:

1. Adding an additional processor card or installing a new process card into your system may require the updating of the system firmware.

2. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

3. If your system is configured with one processor card, it should be placed into location U0.1-P1-C1 on the CEC backplane. The remaining processor connector must have the processor filler panel in place. The filler panel protects the connector located on the CEC backplane from dust or damage and assists in air flow and cooling.

4. If a second processor is to be added to your system, remove the protective filler panel from the system and install the new processor assembly into the secondary processor bay location U0.1-P1-C2.

To add or replace a processor card, do the following:

1. From the bottom of the processor assembly lift the side access cover. The cover is held to the top of the processor assembly by four hinges. Pivot the cover up to reveal the memory DIMMs or DIMM connectors. Install the memory DIMMs as described in "Memory DIMMs" on page 113.

2. Pivot the processor assembly cover back into the closed position.

3. Grasp the release handles located on top of the processor assembly. Pivot the handle upward to 90 degrees. This action puts the handle cams into the correct position to help seat the processor card connector into the docking connector located on the CEC backplane.

   Attention: To prevent damage to the processor card assembly and the processor card connector, open or close both release handles at the same time.

4. Align the processor card connector with the docking connector located on the CEC backplane.

5. Carefully insert the processor card assembly into the system.

6. As the processor connector is seated into its CEC backplane docking connector, begin lowering the processor assembly release handles. This action correctly seats and locks the processor assembly to the CEC backplane.

7. If necessary, replace the processor filler panel.

8. Replace the media support shelf. Tighten the thumbscrew located on the support shelf.

   Note: When replacing the support shelf, ensure that the lower support leg, located on the bottom side of the support shelf, activates the microswitch located on the CEC backplane. Failure to do so results in the system not being able to power-on.

9. Replace all removed media drives, ensuring that the media drives removed are returned to the same media bay locations from which they were removed. Refer to "Media Drive Replacement" on page 103.

10. Reconnect all power and signal cables to their respective media drives.

11. Replace the front bezel as described in "Front Bezel Replacement (Model 6C4)" on page 62 or "Front Bezel Replacement (Model 6E4)" on page 63.

12. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

13. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

14. Power on the system as described in "Starting the System" on page 52.

15. If the Model 6C4 has successfully powered on, close the rack doors.

    If the Model 6E4 has successfully powered on, close the bezel door.

Memory DIMMs

Before performing the following procedure, read "Safety Notices" on page vii.

Memory DIMM Removal

To remove the memory DIMMs, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 52.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

4. Remove the front bezel as described in "Front Bezel Removal (Model 6C4)" on page 61 or "Front Bezel Removal (Model 6E4)" on page 63.

5. Disconnect all power and signal cables from the media drives, located in media bay 1 and media bay 2, then remove the media drives as described in "Media Drive Removal" on page 100.

6. Remove the media support shelf by loosening the thumbscrew and grasping the back edge of the shelf, sliding it back, then lifting it up and out of the system chassis.

   Note: The support leg located on the bottom of the support shelf is used to deactivate a microswitch. The microswitch is located on the CEC backplane and when deactivated, cuts off power to many of the components and connectors located on the CEC backplane. This support shelf must be correctly seated and secured in position after any new FRU is added to the system and you perform a system boot.

7. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

8. Grasp the end of both processor assembly release handles. Lift each handle until it is perpendicular (90 degrees) to the top of the processor assembly. By placing the handle perpendicular to the top of the processor assembly, the base or hinged portion of each handle acts as a cam and will gently pry the processor card connector from the docking connector located on the CEC backplane.

9. Remove the processor assembly from the system unit.

10. Lay the processor assembly, cover-side up, on a flat, static-protective surface.

11. From the bottom of the processor assembly lift the side access cover. The cover is held to the top of the processor assembly by four hinges. Pivot the cover up to reveal the memory DIMMs or DIMM connectors.
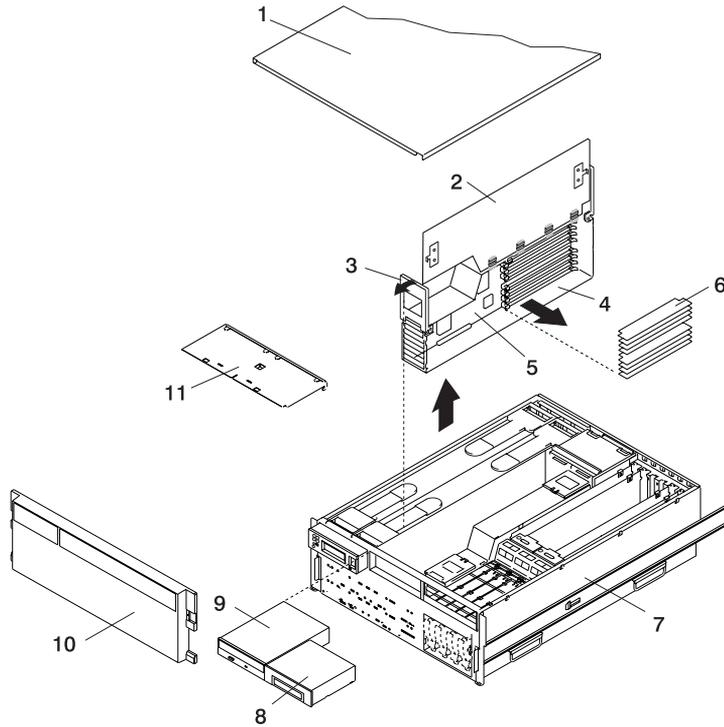
1	Service Access Cover	**6**	Memory DIMMs
2	Processor Access Cover	**7**	7028 Model 6C4
3	Processor Assembly Lifting and Release Handle	**8**	Optional Media Device (for example: Diskette Drive, Tape Drive)
4		**9**	IDE CD-ROM Drive
5	Processor Card	**10**	Front Bezel
		11	Media Support Shelf

1	Model 6E4	9	Service Access Cover
2	Media Device Support Shelf	10	Outer Side Cover
3	Media Carrier Trays	11	Processor Access Cover
4	Optional Media Device (for example: Diskette Drive or Tape Drive)	12	Processor Cage Processor Assembly Lifting and Release Handles
5	IDE CD-ROM Drive	13	Processor Card
6	Front Bezel	14	Processor Cage
7	Bezel Door	15	Memory DIMMs
8	Processor Filler		

12. Locate the memory DIMMs, and determine which DIMM you want to remove.

Note: Memory DIMMs must be installed in quads (groups of 4) and in the correct slot. The only two valid slot combinations that you can use are 1, 3, 6, and 8 or 2, 4, 5, and 7. See the following illustration.
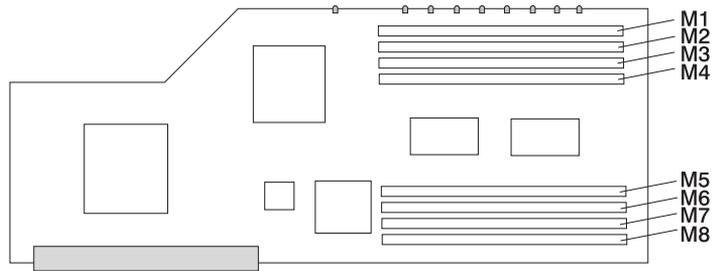
Number	Description	Location Code
M1	Memory slot 1 (J2A)	U0.1-P1-C1-M1
M2	Memory slot 2 (J2B)	U0.1-P1-C1-M2
M3	Memory slot 3(J3A)	U0.1-P1-C1-M3
M4	Memory slot 4(J3B)	U0.1-P1-C1-M4
M5	Memory slot 5(J1B)	U0.1-P1-C1-M5
M6	Memory slot 6(J1A)	U0.1-P1-C1-M6
M7	Memory slot 7(J0B)	U0.1-P1-C1-M7
M8	Memory slot 8(J0A)	U0.1-P1-C1-M8
Note: The location code column in this table is showing the location codes for processor card 1. If your system is configured for processor card 2, substitute C2 in place of C1.		

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

13. Remove the memory DIMM by pushing the tabs out and then down. The tabs' camming action forces the memory DIMM out of the connector.

14. Pull the memory DIMM out of the connector, as shown in the following illustration.
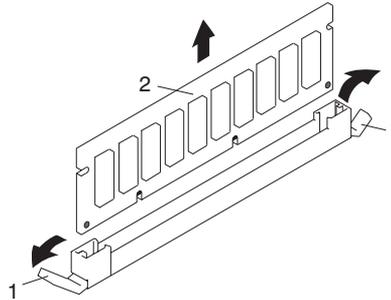
1 Connector Tabs (unlocked position)
2 Memory DIMM

Memory DIMM Replacement

To replace a memory DIMM, do the following:

1. Before handling any card, board, or memory DIMM, touch any metal surface of the chassis with one hand to minimize static electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.
2. If necessary, remove the memory DIMM from its antistatic package.
3. Ensure that the connector locking tabs are pushed out in the unlocked position before installing a new memory DIMM, as shown in the following illustration.
4. Carefully grasp the memory DIMM along two edges and align the connector.
5. Insert the memory card firmly into the connector.
6. Secure the memory DIMM with the locking tabs located at each end of the DIMM connector, as shown in the following illustration.

   Note: Memory DIMMs must be installed in groups of 4 (quads).
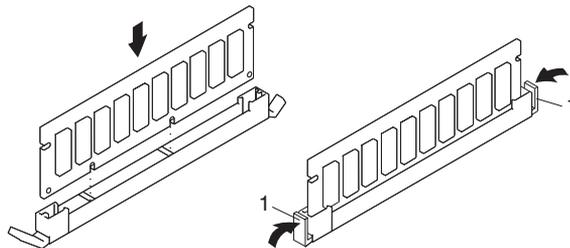
1 Locking Tabs (locked position)

7. Pivot the processor assembly cover back into the closed position.

8. Grasp the release handles located on top of the processor assembly. Pivot the handle upward to 90 degrees. This action puts the handle cams into the correct position to help seat the processor card connector into the docking connector located on the CEC backplane.

   Attention: To prevent damage to the processor card assembly and the processor card connector, open or close both release handles at the same time.

9. Align the processor card connector with the docking connector located on the CEC backplane.

10. Carefully insert the processor card assembly into the system.

11. As the processor connector is seated into its CEC backplane docking connector, begin lowering the processor assembly release handles. This action correctly seats and locks the processor assembly to the CEC backplane.

12. If necessary, replace the processor protective filler panel.

13. Replace the media support shelf. Tighten the thumbscrew located on the support shelf.

    Note: When replacing the support shelf, ensure that the lower support leg activates the microswitch located on the CEC backplane. Failure to do so results in the system not being able to power on.

14. Replace all removed media drives, ensuring that the media drives removed are returned to the same media bay locations from which they were removed. Refer to "Media Drive Replacement" on page 103.

15. Reconnect all power and signal cables to their respective media drives.

16. Replace the front bezel as described in "Front Bezel Replacement (Model 6C4)" on page 62 or "Front Bezel Replacement (Model 6E4)" on page 63.

17. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.

18. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

19. Power on the system as described in "Starting the System" on page 52.

20. If the Model 6C4 has successfully powered on, close the rack doors.

    If the Model 6E4 has successfully powered on, close the bezel door.

Replacing the Battery

Before performing the following procedure, read "Safety Notices" on page vii.

CAUTION:

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

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

Dispose of the battery according to local regulations.

To replace the system's battery, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 52.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

4. Remove the front bezel as described in "Front Bezel Removal (Model 6C4)" on page 61 or "Front Bezel Removal (Model 6E4)" on page 63.

5. Disconnect and label all power and signal cables from the media drives, located in media bay 1 and media bay 2, then remove the media drives as described in "Media Drive Removal" on page 100. Note the location of each media drive removed.

6. Remove the media support shelf by loosening the thumbscrew and grasping the back edge of the shelf, sliding it back, then lifting it up and out of the system chassis.

   Note: The support leg located on the bottom of the support shelf is used to deactivate a microswitch. The microswitch is located on the CEC backplane and when deactivated, cuts off power to many of the components and connectors located on the CEC backplane. This support shelf must be correctly seated and secured in position after any new FRU is added to the system and you perform a system boot.

7. Remove processor card assembly 1 as described in "Processor Card Removal" on page 108.

   Note: Processor card assembly 1 is the processor assembly closest to the power supplies. See the following illustration for the processor card assembly 1 location.

1	Service Access Cover	**6**	Front Bezel
2	Processor Card Assembly 1	**7**	Battery (positive (+) side facing up)
3	Model 6C4	**8**	Media Device Support Shelf
4	Media Device (for example: Tape Drive or Diskette Drive)	**9**	Captive Thumbscrew
5	IDE CD-ROM Drive		

1	Model 6E4	**7**	Media Device Support Shelf
2	Media Carrier Trays	**8**	Captive Thumbscrew
3	Media Device (for example: Tape Drive or Diskette Drive)	**9**	Battery (positive (+) side facing up)
4	IDE CD-ROM Drive	**10**	Service Access Cover
5	Front Bezel	**11**	Outer Side Cover
6	Bezel Door	**12**	Processor Assembly

8. Locate the battery on the CEC backplane as shown in the illustration on page 122.

9. Pry the battery out of its plastic mount using your fingernail. After the bottom of the battery has cleared the top edge of the plastic mount, pull it up and away from the CEC backplane.

   Note: The battery's plastic mount connections are soldered to the CEC backplane. Permanent damage can result to the CEC backplane if the battery mount is damaged or removed.
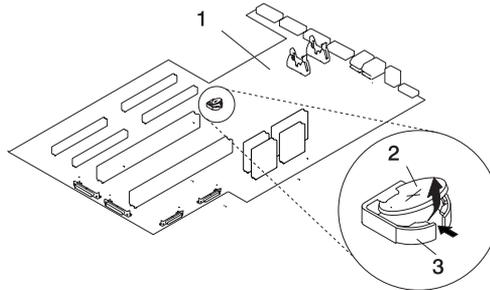
   1 CEC backplane
   2 Battery
   3 Battery Plastic Mount

10. Replace the battery with (FRU) part number 15F8409 or equivalent.

11. When installing the new battery, ensure that the battery polarity is correct. For this system, the positive (+) side of the battery should be facing up in its plastic mount.

12. Gently insert the new battery into its plastic mount.

13. Replace processor card assembly 1 as described in "Adding or Replacing a Processor Card" on page 111.

14. Replace the media support shelf. Tighten the thumbscrew located on the support shelf.

   Note: When replacing the support shelf, ensure that the lower support leg activates the microswitch located on the CEC backplane. Failure to do so results in the system not being able to power-on.

15. Replace all media drives, ensuring that the media drives removed are returned to the same media bay from which they were removed as described in "Media Drive Replacement" on page 103.
16. Reconnect all power and signal cables to their respective media drives.
17. Replace the front bezel as described in "Front Bezel Replacement (Model 6C4)" on page 62 or "Front Bezel Replacement (Model 6E4)" on page 63.
18. Replace the service access cover, as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58.
19. If you are servicing a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.
20. Turn on the system power. The 28030002 error code indicates invalid time and date values in NVRAM, and can be ignored at this time; the bad time and date values are the result of changing the battery. When AIX starts to load, this error code will be cleared from the operator panel.

    If the system fails to load AIX, it may be necessary to set up the boot list again using the System Management Services. Refer to the eserver *pSeries 630 Model 6C4 and Model 6E4 User's Guide*.
21. Reset the time and date. After date and time have been reset, it is advisable to reboot the system, to ensure all process have a similar date and time.
22. If you are running AIX, the **bootlist** command may need to be run while logged in as root user. This action rebuilds the customized boot list. IP (Internet protocol) parameters may also need to be reentered.

Power Supplies

This system drawer has power supplies that have hot-swap capabilities. To use this feature, you *must* have two power supplies in place.

Non-Hot-Swap Power Supply Removal

If you are servicing a system that has only one power supply installed, you must follow the non-hot-swap power supply removal procedure. Systems that were configured with one power supply at the factory have a power supply filler panel. The filler panel protects the vacant power supply connector from dust or damage.

Before performing any of the following procedure, read and understand all of the safety notices beginning with "Safety Notices" on page vii.

To remove a non-hot-swap power supply, do the following:

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 52.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

4. Remove the power supply cable from the rear of the power supply.

5. Grasp the ends of both power supply handles, and slide the retractable spring-activated portion of each handle toward its hinged base. This action releases the locking tab located on the bottom side of each release handle. See the following illustration.

1 Power Supply
2 Locking Tab Receiver Hole
3 Retractable Spring-Activated Portion of the Handle

6. Lift the handle until it is perpendicular (90 degrees) to the top of the power supply. By placing the handle perpendicular to the top of the power supply, the base or hinged portion of each handle acts as a cam and will gently pry the power supply from its connector located on the CEC backplane.

1A Outer Side Cover (Model 6E4 only)	**3** Power Supply Release Handle
1 Service Access Cover	**4** Power Supply Filler Panel
2 Primary Power Supply	**5** System Unit

7. After the power supply is released from its connector, pull the power supply out of the system.

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

Non-Hot-Swap Power Supply Replacement

To replace a non-hot-swap power supply, do the following:

1. Grasp the handles located on top of the new power supply. Pivot the handles upward to 90 degrees. This action puts the handle cams into the correct position to help seat the power supply into its connector.

2. Carefully insert the new power supply into the bay originally used by the faulty power supply.

3. Lower the power supply handles, carefully pressing the power supply into the connector. The spring latch located on the underside of each handle will snap into place, indicating that the power supply is seated correctly and locked into position.

4. Plug the power cable into the back of the power supply.

5. Reconnect the power source to the system.

6. The green LED located on the power supply comes on solid.

7. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C4)" on page 55 or "Service Access Cover Replacement (Model 6E4)" on page 58. If you are servicing a Model 6E4, go to step 10. If you are servicing a Model 6C4, go to step 8.

8. Push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

9. Route the cables through the cable management arm.

10. Power on the system drawer as described in "Starting the System" on page 52.

11. If the Model 6C4 has successfully powered on, close the rack doors.

    If the Model 6E4 has successfully powered on, close the bezel door.

Hot-Swap Power Supply Removal

Before performing this procedure, read the following "Safety Notices" on page vii.

If you are servicing a system that has two power supplies installed, you can replace each power supply (one at a time) without shutting down the system.

To remove a hot-swap power supply, do the following:

Note: You do not need to turn off the power to the system to install hot-swap power supplies.

1. On a Model 6C4, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C4 into the Service Position" on page 53.

   On a Model 6E4, open the bezel door.

2. Visually check the power supply LEDs. If the amber colored LED is lit, suspect that power supply to be faulty.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

4. Remove the power supply cable from the rear of the faulty power supply.

5. Grasp the ends of both power supply handles, and slide the retractable spring-activated portion of each handle toward its hinged base. This action releases the locking tab located on the bottom side of each release handle. See the following illustration.

1 Power Supply
2 Locking Tab Receiver Hole
3 Retractable Spring-Activated Portion of the Handle

6. Lift the handle until it is perpendicular (90 degrees) to the top of the power supply. By placing the handle perpendicular to the top of the power supply, the base or hinged portion of each handle acts as a cam and will gently pry the power supply from its connector located on the CEC backplane.

7. After the power supply is released from its connector, pull the power supply out of the system.

8. If you are not replacing the power supply, do the following:

   a. Install a power-supply filler panel.

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

   b. Disconnect the power source to the system.

9. Verify that the green LED on the remaining power supply is lit. The green LED indicates that the power supply is operating correctly.

10. Replace the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

11. On a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

12. On a Model 6C4, close the rack doors.
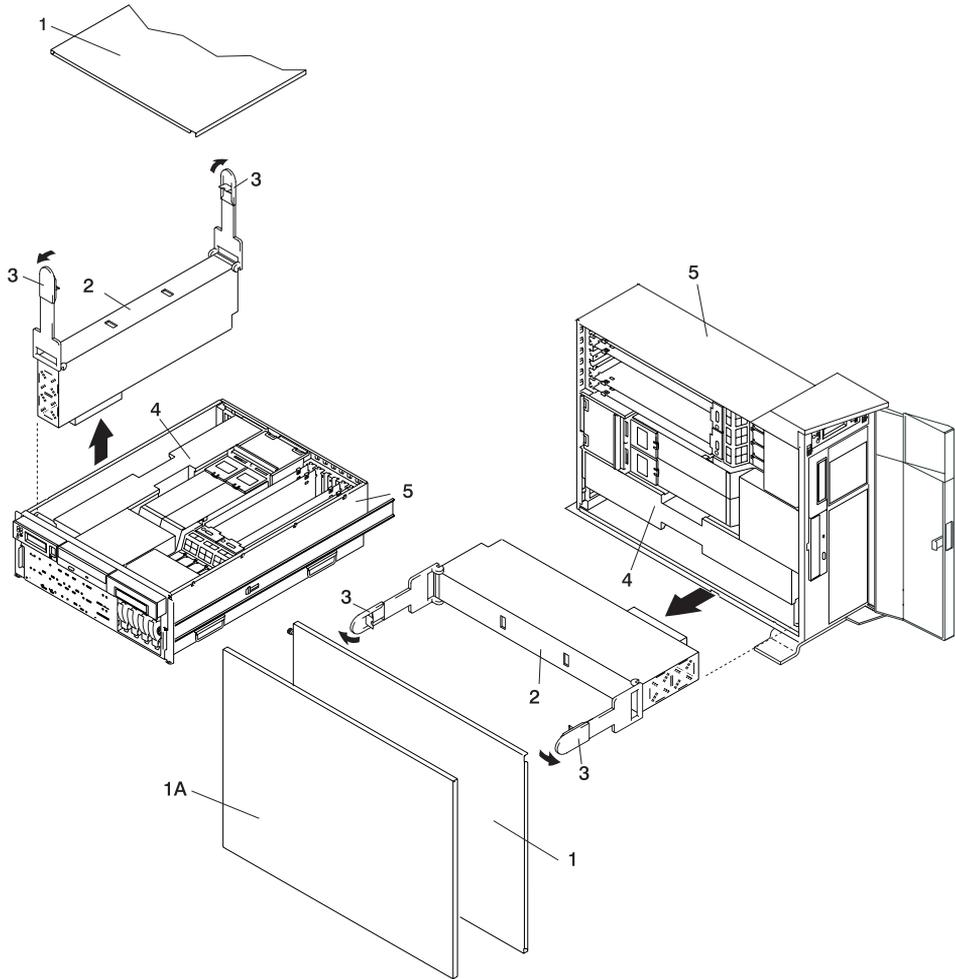
    On a Model 6E4, close the bezel door.

1A	Outer Side Cover (Model 6E4 only)	**3**	Power Supply Release Handle
1	Service Access Cover	**4**	Power Supply Filler Panel
2	Primary Power Supply	**5**	System Unit

Hot-Swap Power Supply Replacement

Note: If a power supply is being replaced for a redundant failure, after the service repair action is completed, ask the customer to check the **crontab** file for any power/cooling warning messages. When a power or cooling error is encountered, AIX adds an entry to the **crontab** file to ″wall″ a warning message every 12 hours, to alert or remind the customer of the problem. Replacing the faulty part does not clear this **crontab** entry, so unless the **crontab** file is edited to remove this entry, the customer continues to be reminded of the failure despite its having been repaired. The **crontab -l** command reads the **crontab** file to determine if an entry exists. The **crontab -e** command edits the file.

To replace a hot-swap power supply, do the following:

1. If you are adding a new power supply to a system that was configured with only one power supply installed, remove the power-supply filler panel from power supply bay 2.

2. Grasp the handle located on top of the new power supply. Pivot the handle upward to 90 degrees. This action puts the handle cams into the correct position to help seat the power supply into its connector.

3. Carefully insert the power supply into the same power supply bay from which the faulty power supply was just removed.

4. Lower the power supply handles, carefully pressing the power supply into the connector. The spring latch located on the underside of each handle will snap into place, indicating that the power supply is seated correctly and locked into position.

5. Plug the power cable for the added power supply into the power cable connector located on the back of the power supply.

6. Reconnect the power source to the system. The green LED located on the power supply should come on solid. If you are servicing a dc powered system, plug the other end of the power cable into the Power Distribution Panel (PDP).

7. Verify that the green LED on the power supply is lit. The green LED indicates that the power supply is operating correctly.

8. Replace the service access cover as described in "Service Access Cover Removal (Model 6C4)" on page 55 or "Service Access Cover Removal (Model 6E4)" on page 57.

9. If you are servicing a Model 6C4, push the system drawer back into the operating position as described in "Returning the Model 6C4 to the Operating Position" on page 54.

10. On a Model 6C4, close the rack doors.

    On a Model 6E4, close the bezel door.

Appendix A. Communications Statements

This appendix contains EMC and safety regulatory statements for the following:

- Model 6C4, a rack mounted drawer that is Class A compliant
- Model 6E4, a deskside system that is Class A compliant.

The following statements apply to the Model 6C4 and Model 6E4. Statements 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 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 à la réglementation d'Industrie Canada

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

Industry Canada Class A Emission Compliance Statement
This Class A digital apparatus complies with Canadian ICES-003.

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。　　　　ＶＣＣＩ－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.

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 refer to the following web site:
http://www.ibm.com/ibm/environment/products/prp.phtml

This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries, contact your local waste disposal facility.

In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, please contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

Environmental Design

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

Acoustical Noise Emissions

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

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

Declared Acoustical Noise Emissions

Product Configuration	Declared A-Weighted Sound Power Level, *LWAd* (B)		Declared A-Weighted Sound Pressure Level, <LpAm>(dB) at 1 meter Bystander Position	
	Operating	Idling	Operating	Idling
7028-6E4 (Deskside)	6.0	6.0	45	45
7028-6C4 (Rack Drawer)	6.0	6.0	45	45

Notes:

1. ^{LWAd} is the declared (upper limit) sound power level for a random sample of machines. (1B = 10dB)

2. ^{LpAm} is the mean value of the A-weighted sound pressure level at the 1-meter bystander positions for a random sample of machines.

3. 7028 Model 6E4 levels apply to the following system configurations: 2 way 1 gigahertz processor, 2 disk drives, 2048 GB of RAM, non-redundant power supply (One 645 watt power supply, 1 processor fan)

4. 7028 Model 6C4 levels apply to the following hardware configurations: 2 way 1 gigahertz processor, 3 disk drives, 2048 GB of RAM, redundant power supply (Two 645 watt power supplys, 2 processor fans)

5. All measurements made in conformance with ISO 7779 and declared in conformance with ISO 9296.

Appendix C. Notices

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

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

The manufacturer may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the manufacturer.

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This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. The manufacturer may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Information concerning products made by other than the manufacturer was obtained from the suppliers of those products, their published announcements, or other publicly available sources. The manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products made by other than the manufacturer. Questions on the capabilities of products made by other than the manufacturer should be addressed to the suppliers of those products.

Appendix D. Fault and Attention LEDs

This appendix contains information about fault and attention LEDs, which assist in identifying failing components in your system.

Operator Panel Display

If a failing component is detected in your server, an amber-colored attention LED is lit.
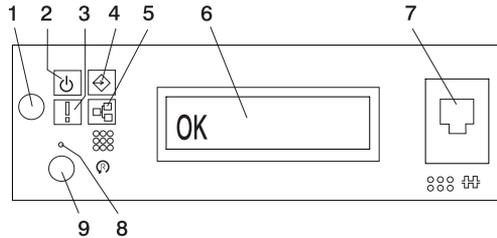
1	Power-On Button	**6**	Operator Panel Display
2	Power LED	**7**	(FS1) Front Serial Connector (RJ48 Connector)
3	Attention LED	**8**	CSP Reset Button (Pinhole)
4	SCSI Port Activity	**9**	System Reset Button
5	Ethernet Port Activity		

Number	Component Name	Component Description
1	Power-On Button	Turns the system power on and off.
2	Power LED	Normal State - LED is on when system is connected to a power source.
3	Attention LED	Normal State - LED is off.
4	SCSI Port Activity	Normal State - LED is on when there is SCSI activity.
5	Ethernet Port Activity	Normal State - LED is on when there is Ethernet activity.
6	Operator Panel Display	Displays current status of system startup, or diagnostic information in the event of a hardware problem.
7	Front Serial Connector (FS1)	Serial port uses RJ48 connector. Use to plug in external devices at the front of the system unit.
8	CSP Reset Button	Service Personnel Use
9	System Reset Button	Resets the system

Component LEDs

Individual LEDs are located on or near the failing components. The LEDs are located either on the component itself or on the carrier of the component (for example: memory card, fan, memory module, CPU). LEDs are either green or amber.

Green colored LEDs when blinking indicates that the system or system component is in the standby state (waiting to receive or send information). A steady lit green colored LED indicates that the system or component is operating normally.

Amber colored LEDs indicate a fault or identify condition. If your system or one of the components on your system has a lit amber colored LED identify the problem and take the appropriate action to restore the system to normal.

Component	LED Function	Location	LED Color	OFF	ON
Power and Packaging LEDs					
Rack Indicator	Drawer Sum	Top of Rack	Amber (1x)	Normal	Fault
	AC Input		Green (1x)	No Input	AC Good
System Unit (Front and Back)	Attention	Operator Panel + Rear	Amber (2x)	Normal	Fault
	Power	Operator Panel + Rear	Green (2x)	No AC	System On
				If blinking = • Standby - slow • transition of power on/off - fast	
Fans	Identify	Fan Top	Amber (4x)	Normal	Fault
Power Supply (AC)	Input Source	Power Supply Front + Top	Green (1x)	No Input	Input Good
	Fault	Power Supply Front + Top	Amber (1x)	Normal	Fault
				If blinking = Power Control Comm. Failed	
	DC Output Good	Power Supply Front + Top	Green (1x)	DC Off	DC Good
				If blinking = Standby	
Disk Drives (DASD)	Activity	DASD Board	Green (4x)	No Activity	Activity
	Remove Identify	DASD Board	Amber (4x)	Meets RPA Hot Swap Requirement	
Optional Media	No LEDs				

Component	LED Function	Location	LED Color	OFF	ON
Electronics Component LEDs					
PCI Adapters	Power	PCI Riser Card (board socket)	Green (4x)	PCI Hot-Plug Standard	
	Attention	PCI Riser Card (board socket)	Amber (4x)	PCI Hot-Plug Standard	
Memory DIMMs	Identify	Processor Board (Top)	Amber (8x)	Normal	Fault
CEC Backplane	Identify	CEC Backplane	Amber (1x)	Normal	Fault
Processor Board	Identify	Processor Board (Top)	Amber (1x)	Normal	Fault
PCI Riser Card	Identify	PCI Riser Card	Amber (1x)	Normal	Fault
Disk Drive Backplane	No LED				

Component	LED Function	Location	LED Color	OFF	ON
Port LED Indicators					
SCSI Port	Activity	Operator Panel	Green (1x)	No Activity	Activity
RIO Port	Identify	CEC Backplane	Amber (2x)	Normal	Fault
				If blinking = Identify	
Ethernet Port Ethernet0, Ethernet1	Mode	CEC Backplane	Green(2x)	10Mbit Mode	100Mbit Mode
	Activity	CEC Backplane	Green (2x)	No Activity	Activity
	Activity	Operator Panel	Green (1x)	No Activity	Activity

Reporting the Problem

After you have determined which component is failing, report the problem as follows:

1. Record the following information before call for service:

   - Machine type and model number
   - Server serial number
   - Any error codes that appear in the operator panel display or console
   - The adapter or device containing the lit amber-colored LED

2. Call for service. You will be given the choice to replace the failing component yourself or have a service representative replace it for you. If you decide to replace the failing component, go to "Repair Action" on page 144 for instructions.

Repair Action

After you have determined which component is failing, a repair action is necessary.

1. Run the system verification procedure. Refer to Chapter 4, "Installing Options for the Model 6C4 and Model 6E4" on page 49 for instructions on component installation, removal and replacement.
2. Record the following information:
   - Machine type and model
   - Server serial number
   - Any error codes that appear in the operator panel display or console
   - Any LEDs that are lit on the indicator panel
3. Call for service.
4. After the repair action is completed, go to "Resetting the LEDs", and reset the LEDs.

Resetting the LEDs

After the repair action is completed, do the following:

1. Log in as root user.
2. At the command line, type `diag`.
3. Select **Task Selection**.
4. Select **Log Repair Action**.
5. Select the device that was repaired.
6. 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.

Appendix E. 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	**pSeries 630 Model 6C4 and Model 6E4**
Serial Number	
Key Serial Number	

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

Serial Number
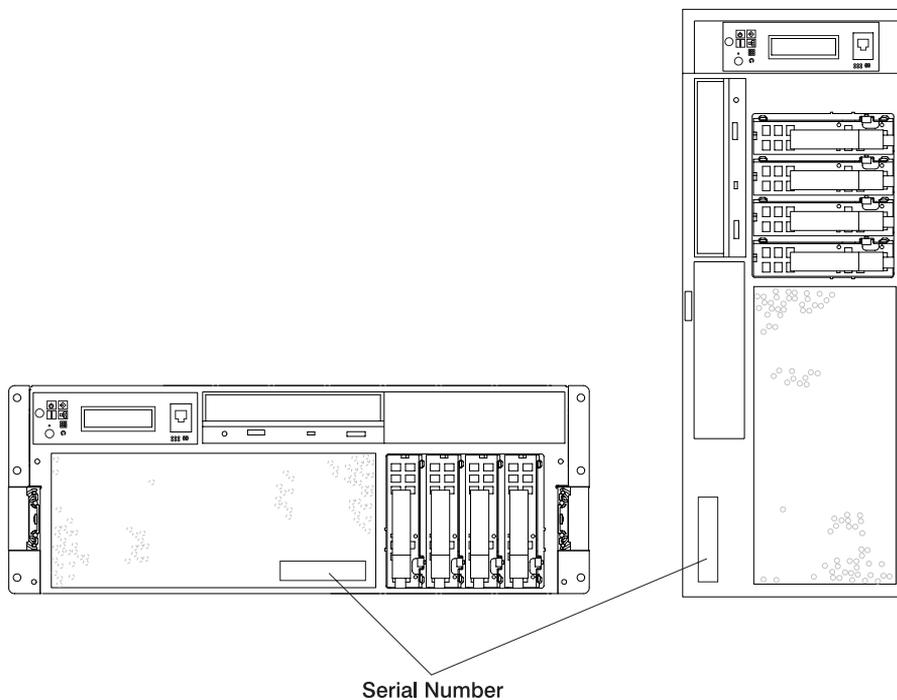
Device Records

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 DIMM Configuration Record

256MB ( )	512MB ( )	1GB ( )	J2A
256MB ( )	512MB ( )	1GB ( )	J2B
256MB ( )	512MB ( )	1GB ( )	J3A
256MB ( )	512MB ( )	1GB ( )	J3B
256MB ( )	512MB ( )	1GB ( )	J1B
256MB ( )	512MB ( )	1GB ( )	J1A
256MB ( )	512MB ( )	1GB ( )	J0B
256MB ( )	512MB ( )	1GB ( )	J0A
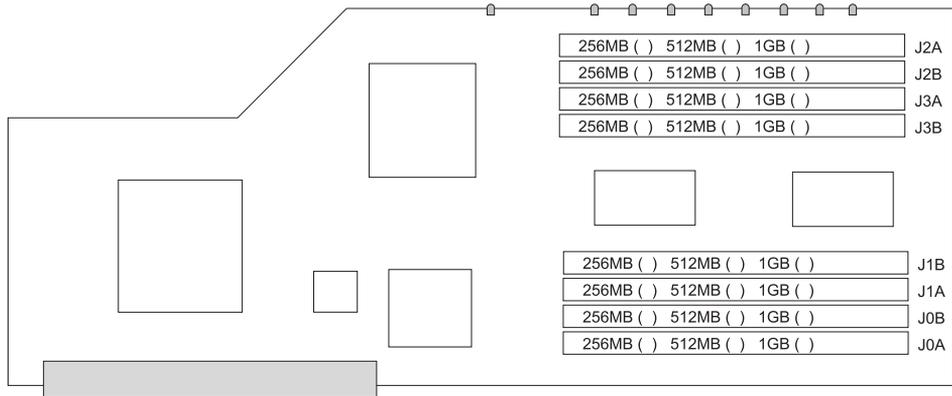
Options

Table 4. Internal and External Options

Location	Option Description
Mouse Connector	IBM Mouse ☐ Other:_____
Keyboard Connector	Space Saving ☐ Enhanced ☐ Other:_____
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
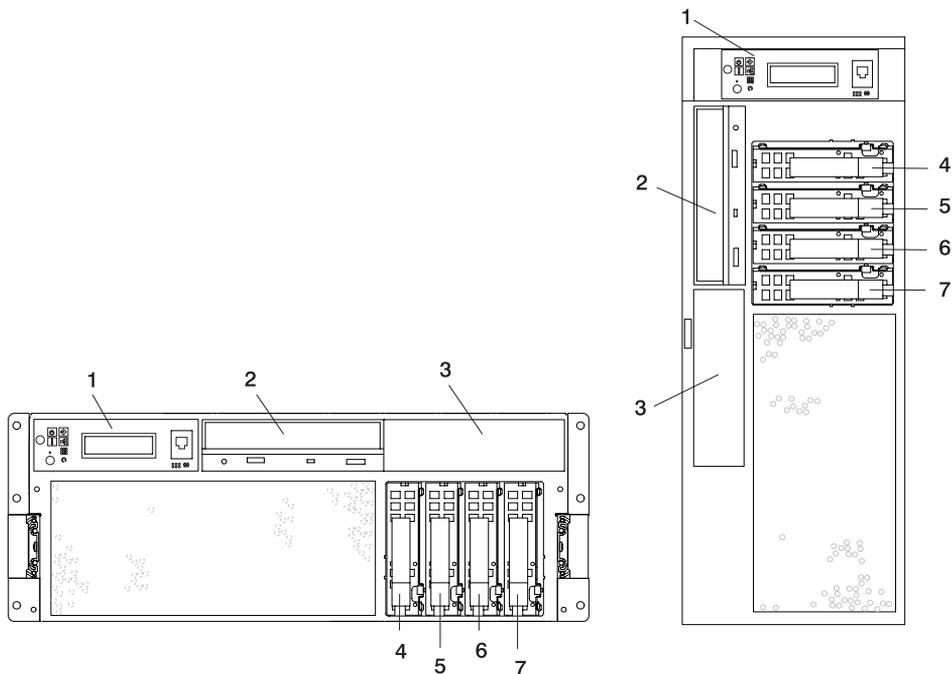
Note: The rack drawer and desk side systems are pictured with their bezels removed to show the disk drive and disk drive bays.

Index	Bay Location	Drive Name	SCSI ID
1		Operator Panel	
2	D01	IDE CD-ROM	IDE (Non-SCSI)
2	D01	Tape Drive SCSI CD-ROM	The SCSI ID can be any number 0 through 15 with the exception of 7 which is reserved for the adapter.
3	D02	Tape Drive SCSI CD-ROM Diskette Drive	The SCSI ID can be any number 0 through 15 with the exception of 7 which is reserved for the adapter.
4	D10	Disk Drive	SCSI ID 8
5	D11	Disk Drive	SCSI ID 9
6	D12	Disk Drive	SCSI ID 10
7	D13	Disk Drive	SCSI ID 11

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

Drive	Location	SCSI ID	Drive Description
CD-ROM Drive	Bay D01	IDE (Non-SCSI)	_____
Media Device	Bay D02	The SCSI ID can be any number 0 through 15 with the exception of 7 which is reserved for the adapter.	_____
Diskette Drive (Optional)	Bay D02		_____
Hot-Plug	Disk Bay 10	8	_____
Hot-Plug	Disk Bay 11	9	_____
Hot-Plug	Disk Bay 12	10	_____
Hot-Plug	Disk Bay 13	11	_____

Appendix F. 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 *conversational mode.*
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 G. Firmware Updates

Determining the Level of Firmware on the System

> **Note:** This information may be superseded by the information that is available on the Web site listed below. Always check the Web site for the latest images and instructions for checking the firmware level. The Web address is: http://www.rs6000.ibm.com/support/micro

The firmware level is denoted by XXYYMMDD, where XX = model designation, YY = year, MM = month, and DD = day of the release.

The firmware level can be determined by either of the following methods:

- On the AIX command line, by typing:

  ```
  lscfg -vp|grep -p Platform
  ```

  A line that begins with ROM level (alterable).. displays the firmware level that is currently on the system.
- Looking at the top of the service processor main menu.

System Firmware Update Using a Locally Available Image

To update the system firmware using a locally available image, perform the following steps:

1. Log in as root user.
2. If the directory **/tmp/fwupdate** does not exist, create it by issuing the following command:

   ```
   mkdir /tmp/fwupdate
   ```
3. The firmware update file must be written into the **/tmp/fwupdate** directory on the system. This can be done by using the **ftp** command to get the image from an ftp server or NFS-mounting the directory on the host server, for example.

   The firmware update file can also be transferred to the target system by backing up the image onto diskette from another server and restoring it into the **/tmp/fwupdate** directory.

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

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

   The update file will have the format RRyymmdd.img. The RR indicates that this is an update image for a Model 6C4 or Model 6E4 system: yy is the year, mm is the month, and dd is the day of the update file.
4. After the update file has been written to the **/tmp/fwupdate** directory, enter the following commands:

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

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

Attention: Do not overlook the periods (.) in the commands shown above. AIX commands are case-sensitive. Type them exactly as shown.

You will be asked for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system will apply the new firmware, reboot, and return to the AIX prompt. This may take up to ten minutes depending on the configuration of the system.

Attention: On some systems, the message `Wait for rebooting before stopping` may display on the system console. Do not turn off the system until the system has fully rebooted to the AIX login prompt. If a shutdown is necessary at that time, log in as root user and issue the **shutdown** command.

While the update is in progress, you will see `Rebooting...` on the display for several minutes.

The firmware update is complete.

Index

Readers' Comments — We'd Like to Hear from You

pSeries 630 Model 6C4 and Model 6E4
Installation Guide

Publication No. SA38-0605-01

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	☐	☐	☐	☐	☐

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Easy to find	☐	☐	☐	☐	☐
Easy to understand	☐	☐	☐	☐	☐
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Applicable to your tasks	☐	☐	☐	☐	☐

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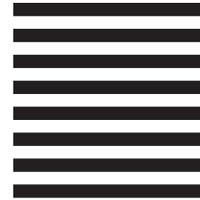
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