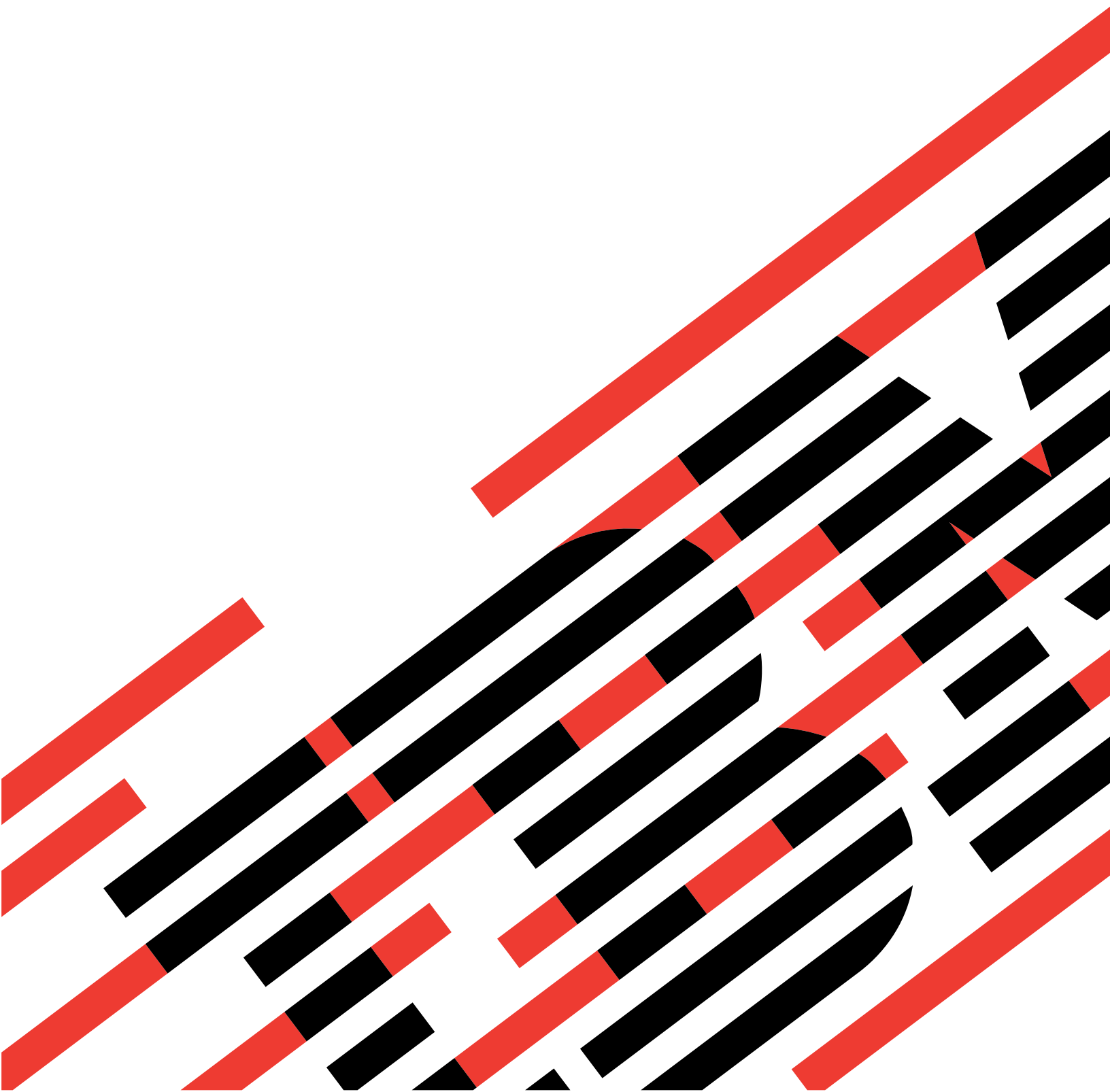# IBM

@server

pSeries 615 Model 6C3 and Model 6E3

Installation Guide

SA38-0628-00

IBM

@server

pSeries 615 Model 6C3 and Model 6E3

Installation Guide

SA38-0628-00

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
* 87
* 10
* 10

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
* 10
* 18
* 18
* 34
* 49
* 113

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

Electrical Safety

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

DANGER

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

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

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

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

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.
D05

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.
C01

DANGER

To prevent electrical shock hazard, disconnect all power cables from the electrical outlet before relocating the system.
D01

Laser Safety Information

CAUTION:
This product may contain a CD-ROM, DVD-ROM, or laser module on a PCI card, which are class 1 laser products.
`C30`

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.
`C25, C26`

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 615 Model 6C3 and Model 6E3, specifically how to set up and cable the system, install and remove options, use the system diagnostics to verify the system operation, and record your system configuration. The Model 6E3 is a tower system, and the Model 6C3 is a rack-mounted system.

ISO 9000

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

Highlighting

The following highlighting conventions are used in this book:

Bold	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
Italics	Identifies parameters whose actual names or values are to be supplied by the user.
`Monospace`	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

Accessing Information

Documentation for the IBM @server pSeries is available online. Visit the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base.

- To access the pSeries publications, click **Hardware documentation**.
- To view information about the accessibility features of @server pSeries hardware and the AIX operating system, click **AIX and pSeries accessibility**.

References to AIX Operating System

This document may contain references to the AIX operating system. If you are using another operating system, consult the appropriate documentation for that operating system.

This document may describe hardware features and functions. While the hardware supports them, the realization of these features and functions depends upon support from the operating system. AIX provides this support. If you are using another operating system, consult the appropriate documentation for that operating system regarding support for those features and functions.

Related Publications

The following publications provide additional information about your system unit:

- The @server *p Series 615 Model 6C3 and Model 6E3 User's Guide*, order number SA38-0629, contains information to help users use the system, use the service aids, and solve minor problems.
- The @server *pSeries 615 Model 6C3 and Model 6E3 Service Guide*, order number SA38-0630, contains reference information, maintenance analysis procedures (MAPs), error codes, removal and replacement procedures, and a parts catalog.
- The *RS/6000 @server pSeries Diagnostic Information for Multiple Bus Systems*, order number SA38-0509, contains diagnostic information, service request numbers (SRNs), and failing function codes (FFCs).

- The *RS/6000 @server pSeries Adapters, Devices, and Cable Information for Multiple Bus Systems*, order number SA38-0516, contains information about adapters, devices, and cables for your system. This manual is intended to supplement the service information found in the *RS/6000 @server pSeries Diagnostic Information for Multiple Bus Systems*.
- The *Site and Hardware Planning Guide*, order number SA38-0508, contains information to help you plan your installation.
- The *System Unit Safety Information*, order number SA23-2652, contains translations of safety information used throughout this book.
- The *PCI Adapter Placement Reference,* order number SA38-0538, contains information regarding slot restrictions for adapters that can be used in this system.
- The *7014 Model T00 and T42 Rack Installation and Service Guide*, order number SA38-0577, contains information regarding the 7014 Model T00 and T42 Rack, in which this server may be installed.

Ergonomic Information

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

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

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- AIX
- AIX 5L
- IBM
- PowerPC
- pSeries
- @server

Other company, product, and service names may be trademarks or service marks of others.

Chapter 1. Reference Materials

This chapter helps you get started with installing and configuring the @server pSeries 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

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.

Marketing and Customer Tasks

Begin

↓

Planning

📖 *Site and Hardware Planning Information*
📖 *Hardware Management Console*
  Installation and Operations Guide

Installer Tasks

Hardware Installation

📖 Hardware Installation Guide
📖 *Hardware Management Console*
  Installation and Operations Guide

Customer Tasks

Installing/Configuring the Operating System

📖 *AIX Installation in a*
  Partitioned Environment
📖 *AIX Installation Guide*
  and Reference
📖 *Operating System Installation:*
  Getting Started

Installing/Configuring Applications

📖 *AIX Installation in a Partitioned Environment*
📖 Application Documentation
📖 AIX Documentation Library

Using the System

📖 Hardware User's Guide
📖 AIX Documentation Library
📖 Application Documentation

The publications listed in this section are available online. To access the online books, visit our IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base.

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
Hardware Management Console for pSeries Installation and Operations Guide	Provides information on how to install, configure, and use a Hardware Management Console (HMC). Logical partition (LPAR) tasks, such as configuring and managing partitions on multiple host servers, are included.	System administrators	printed and softcopy

Table 2. Installing and Configuring

Documentation Title	Description	Audience	Type
Hardware Installation Guide	Provides information on how to install system hardware, cable the system, and verify operations.	System installer	printed and softcopy
Hardware Management Console for pSeries Installation and Operations Guide	Provides information on how to install, configure, and use a Hardware Management Console (HMC). Logical partition (LPAR) tasks, such as configuring and managing partitions on multiple host servers, are included.	System administrators	printed and softcopy
AIX Operating System Installation: Getting Started	Provides information on how to install and configure the AIX operating system on a standalone system using a CD-ROM device.	System administrators	printed and softcopy
AIX 5L Installation Guide and Reference	Provides information on installing the AIX 5L operating system on standalone systems, as well as on client systems using the Network Installation Management (NIM) interface.	System administrators	printed and softcopy
PCI Adapter Placement Reference	Outlines system-specific PCI adapter slot placement and adapter support configurations.	System administrators, service personnel	softcopy
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 (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
Hardware Management Console for pSeries Installation and Operations Guide	Provides information on how to install, configure, and use a Hardware Management Console (HMC). Logical partition (LPAR) tasks, such as configuring and managing partitions on multiple host servers, are included.	System administrators	printed and softcopy
Hardware User's Guide	Provides using, problem determination, and service processor information.	System administrators	printed and softcopy
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.	System administrators, 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
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 (system management guides, user guides, application programmer guides, commands and files references, AIX man pages, and so on).	System administrators	softcopy

Chapter 2. Setting Up the Server

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

Note: This procedure explains how to attach the mounting hardware to the rack enclosure. If your @server pSeries 615 Model 6C3 was preinstalled in the rack, perform the rack-installation procedures as described in the *7014 Model T00 and T42 Rack Installation and Service Guide*, order number SA38-0577, then return here and begin with "Step 10. Are All of the Internal Options Installed?" on page 22.

Step 1. Check Your Inventory

pSeries 615 Model 6C3 and Model 6E3

☐ Books, CD-ROM and Other Media
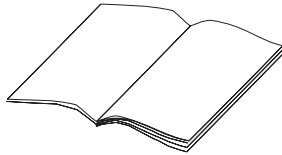
☐ ″About Your Machine″ Document
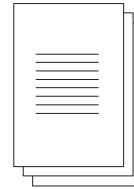
☐ Power Cables (1 standard, 2 optional)
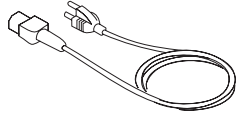
☐ 9-Pin to 25-Pin Serial Converters (2) (optional)
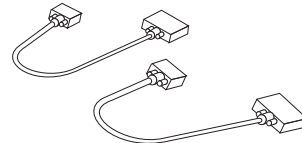
☐ ASCII Terminal (optional)
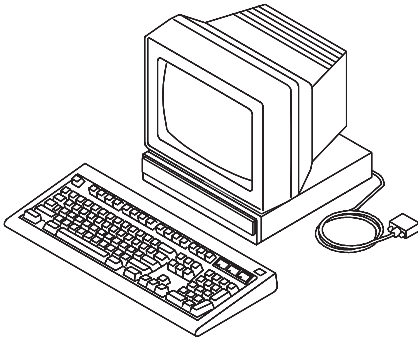
☐ RJ-45 to 9-Pin Converter Cable (1)
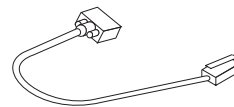
Inventory table continued from the previous page.

☐ Display, Cable (optional), and Cable Toroid (optional)
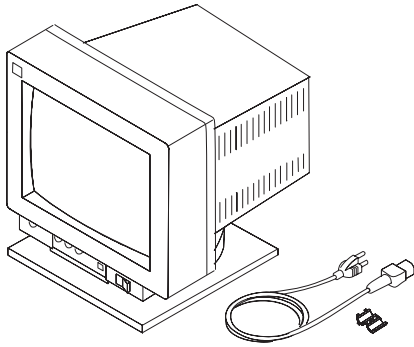
☐ Keyboard (optional), Wrist/Palm Rest (optional)
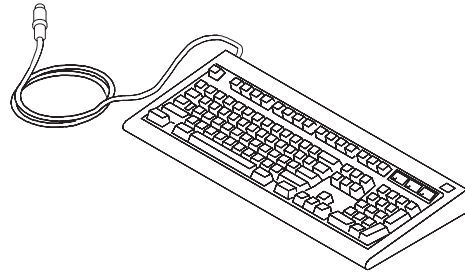
☐ Model 6C3
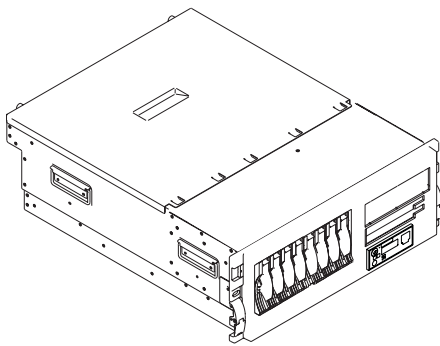
☐ Model 6E3
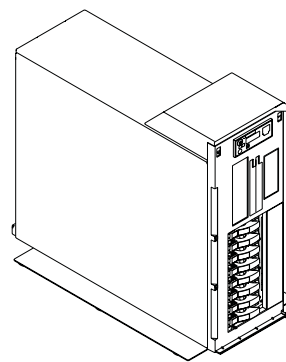
☐ Mouse (optional)
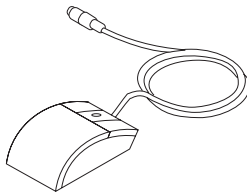
Model 6C3 (Rack Mount) Only

☐ Rack-Mounting Template
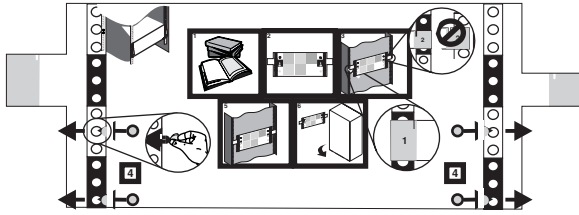
☐ 2 Slide Rail Assemblies
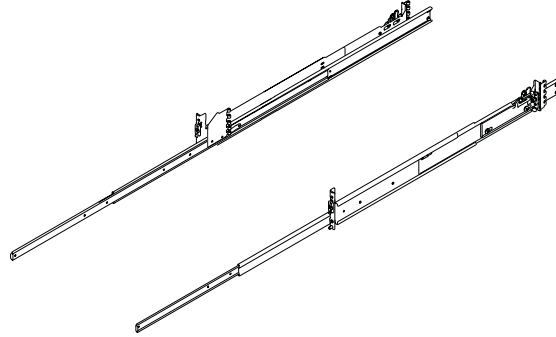
☐ Rack-Mounting Kit contains:
4 blue wheel-shaped knobs
6 system to rail screws
4 rail to rack screws
2 latch-mounting brackets
2 latch-mounting bracket rack screws
2 system-retaining thumbscrews
1 strip of self-adhesive placement dots
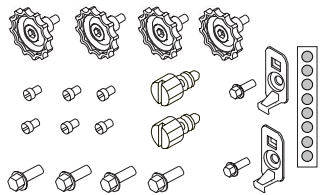
☐ Cable Management Arm
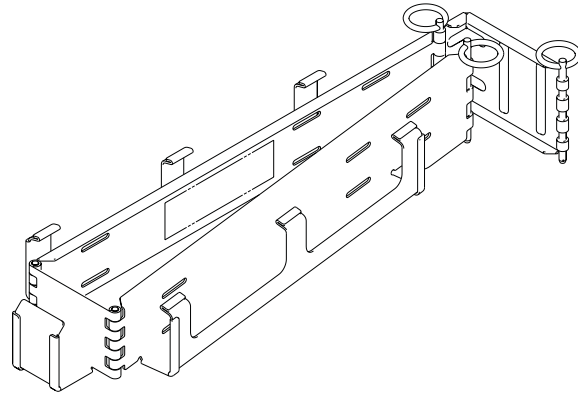
Step 2. Need Help?

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

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. Meaning your system has the capability of running two power supplies simultaneously. 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.**
> D05

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.
C01

DANGER

> **To prevent electrical shock hazard, disconnect all power cables from the electrical outlet before relocating the system.**
> D01

Step 4. Check the Power Source

This system can be equipped with two power supplies. When two power supplies are installed, the power source to the system unit should be provided on two separate power circuits. If the power is supplied this way, when there is an interruption on one circuit, the system will keep running on the other circuit.

Step 5. Are You Installing a Model 6C3 (Rack Mount) or a Model 6E3 (Desk Side)
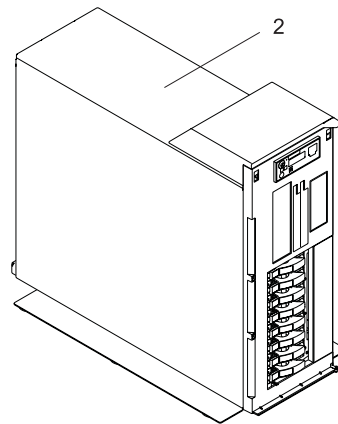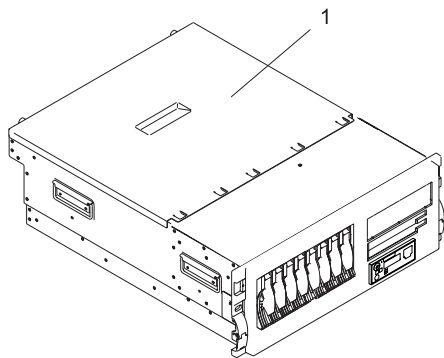
1 Model 6C3
2 Model 6E3

If you are installing a Model 6C3, continue with this step. If you are installing a Model 6E3 (desk side), go to "Step 10. Are All of the Internal Options Installed?" on page 22.

When installing the Model 6C3, you will need the following items:
- Rack-Mounting Template
- 2 Slide Rail Assemblies
- Cable Management Arm
- Rack-Mounting Kit Envelope
- Screwdriver or Nutdriver

Step 6. 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 "Step 10. Are All of the Internal Options Installed?" on page 22.

Rack Safety Instructions

- Do not install this unit in a rack where the ambient temperatures will exceed 35 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 airflow 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 removing this unit.
- Your system drawer is set up to run ac electrical current and you are running between 100-127 volts. The system requires 6 amperes of current. If you are running between 200-240 volts your system needs 3 amperes of current. Consideration should be given to the connection of the equipment to the supply circuit such that the overloading of circuits does not compromise the supply wiring or overcurrent protection.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Step 7. 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 complex procedure. To install the rack rails correctly, you must read, and then perform each procedure step in the order given. Failure to perform each step in the order given may cause rail failure.

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

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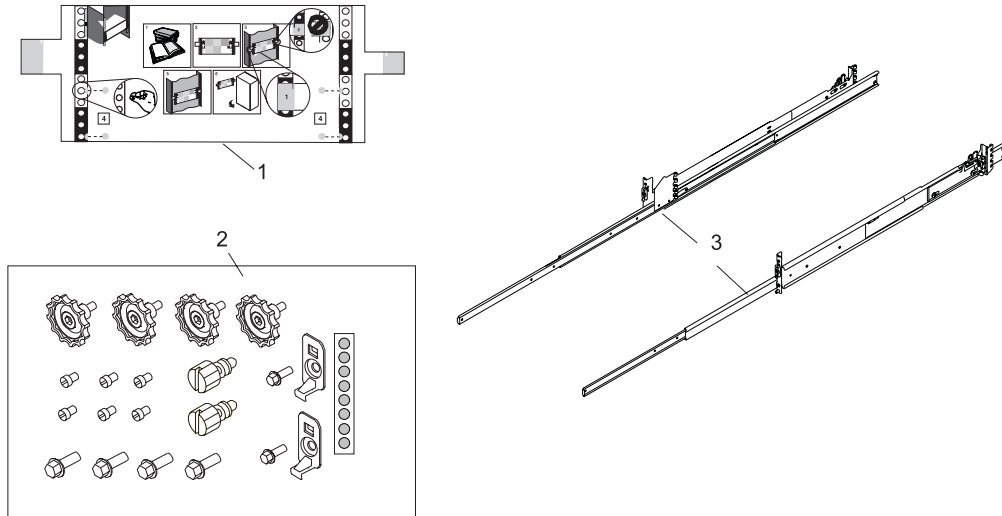
1	Rack-Mounting Template
2	Rack-Mounting Hardware Kit
3	System Rail Assemblies

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 can be identified by the two large latch assemblies on the rear of each rail. See the following illustration to orient yourself to the left and right rail assemblies.
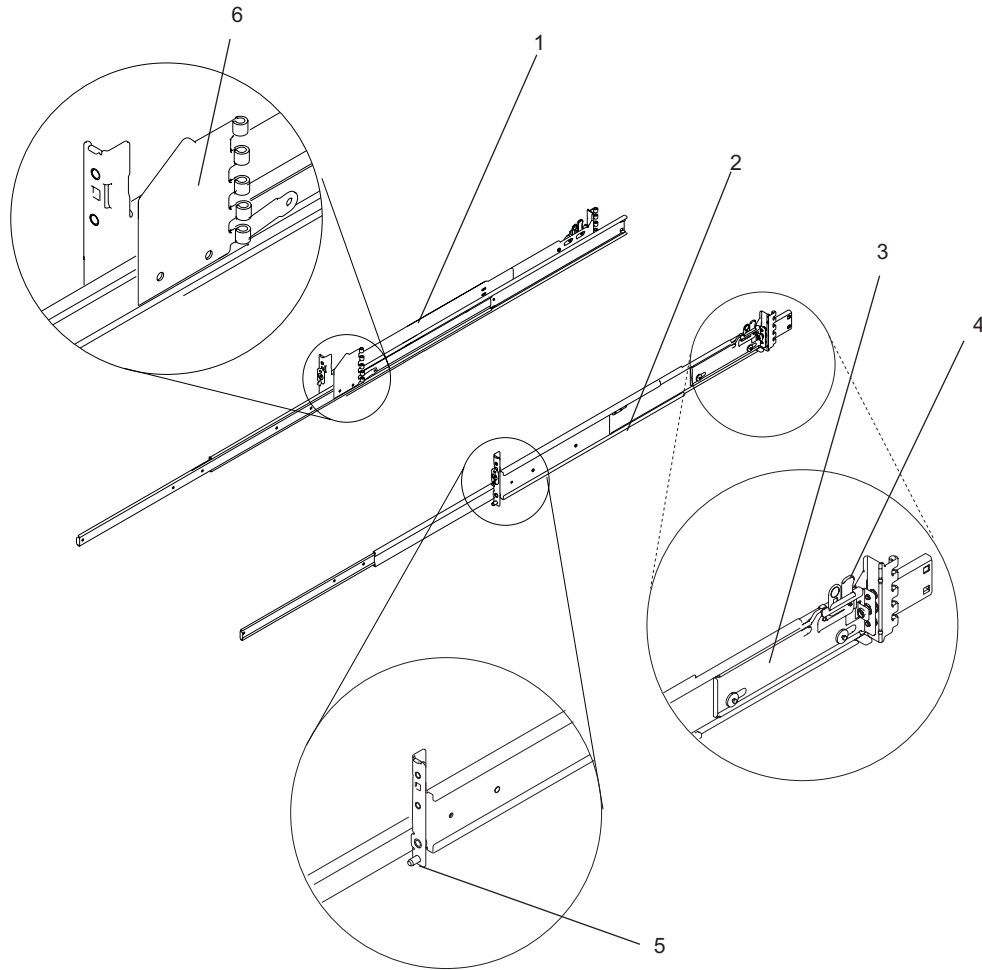
1 Left rail assembly	**4** Rail-mounting latch release tab, rear
2 Right rail assembly	**5** Rail-mounting hardware, front right
3 Rail-mounting latch assembly, rear	**6** Cable-management arm flange

2. Remove the front and rear rack doors if necessary. 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. Locate the rack-mounting template. If you do not have a rack-mounting template, go to substep 6.

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 in identifying the EIA location holes used when planning to populate your rack. *Do not* use the rack-mounting template without reading and understanding the following substeps. Each step must be completed in its entirety.

5. Note the following when using the rack-mounting template:
   - Each black or white unit on the template is equal to 1 EIA unit.
   - Each EIA unit consists of three holes.
   - The EIA units illustrated on the template must be aligned with the EIA units located on the rack.

- It is not necessary to align like-colored EIA units. For example, a black EIA unit illustrated on the rack-mounting template does not have to be aligned with a black EIA unit located on the rack. A black EIA unit on the rack-mounting template can be aligned with a white EIA unit located on the rack. See the following illustration.

To use the rack-mounting template, do the following:

a. 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 sides are at the corresponding EIA locations.

   Note: The tabs on each side of the template show a notch to indicate the proper spacing between the front flanges.

b. Locate the four dots, two printed on each side of the template. Place a self-adhesive dot directly across from the template's printed dots on or near the rack's EIA numbering strip. You will be using these dots to aid in correctly positioning the rail-alignment pins located on the front of each rail. See the illustration below.
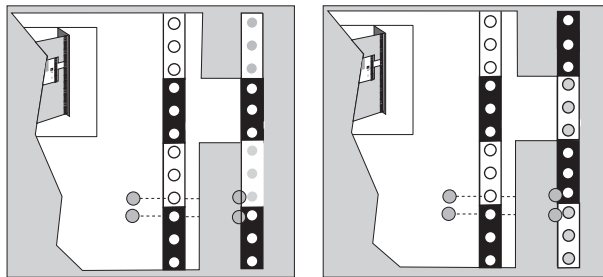
c. Remove the rack-mounting template from the front of the rack. The front of your rack should now contain four self-adhesive dots.

d. Mount the rack-mounting template to the rack's rear EIA flange. Place the rack-mounting template at the same EIA-numbered location that was used on the front of the rack.

e. Wrap a self-adhesive dot directly across from the template's printed dots. Ensure that a portion of the self-adhesive dot wraps around the rack's flange so that it can be seen from the front of the rack.

f. Remove the rack-mounting template from the rear of the rack. The rear of your rack should now contain four self-adhesive dots that have been partially wrapped around the rack's rear flanges.

The following illustration shows one EIA unit and four EIA units. Depending on the rack manufacturer, the EIA units may be separated either by 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 EIA units, assume that each EIA unit begins where the hole spacing is closest together.
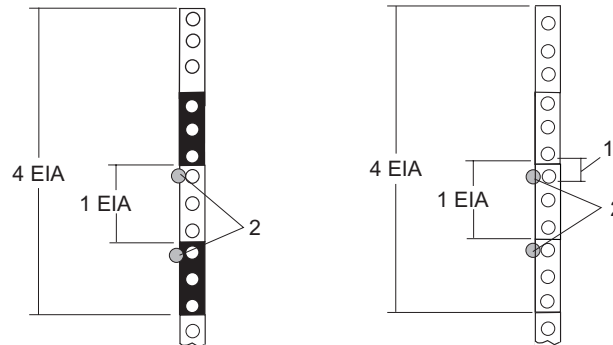
1 EIA Unit Hole Spacing   **2** Self-Adhesive Dot Placement

6. If you do not have a rack-mounting template, do the following:

   a. Determine where in the rack to place the system. The system you are about to install measures 4 EIA units high. Make note of the EIA location number.

      Note: An EIA unit on your rack consists of a grouping of three holes. See the figure above.

   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 unit.

      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, tape, a marker, or pencil).

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

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

   d. Repeat substeps 6a through 6d for the corresponding holes located on the left side of the rack.

7. Before installing the system rail assemblies into your rack, you must first preset the rails to allow correct assembly with the rack and system unit. Do the following:

   a. Unpack the system rail assemblies.

   b. Fully extend each rail assembly.

   c. Lock the rear latch assemblies to the open position using the latch release tab.
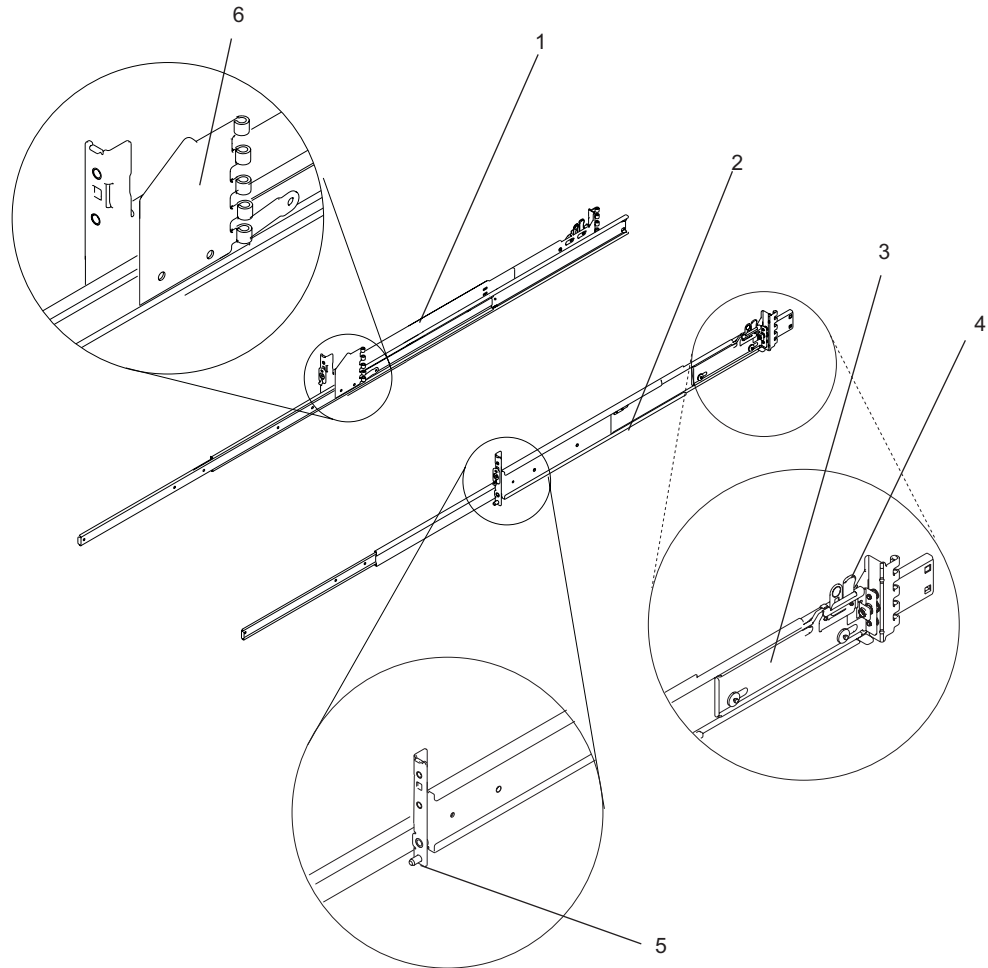
1	Left rail assembly	**4**	Rail-mounting latch assembly release tab, rear
2	Right rail assembly	**5**	Rail-mounting hardware, front right
3	Rail-mounting latch assembly, rear	**6**	Cable-management arm flange

8. Position yourself at the front of the rack.

9. Facing the rack, insert the rail's rear-alignment pins into the rack's rear flange holes identified by the self-adhesive placement dots previously installed.

10. Press the release tab. This action will cause the rear latch assembly to close on the flange. Ensure that the pins have passed through the proper holes in the rear flange to verify proper alignment.

11. Insert the rail's front-alignment pin into the rack front flange hole identified by the self-adhesive placement dot previously installed. Ensure that the EIA location is the same from front to back and the rails are level from front to rear.

12. Loosely thread one of the rail-retaining screws into the rail's front screw hole. The screw hole is located one position above the front-alignment pin.

13. Position yourself at the rear of the rack. Loosely thread one of the rail-retaining screws into the rail's rear screw hole. The screw hole is located between the two rear alignment pins. Return to the front of the rack.

14. Attach the drawer latch bracket by doing the following:

    a. Locate a drawer latch bracket and its screw.

    b. Align the square peg on the back of the bracket with the square hole in the front rail assembly.

    c. Place the hole in the bracket over the screw hole and loosely thread the screw into place. The screw hole is located one position above the front rail-retaining screw.

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

    Attention: Mounting the rails is a complex procedure. To install the rack rails correctly, you must read, and then perform each procedure step in the order given. Failure to perform each step in the order given may cause rail failure.

    CAUTION:
    The stabilizer must be firmly attached to the bottom rear 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.
    C17

    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 less than three persons to move it can result in injury.
    C05

Step 8. Install the Model 6C3 onto a System Rail Assembly

To install the Model 6C3 onto a system rail assembly (type 2), do the following:

1. Attach the four blue wheel-shaped knobs at the points indicated in the figure below:
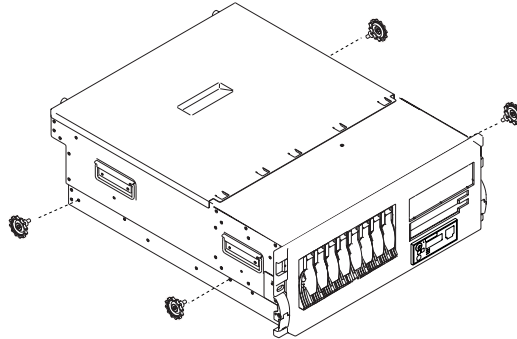
2. Using three persons, grasp the handles located on each side of the system drawer, and lift the system drawer onto the extended rails. Align the three screw holes in the inner rails with the screw holes in the sides of the system drawer.

3. Using the six rail to system retaining screws, three 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.
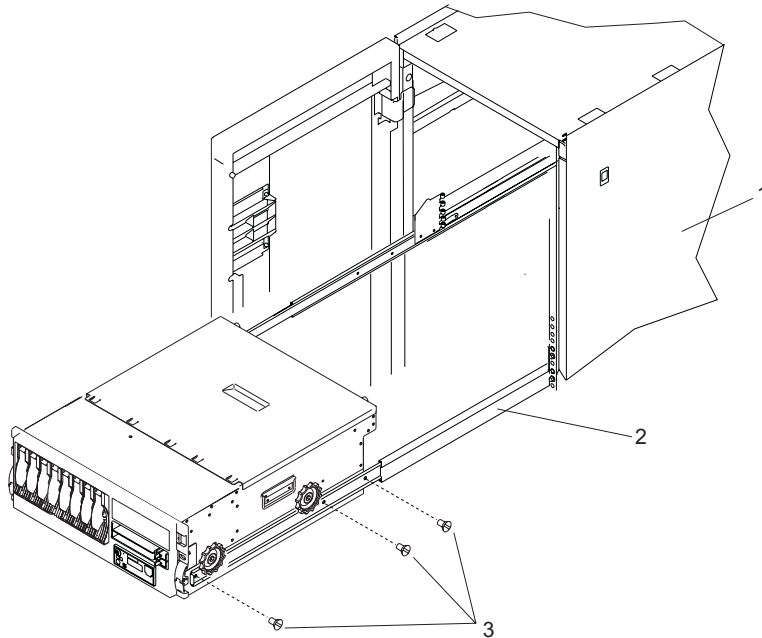
1 Rack Enclosure	**3** System to Rail Screws
2 System Rail Assembly	

4. Simultaneously depress the safety latches, located on each system rail assembly, and push the system into the rack.

5. Slide the system drawer in and out of the rack two or three times. This action aligns the system drawer to the rails. 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 two rear retaining screws that secure the slide rails to the rack's rear 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 overextending 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 six rail-retaining screws (front and rear), and repeat substeps 4 through 7.

9. For additional stability needed when transporting the rack, fasten the system drawer to the rack enclosure by inserting the two system-retaining thumbscrews through the bezel and chassis bracket, and screwing them into the rack flange.
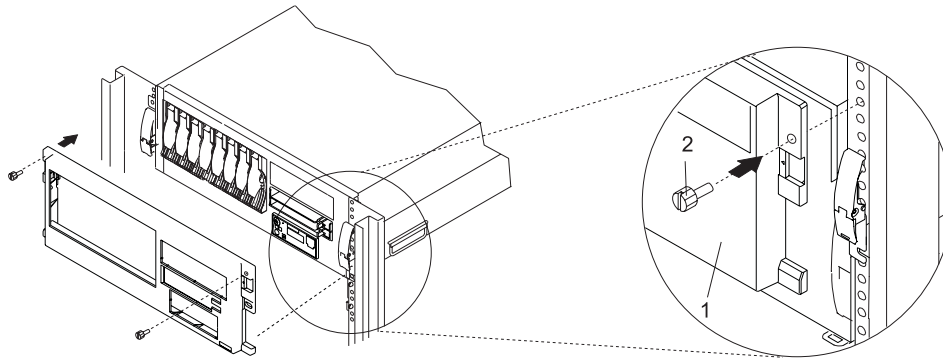
1 Model 6C3 Front Bezel
2 System-Retaining Thumbscrews for System Drawer Transport

Step 9. Install the Cable Management Arm

To install the Model 6C3 cable management arm, do the following:

1. From the rear of the rack unit, locate the cable management arm flange located on the fixed rear portion of the left system rail assembly.

2. Pin the cable management arm to the flange as shown in the figure below.

3. Pin the other end of the cable management arm to the flange attached to the sliding portion of the left system rail assembly.
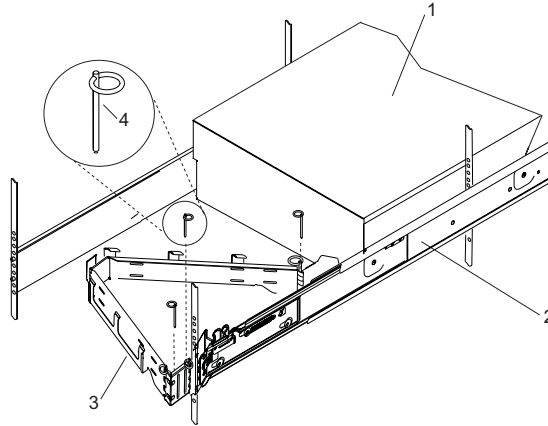
| **1** Model 6C3 | **3** Cable Management Arm |
| **2** System Rail Assembly | **4** Cable Management Arm Pin |

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

Step 10. 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 in the Model 6C3 and Model 6E3", on page 49, and then return here.

Step 11. Position the System Unit and Display

If you are setting up a Model 6C3, continue on to "Step 12. Check Your Display or Console Type" on page 23.

If you are setting up a Model 6E3, position the system unit and display (optional) at or near their installed location.

Observe the following guidelines when you are positioning the system unit:
- The system unit weighs between 34 kg (75 pounds) and 41 kg (90 pounds). Do not try to lift the system unit by yourself.
- Displays 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 12. 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 17. Connect the Serial Devices, Parallel Devices, and ASCII Terminal" on page 28.

2. If you are using a graphics display with a keyboard and mouse, continue with "Step 14. Attach the Display Cable Toroid" on page 25.

3. If you are connecting to a Hardware Management Console (HMC), continue on to "Step 13. Are You Connecting to a Hardware Management Console (HMC)?" on page 24.

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 14. Attach the Display Cable Toroid" on page 25, 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 13. Are You Connecting to a Hardware Management Console (HMC)?

If your HMC is already installed, continue with this step. If your HMC has not been previously installed, refer to "Install the Hardware Management Console (HMC)" on page 115. After completing the HMC installation procedure, return here and complete this step. If you are not installing an HMC, go to "Step 15. Connect the Graphics Display" on page 26.

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 6C3 or Model 6E3, connect the HMC serial cable to the HMC1 connector. If this is the second HMC being connected to the Model 6C3 or Model 6E3, connect the HMC serial cable to the HMC2 connector.

After connecting the HMC, go to "Step 17. Connect the Serial Devices, Parallel Devices, and ASCII Terminal" on page 28.
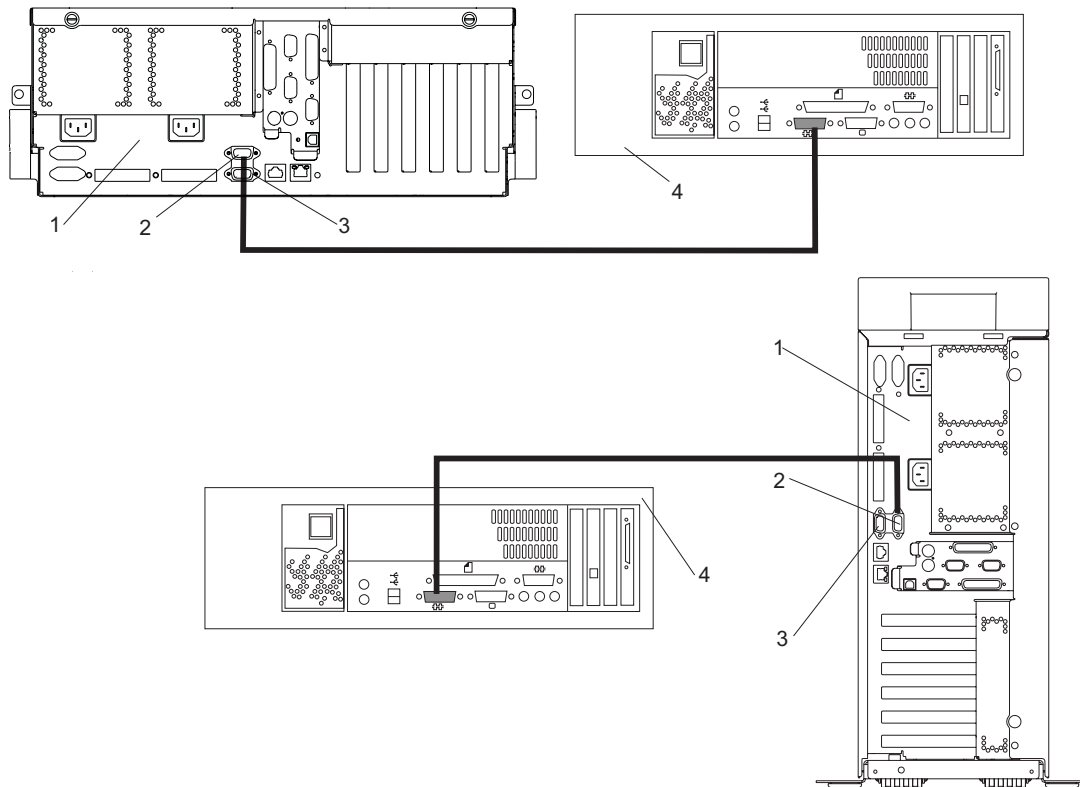
1	Model 6C3 or Model 6E3	**3**	HMC2 Connector
2	HMC1 Connector	**4**	Hardware Management Console (HMC)

Step 14. 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.
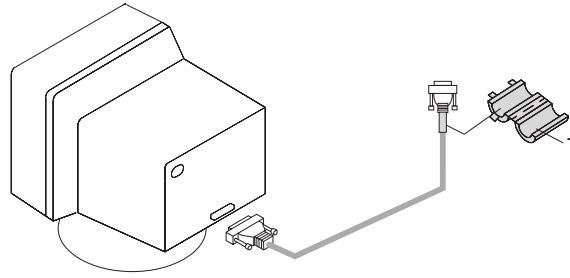
1 Display Cable Toroid

Step 15. 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 17. Connect the Serial Devices, Parallel Devices, and ASCII Terminal" on page 28.

As shown in "Step 14. Attach the Display Cable Toroid" on page 25, 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. A PCI 2D graphics adapter can be installed in any of the six PCI slots.
2. Some displays require an additional cable.

Model 6C3 and 6E3

1 Display Cable
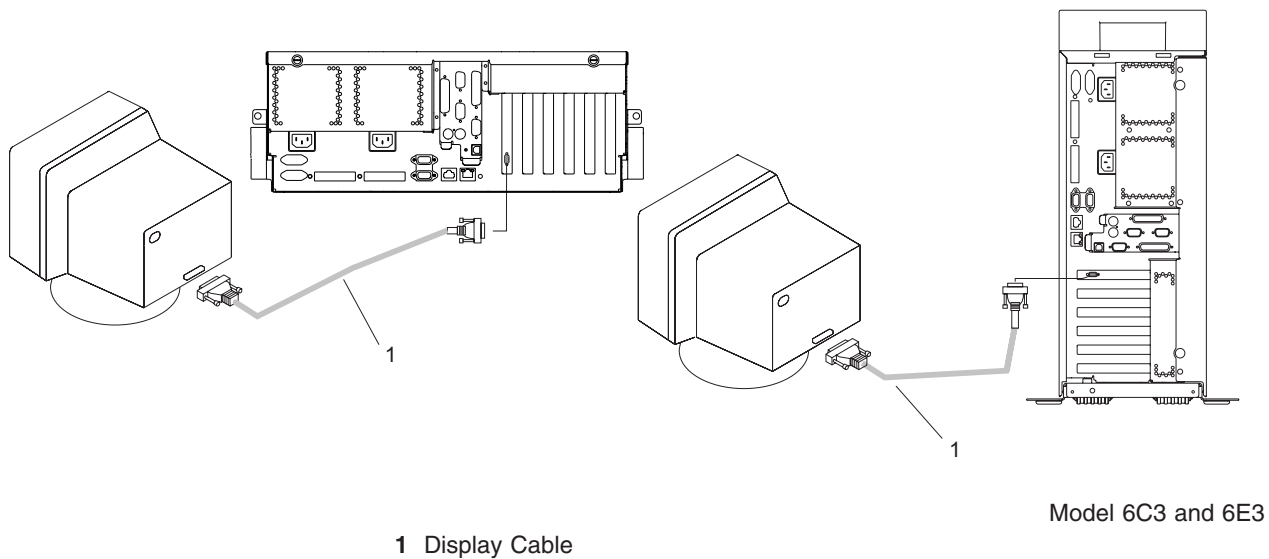
Step 16. Connect the Keyboard and Mouse (When Using a Graphics Display)

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.
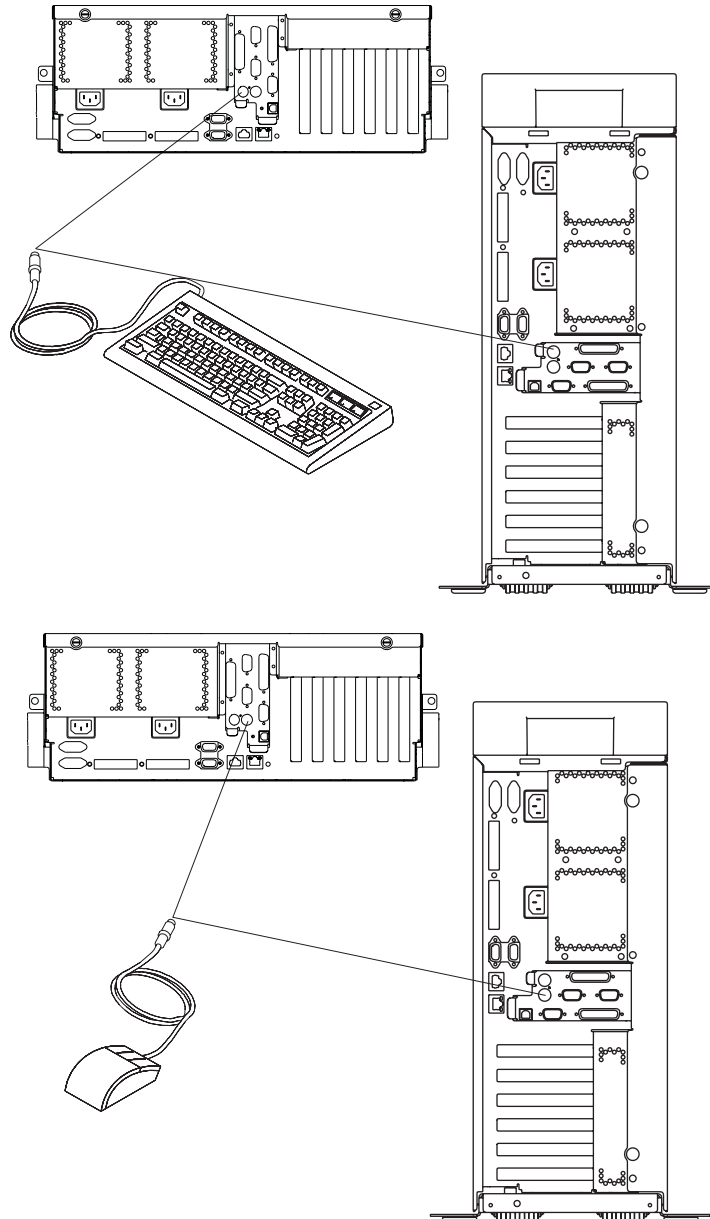
Model 6C3 and 6E3

Step 17. Connect the Serial Devices, Parallel Devices, and ASCII Terminal

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 (FS1) and rear (S1) of the system.

3. Use an RJ-45 to 9-pin converter cable to connect to the front serial port FS1.

4. When using FS1, the rear serial port 1 is deactivated.

5. Use a 9-pin to 25-pin serial converter cable when connecting to the rear serial port 1. The 9-pin 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 connector S2 or serial connector S3.

If you have a local ASCII terminal or a single serial device, connect it to serial connector S1.

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.
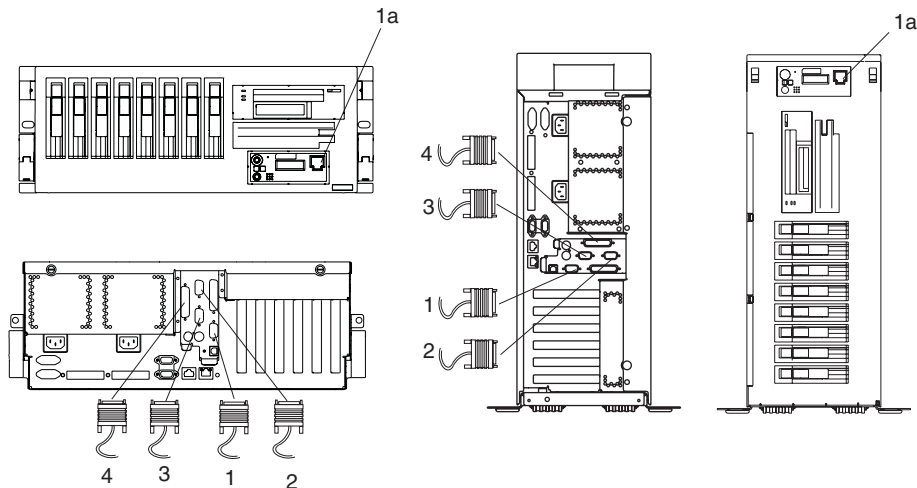
Model 6C3 and 6E3

1	Serial Port 1 Connector
1a	Serial Port 1 Front Connector (RJ-48)
2	Serial Port 2 Connector
3	Serial Port 3 Connector
4	Parallel Connector

The current usage for the serial port connectors is as follows:

Serial Port Number	Location	Examples of Applicable Usage
Serial Port 1 (S1 Front)	Operator Panel	Service Agent, PDA system management applications (for example: handheld devices, laptop systems), Service Processor menus, ASCII Terminal for AIX Console, and Modems
Serial Port 1 (S1 Rear)	Rear of the System	Service Processor menus, Service Agent, PDA system management applications (interface cable required), ASCII Terminal for AIX Console, and Modems
Serial Port 2 (S2)	Rear of the System	Service Processor menus, HACMP, ASCII Terminal for AIX Console, and Modems
Serial Port 3 (S3)	Rear of the System	HACMP, UPS (uninterruptible power supply), ASCII Terminal for AIX Console, and Modems

Note: Serial port S1 is never used to run HACMP or to attach a UPS. If you are configuring your system to run HACMP with a UPS attached, you must connect the HACMP cable to serial port S2 and the UPS cable to serial port S3. *Do not* run a UPS connected to serial port S2. If you decide to disconnect HACMP, you *must* reset the service processor using the pinhole reset switch before running another application. The service processor pinhole reset switch is located on the operator panel.

Step 18. 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.
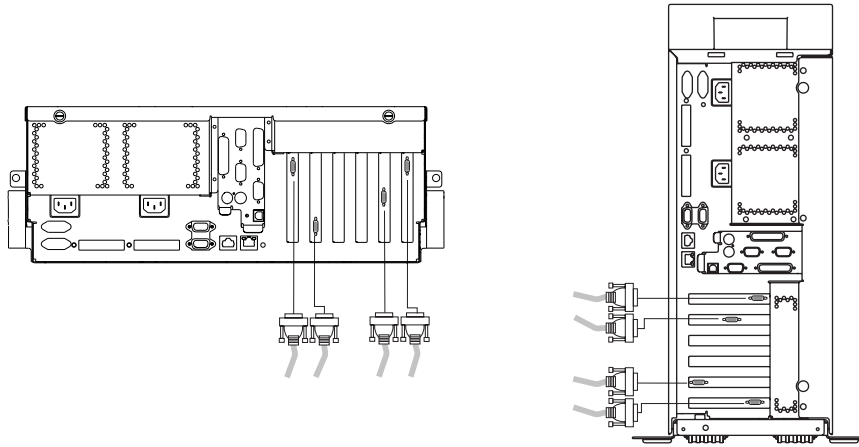
Model 6C3 and 6E3

Step 19. Are You Using the Rack Indicator Feature?

The rack indicator feature signals when a drawer installed in a rack has a failure. If you are unsure whether you are using the rack indicator feature, ask your system administrator. If you are not using the rack indicator feature, continue to "Step 20. Are You Using an Ethernet Connection?" on page 32.

Connect the rack indicator cable as shown in the following illustration.
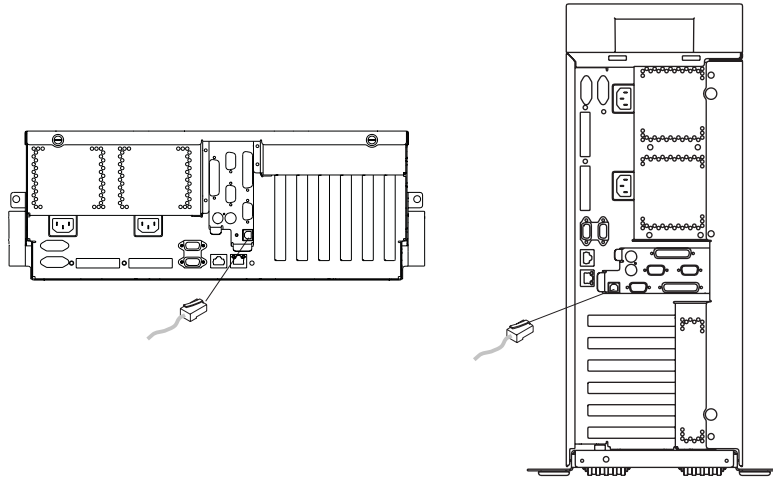
Model 6C3 and 6E3

Step 20. Are You Using an Ethernet Connection?

If you are unsure whether you are using an Ethernet connection, ask your system administrator. 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 34.

To connect the Ethernet cable, do the following:

Note: The twisted-pair connector is compatible with the IEEE 802.3 Ethernet network 10/100/1000 Base T link.

1. Connect the twisted-pair cable to one of two RJ-45 connectors located on the rear of the system drawer. For RJ-45 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 34.
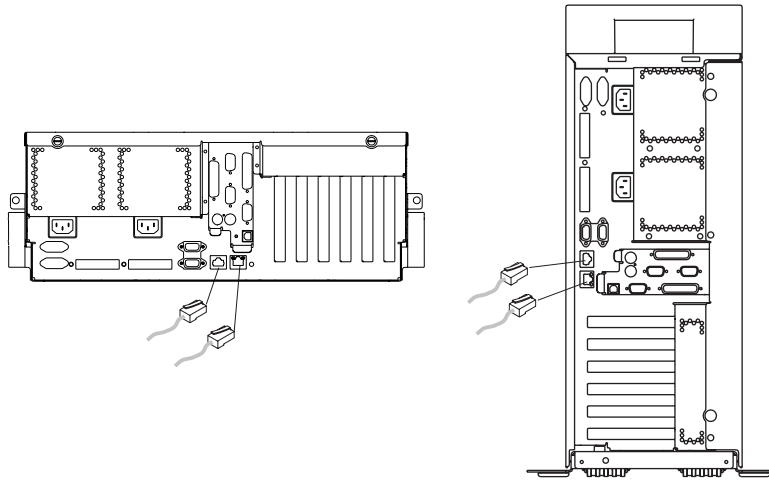
Model 6C3 and 6E3

Step 21. Route Cables Through the Model 6C3 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 6C3 into the Service Position" on page 53.

2. Route the cables through the hooks along the cable arm. See the figure below:
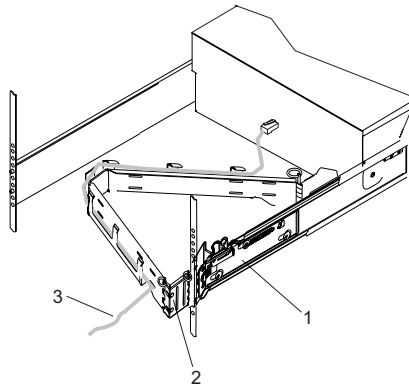
    1 System Rail
    2 Cable Management Arm
    3 Cable

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 to verify that the cable is not binding.

Step 22. Connect the Power Cables to the System

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

Notes:

1. The system 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 present when a second (redundant) power supply has been added to the system drawer. See the following illustration.
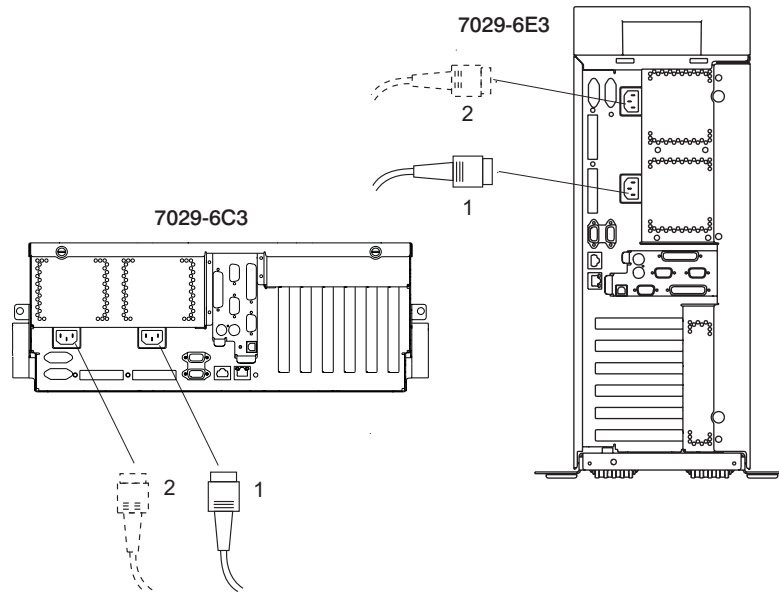
Model 6C3 and 6E3

1 Primary Power Supply Cable
2 Redundant Power Supply Cable

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.
C01

Step 23. Connect the Power Cables to Electrical Outlets

Connect the power source to the system unit.

After 10 to 20 seconds, the system should come up to standby mode. The two indicators of standby mode are:

- The power LED is slowly blinking.
- `OK` is visible in the operator panel display.

The following illustration shows the operator panel in standby mode with the `OK` displayed in the operator panel.

1	Operator Panel Display	**5**	Power LED
2	Front Serial Connector (FS1)	**6**	Power-On Button
3	Attention LED	**7**	Service Processor Reset Switch (Pinhole)
4	System Reset Button	**8**	Serial Number Label

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 24. Your System Hardware is Now Set Up

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

If an operating system has been preinstalled in your system, see the documentation provided with your operating system.

If you plan to install the operating system now, see the installation instructions provided with your operating system.

Installation of the operating system can be handled in one of the following ways:
- Preinstalled at the manufacturing facility.
- Installed from a CD (if a CD-ROM drive is installed). On the pSeries 615 Model 6C3 and Model 6E3, the CD-ROM drive is a customer-installable option.
- If you are installing the AIX operating system, AIX can be installed from a Network Installation Management (NIM) server. For information about installing AIX from a NIM server, see the *AIX 5L Installation Guide and Reference*, order number SC23-4389. For other software installation, refer to the documentation provided with the software.

Step 25. Start Your Model 6C3 or Model 6E3

Starting the System Without an HMC Attached

To power on the system, do the following:

1. On a Model 6C3, open the front rack door.

   On a Model 6E3, open the bezel door.

2. Before you press the power button on your operator panel, observe the following:

   - The power LED is slowly blinking.
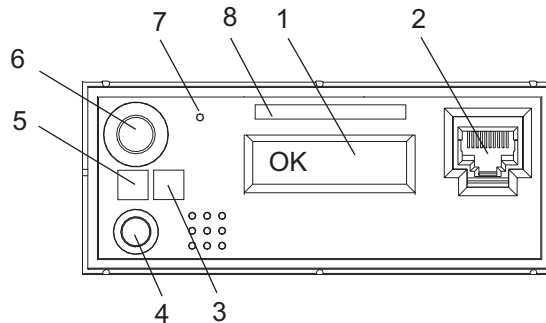
   - An OK prompt is visible in the operator panel display.

1	Operator Panel Display	**5**	Power LED
2	Front Serial Connector (FS1)	**6**	Power-On Button
3	Attention LED	**7**	Service Processor Reset Switch (Pinhole)
4	System Reset Button	**8**	Serial Number Label

3. Press the power-on button on the operator panel.

   After you press the power button located on the operator panel, observe the following:

   a. The power LED begins to blink visibly faster.

   b. The system cooling fans are activated and can be heard accelerating to operating speed.

   > **Note:** There is approximately a 30-second transition period between the time the power button is pressed and the power LED remains on solid (no longer blinking).

   c. The power LED stays on solid. Progress indicators, also referred to as *checkpoints*, are visible on the operator panel display.

   If you just completed installing the system, run system verification. Refer to "Step 27. Run System Verification" on page 38. If not, go to "Step 26. Access the System Documentation" on page 38

Starting the System With an HMC Attached

After the required cables are installed and the power cables are connected, the HMC user interface provides a power-on function to turn on the power to the system. The power button on the operator panel can be pushed to initialize the system but the preferred method is to use the HMC if booting logical partitions. Progress indicators, also referred to as *checkpoints*, are visible on the operator panel display as the system power is turned on. The power LED on the base system stops blinking and stays on, indicating the system power is on.

The base system and I/O subsystems are powered on through the system power control network (SPCN). When power is applied, the power LEDs on the base system go from blinking to continuous, and the power LEDs on the I/O subsystem(s) come on and stay on. This indicates that power levels are satisfactory in the subsystems.

Step 26. Access the System Documentation

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

IBM @server pSeries hardware publications are available online. To access the online hardware books, visit our IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Click **Hardware Documentation**.

Operating System Documentation

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

Step 27. Run System Verification

1. If your system displays the login prompt and you want to test your hardware, go to Chapter 3, "Verifying the Hardware Operation", on page 39.
2. If the login prompt does not display, recheck your installation procedures and try starting your system again.
3. If your system fails, refer to Appendix D, "Identifying a Problem Device", on page 133.
4. If your system continues to fail, 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.

Considerations Before Running This Procedure

These verification procedures use either online AIX diagnostics or standalone AIX diagnostics. Either the online AIX diagnostics or the standalone AIX diagnostics must be available to perform this procedure. Read the following before using this procedure:

- If this system unit is directly attached to another system unit or attached to a network, be sure communications with the other systems are stopped.
- This procedure requires use of all of the system resources. No other activity can be running on the system while you are performing this procedure.
- This procedure requires an hardware management console (HMC), a display attached to a graphics adapter, or an ASCII terminal attached to the S1 or S2 port.

> **Note:** If you use a virtual terminal on the HMC and you are asked to define the terminal type, the virtual terminal is considered a VT320.

Does the system have online AIX diagnostics preinstalled?

YES   If there is an HMC attached to the system, go to "Using the HMC to Load the Online AIX Diagnostics in Service Mode" on page 42.

If an HMC is not attached to the system, go to "Loading the Online AIX Diagnostics on a System without an HMC Attached" on page 43.

NO   If there is an HMC attached to the system, go to "Using the HMC to Load the Standalone Diagnostics from CD-ROM" on page 42.

If an HMC is not attached to the system, go to "Loading the Standalone Diagnostics on a System without an HMC Attached" on page 43.

Power Procedures

These power procedures are here for reference during the system verification tests. Do not perform any power procedures until the verification procedures instruct you to do so.

You can power-on the @server pSeries 615 Model 6C3 and Model 6E3 by using the HMC or by using the power-on button on the processor subsystem operator panel. If an HMC is connected to the system, the HMC power-on method is the preferred method. Choose the appropriate power-on method for your system and perform the procedures to power on (start) your system.

HMC Power-On Method
To power on the managed system using the HMC, you must be a member of one of the following roles:
- System Administrator
- Advanced Operator
- Operator
- Service Representative

To power on the managed system, do the following:
1. In the Navigation area, click the **Partition Management** icon.

39

2. In the Contents area, select the managed system.

3. In the menu, click **Selected**.

4. Select **Power On**.

   Because the system is not partitioned, you must power on the system using the **Full System Partition** selections on the screen. The Partition Standby and System Profile options are not valid for use with your Model 6C3 or Model 6E3:

   - Partition Standby (Not applicable)
   - Full System Partition
   - System Profile (Not applicable)

Partition Standby: The Partition Standby option is not applicable to the Model 6C3 or Model 6E3.

Full System Partition: The full system partition power-on option must be chosen if you are trying to power on the system from an HMC.

The physical operator panel on your managed system displays progress codes when you boot the system to this mode.

Power On Options: After selecting the full system partition, select either **Power on Diagnostic Default Boot** if standalone AIX diagnostics are being booted from CD-ROM or **Power on Diagnostic Stored Boot List** if online AIX diagnostics are being booted from the boot disk drive.

Power On Diagnostic Stored Boot List
> This profile causes the system to perform a service mode boot using the service mode boot list saved on the managed system. If the system boots AIX from the disk drive and AIX diagnostics are loaded on the disk drive, AIX boots to the diagnostics menu.
>
> Using this profile to boot the system is the preferred way to run AIX online diagnostics.

Power On Diagnostic Default Boot List
> This profile is similar to Power On Diagnostic Stored Boot List Profile, except the system boots using the default boot list that is stored in the system firmware.

To learn more about these power-on options, see the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.

Configuring the Network Using the HMC: To to complete the installation, the following configuration tasks should be done if you want to use the services they provide:

- Configuring Inventory Scout Services
- Configuring Service Agent
- Collecting Vital Product Data (VPD)
- Transmitting VPD

For more information about these services, refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.

Operator Panel Power-On Method

Perform the following steps to power on the system unit using the power button on the operator panel.

1. Open the rack door. Look for `OK` in the operator panel display, which indicates that the system is in standby.

2. Press the power button on the operator panel.

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 following events have occurred:

- The power LED on the system operator panel stops blinking and stays on.
- The power LEDs on the I/O subsystem come on and stay on.

Using the HMC to Load the Online AIX Diagnostics in Service Mode

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

1. Select **Server and Partition**.
2. Select **Partition Management**.

   For more information about full system partitions, refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.
3. From the HMC, select **Server Management**.
4. In the Contents area, select the icon that represents the Model 6C3 or Model 6E3. Right-click on the mouse, and select **Open Terminal Window**.
5. From the Service Processor menu on the VTERM, select Option 2 **System Power Control**.
6. Select option 6. Verify that the state changes to `currently disabled`. Disabling fast system boot automatically enables slow boot.
7. Select Option 98 to exit the system power control menu.
8. Use the HMC to power on the managed system in full system partition mode by selecting the managed system in the Contents area.
9. Highlight the desired system by right-clicking on or selecting the system in the Contents area. On the menu, choose **Selected**.
10. Select **Power On**.
11. Select the **Power on Diagnostics Stored Boot List** option.
12. Ensure that the media subsystem contains no media devices.
13. Enter any passwords, if requested.

   Note: If you are unable to load the diagnostics to the point when the `DIAGNOSTIC OPERATING INSTRUCTIONS` display, go to "Using the HMC to Load the Standalone Diagnostics from CD-ROM".

Go to "Running System Verification" on page 46.

Using the HMC to Load the Standalone Diagnostics from CD-ROM

To run the standalone diagnostics in service mode from CD-ROM, use the following steps:

1. Stop all programs, including the operating system (get help if needed).
2. Remove all tapes, diskettes, and CD-ROMs.
3. Power off the @server pSeries 615 Model 6C3 and Model 6E3 (refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590, for more information).
4. In your desktop area, right-click on the mouse, and select **Open Terminal Window**.
5. From the service processor menu on the VTERM, select option 2, **System Power Control Menu**.
6. Select option 6. Verify that the state changes to `currently disabled`. Disabling fast system boot automatically enables slow boot.
7. Select option 98 to exit the system power control menu.
8. Use the HMC to power on the managed server in full system partition mode. Select **Power on Diagnostic Default Boot List**.
9. Insert the CD-ROM into the CD-ROM drive in the media bay in the @server pSeries 615 Model 6C3 and Model 6E3 (*not* into the HMC CD-ROM drive).

Go to "Running System Verification" on page 46.

Note: If you are unable to load standalone diagnostics, call your support center for assistance.

Loading the Online AIX Diagnostics on a System without an HMC Attached

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

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

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

Loading the Standalone Diagnostics on a System without an HMC Attached

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

Note: Online diagnostics are not available when the operating system is Linux.

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

Running Standalone Diagnostics from a Network Installation Management (NIM) Server with an HMC Attached to the System

A client system connected to a network with a Network Installation Management (NIM) server can boot standalone diagnostics from the NIM server if the client-specific settings on both the NIM server and client are correct.

Notes:

1. All operations to configure the NIM server require root user authority.
2. If you replace the network adapter in the client, the network-adapter hardware-address settings for the client must be updated on the NIM server.
3. The **Cstate** for each standalone diagnostics client on the NIM server should be kept in the *diagnostic boot has been enabled* state.
4. On the client system, the NIM server network adapter should be put in the bootlist after the boot disk drive. This allows the system to boot in standalone diagnostics from the NIM server if there is a

problem booting from the disk drive. For information about setting the bootlist, see the **Multiboot** section under "SMS" in the client system's service guide.

NIM Server Configuration

Refer to the "Advanced NIM Configuration Tasks" chapter of the *AIX 5L Installation Guide and Reference*, order number SC23-4389, for information on doing the following:

*   Registering a client on the NIM server
*   Enabling a client to run diagnostics from the NIM server

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

To verify that the client system is registered on the NIM server and the diagnostic boot is enabled, run the **lsnim -a Cstate -Z *ClientName*** command from the command line on the NIM server. Refer to the following table for system responses.

Note: The *ClientName* is the name of the system on which you want to run standalone diagnostics.

System Response	Client Status

`#name:Cstate:`
`ClientName:diagnostic boot has been`
`enabled:`
	The client system is registered on the NIM server and enabled to run diagnostics from the NIM server.

`#name:Cstate:`
`ClientName:ready for a NIM operation:`
 	
or
 	
`#name:Cstate:`
`ClientName:BOS installation has been`
`enabled:`
	The client is registered on the NIM server but not enabled to run diagnostics from the NIM server.
	Note: If the client system is registered on the NIM server but Cstate has not been set, no data will be returned.

`0042-053 lsnim: there is no NIM object` `named "ClientName"`	The client is not registered on the NIM server.

Client Configuration and Booting Standalone Diagnostics from the NIM Server

To run standalone diagnostics on a client from the NIM server, do the following:

1. Remove any removable media (tape or CD-ROM disc).
2. Stop all programs including the operating system (get help if needed).
3. If you are running standalone diagnostics in a full system partition, verify with the system administrator and system users that the system unit can shut down. Stop all programs, including the operating system. Refer to the operating system documentation for **shutdown** command information.

    In a partitioned system, make the CD-ROM drive available to the partition used to run standalone diagnostics (refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide* for more information). Verify with the system administrator and system users using that partition that all applications on that partition must be stopped, and that the partition will be rebooted. Stop all programs on that partition, including the operating system.

4. If you are in a full system partition, power on the system unit to run standalone diagnostics. In a partitioned system, reboot the partition to run standalone diagnostics.
5. When the keyboard indicator is displayed (the word **keyboard**), press the number 1 key on the keyboard to display the SMS menu.

6. Enter any requested passwords.

7. Select **Setup Remote IPL (Initial Program Load)**.

8. Enter the client address, server address, gateway address (if applicable), and subnet mask. Exit to the Network Parameters screen.

9. If the NIM server is set up to allow pinging from the client system, use the **ping** utility in the RIPL utility to verify that the client system can ping the NIM server. Under the **ping** utility, choose the network adapter that provides the attachment to the NIM server to do the ping operation. If the ping returns with an `OK` prompt, the client is prepared to boot from the NIM server. If ping returns with a `FAILED` prompt, the client cannot proceed with the NIM boot.

   If the ping fails, contact your service representative.

To do a one-time boot of the network adapter attached to the NIM server network, do the following:

1. Exit to the SMS Main screen.

2. Select **Select Boot Options**.

3. Select **Install or Boot a Device**.

4. On the Select Device Type screen, select **Network**.

5. Set the network parameters for the adapter from which you want to boot.

6. Exit completely from SMS. The system starts loading packets while doing a **bootp** from the network.

Follow the instructions on the screen to select the system console.

- If `Diagnostics Operating Instructions Version x.x.x` displays, standalone diagnostics have loaded successfully.

- If the operating system login prompt displays, standalone diagnostics did not load. Check the following items:

  - The network parameters on the client may be incorrect.

  - Cstate on the NIM server may be incorrect.

  - Network problems might be preventing you from connecting to the NIM server.

Verify the settings and the status of the network. If you continue to have problems, contact your service representative.

Running System Verification

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

1. Press Enter.

2. If the terminal type is requested, you must use the **Initialize Terminal** option on the Function Selection menu to initialize the operating system before you can continue with the diagnostics.

   Note: If you use a virtual terminal on the HMC and you are asked to define the terminal type, the virtual terminal is considered a VT320.

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

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

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

The checkout program ends with either of the following results:

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

To perform additional system verification, go to "Performing Additional System Verification" on page 47. To exit diagnostics, go to "Stopping the Diagnostics" on page 47.

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 "Stopping the Diagnostics".

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 terminal to run the diagnostics, change the settings back to normal.
3. This completes the system verification.

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

If you received an error code, record the code and other information that is displayed with the error code, and go to Appendix D, "Identifying a Problem Device", on page 133.

Verify that the Latest Firmware and Adapter and Drive Microcode are Installed

Use the procedures in this section to verify that the latest firmware and adapter microcode are installed on the system. The firmware and microcode are available from either of the following sources:

- Web site:

  http://techsupport.services.ibm.com/server/mdownload2/download.html

  From the Web site, follow the instructions for checking your system's firmware level and for downloading the latest level of code. Adapter and drive microcode packages are also available from this Web site.

- Current Object Repository (CORE):

  If you have access to CORE, do the following to access the firmware and microcode:

  1. Access Current Object Repository (CORE).
  2. Select **CORE Product Family** and **eServer pSeries - RS/6000**
  3. Select **CORE Machine Type** and **pSeries - RS/6000 - Microcode-System/Service**

Verify that the Latest HMC Software is Installed

Use the following instructions to verify the software level of the HMC that is managing the system you just installed.

1. Determine the level of the HMC software running on the HMC. If you don't know the level of your HMC's software, refer to the section entitled "Updating the HMC Software" in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.
2. Go to the following Web site for the latest HMC corrective service software: http://techsupport.services.ibm.com/server/hmc/corrsrv.html. If the level of software on your HMC is not at the same level as the version on the Web, download and update the HMC software to the latest level. Instructions for updating the HMC software can be found in the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.

Access the System Documentation

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.

Accessing Hardware Documentation

Documentation for the IBM @server pSeries is available online. Visit the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base.

- To access the pSeries publications, click **Hardware documentation**.
- To view information about the accessibility features of @server pSeries hardware and the AIX operating system, click **AIX and pSeries accessibility**.

Accessing System Documentation

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

Chapter 4. Installing Options in the Model 6C3 and Model 6E3

This chapter provides procedures for installing options in both the Model 6C3 rack mounted system unit and the Model 6E3 desk side system unit.

Notes:

1. Installing options in the Model 6E3 can be performed with the system in either the vertical or horizontal position. Installing options in the Model 6C3 is performed with the system in the rack and placed into the service position. The service position for the Model 6C3 is described in "Placing the Model 6C3 into the Service Position" on page 53.

2. Before performing any of the installation procedures in this chapter, read the following notices.

For the system unit in which you are about to install an option:

- The ac power interface connector is considered the main power disconnect device.
- This system unit 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.**
> D05

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.
C01

CAUTION:
This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect two power supply cords before servicing.
C21

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

Note: If you system has a device failure, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined the problem, refer to the appropriate procedures. See the table below:

Option/Task	Option/Task Name and Page Location
Adapters	"PCI Adapters" on page 61
Battery Replacement	"Replacing the Battery" on page 113
Bezels	"Bezels" on page 57
Bezel Door	"Bezel Door (Model 6E3)" on page 56
Covers	"Covers" on page 59
Disk Drives	"Hot-Plug Disk Drives" on page 98
Disk Drive Backplane	"Disk Drive Backplane" on page 104
Disk Drive Bezels and Fillers	"Disk Drive Bezels and Fillers" on page 96
Hot-Swap System Fans	"Hot-Swap System Fans" on page 81
Fan Tray Assembly	"Fan Tray Assembly" on page 84
Hardware Management Console	"Install the Hardware Management Console (HMC)" on page 115
Media Drives	"Media Drives (Diskette, CD-ROM, DVD-ROM, Tape, or Disk Drive)" on page 92
Memory DIMMs	"Memory DIMMs" on page 106
Operating Position	"Returning the Model 6C3 to the Operating Position" on page 55
Power Supply	"Power Supply" on page 87
Service Position	"Placing the Model 6C3 into the Service Position" on page 53
Service Processor Assembly	"Service Processor Assembly" on page 110
Starting the System	"Starting the System" on page 51
Static-Sensitive Devices	"Handling Static-Sensitive Devices"
Stopping the System	"Stopping the System" on page 51

Stopping the System

This section discusses how to stop the system.

Stopping the System without an HMC Attached

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. Have your system administrator stop all applications that are running on the system.
3. At the command line, ask the administrator to type one of the following commands:
   - If your system is running AIX, type `shutdown`
   - If your system is running Linux, type `shutdown now -h`
4. After you shut down the operating system, set the power switches of any attached devices to Off.

Stopping the System with an HMC Attached and AIX Installed

The HMC user interface provides a power-off function to turn off the power to the system.

AIX provides hot-swap procedures for adapters and devices that support hot-swap removal and installation. Individual power components and fans can be serviced with the power on for systems equipped with redundant power and cooling.

If the system is operating in AIX, typing the **shutdown** command causes the system to shut down and power off. The **-F** flag shuts down the system without warning system users. Check with the system administrator before using this command. If you cannot use this method, you can power off the system by pressing the power button on the operator panel or typing the appropriate command at the HMC.

Attention: Using the power-on button on the operator panel or commands at the HMC to power off the system can cause unpredictable results in the data files.

Stopping the System with an HMC Attached and Linux Installed

The HMC user interface provides a power-off function to turn off the power to the system.

Linux does not provide hot-swap procedures for adapter and device removal and installation. The system power must be turned off to service an adapter or device. Individual power components and fans may be serviced with power on for power systems equipped with redundant power and cooling. Before servicing this system, check removal and installation procedures.

If the system is operating in LINUX, typing the **shutdown now -h** command causes the system to shut down and power off. The **-F** flag shuts down the system without warning system users. Check with the system administrator before using this command. If you cannot use this method, you can power off the system by pressing the power button on the operator panel or typing the appropriate command at the HMC.

Attention: Using the power-on button on the operator panel or commands at the HMC to power off the system can cause unpredictable results in the data files.

Starting the System

This section discusses how to start the system.

Starting the System without an HMC Attached

To power on the system, do the following.

1. On a Model 6C3, open the front rack door.

   On a Model 6E3, open the bezel door.

2. Ensure that the power is connected the system unit.

   Before you press the power-on button on your operator panel, observe the following:

   - The power-on LED is slowly blinking.
   - An `OK` prompt is visible in the operator panel display.

3. Press the power-on button on the operator panel.

   After pressing the power-on button located on the operator panel, observe the following:

   a. The power-on LED begins to blink visibly faster.

   b. The system cooling fans are activated and begin to accelerate up to operating speed.

   > **Note:** There is approximately a 30-second transition period between the time the power-on button is pressed and the power-on LED remains on solid (no longer blinking).

   c. The power LED stays on solid and progress indicators, also referred to as *checkpoints*, are visible on the operator panel display.
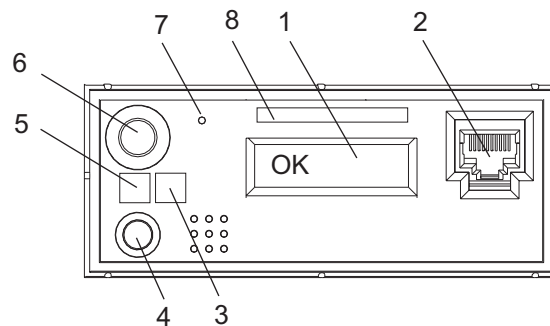
1 Operator Panel Display	**5** Power LED
2 Front Serial Connector (FS1)	**6** Power-On Button
3 Attention LED	**7** Service Processor Reset Switch (Pinhole)
4 System Reset Button	**8** Serial Number Label

Starting the System with an HMC Attached

After the required cables are installed and the power cables are connected, the HMC user interface provides a power-on function to turn on the power to the system. The power-on button on the operator panel can be pushed to initialize the system. Progress indicators, also referred to as *checkpoints*, are visible on the operator panel display as the system power is turned on. The power-on LED on the system stops blinking and stays on, indicating the system power is on.

Placing the Model 6C3 into the Service Position

Attention: When placing the Model 6C3 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 at a time is in the service position.

Before doing any service actions inside the Model 6C3, you must place 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. The screws are located on the bezel, just above each system release latch.
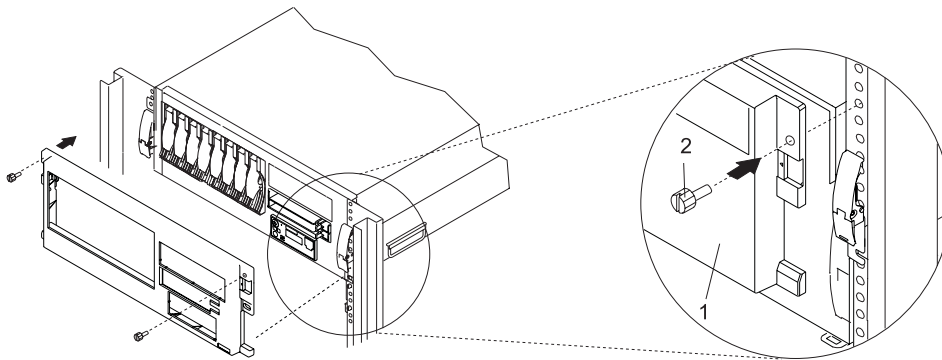
1 Model 6C3 Front Bezel
2 M5 16-mm Thumbscrew

3. Release the system release latches on both the left and right sides.
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 action 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 6C3		**4**	Front Rack Door
2	19-Inch Rack		**5**	System Drawer Release Latch
3	Stabilizing Bar			
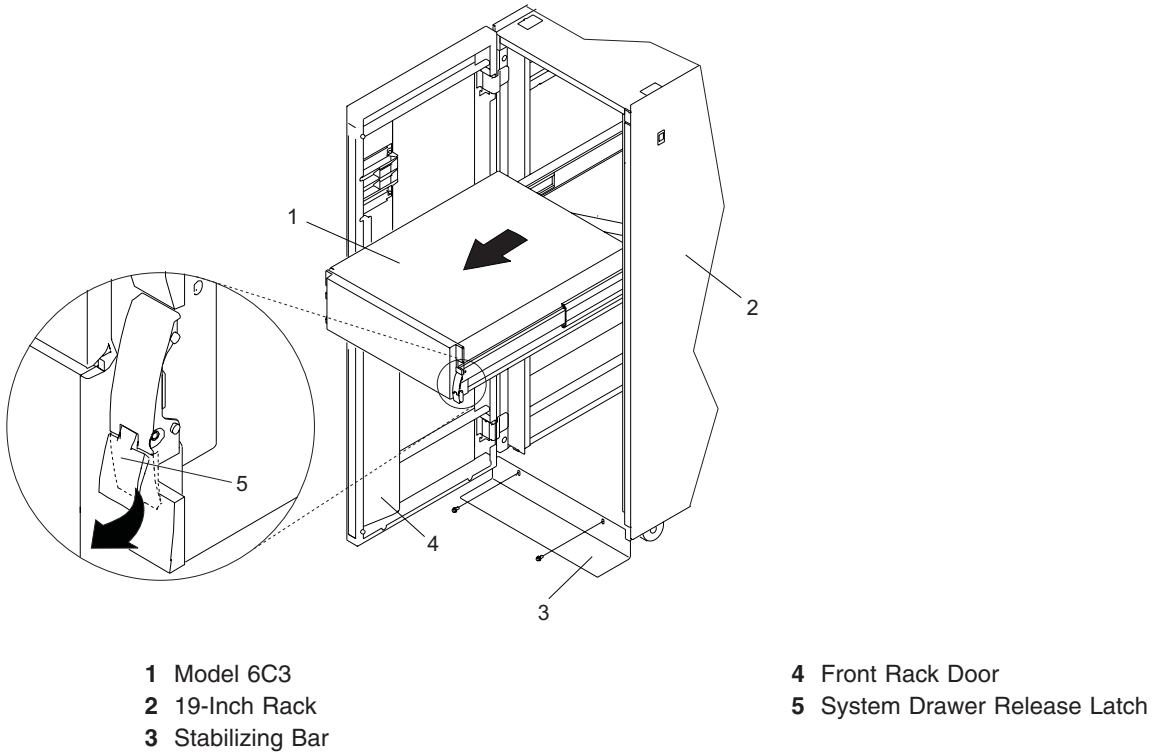
Returning the Model 6C3 to the Operating Position

To return the Model 6C3 to the operating position, do the following:

1. Raise 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 drawer release latches.
3. Push the system drawer straight back into the rack until both system drawer release latches 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.

Placing the Model 6E3 into the Service and Operating Position

The Model 6E3 can be placed on its side in order to work on the inside of the system unit. When finished working on the system, return it to the position in which it was placed for customer operations.

Bezel Door (Model 6E3)

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

Bezel Door Removal

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

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 lower retaining post.
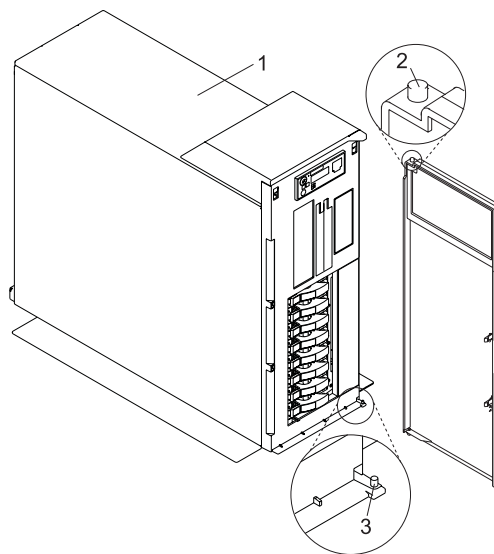
1	Model 6E3	**4**	Bezel Door
2	System Handle Assembly	**5**	Bezel Door Handle
3	Bezel Door Top Retaining Post	**6**	Bezel Door Lock Tab
		7	Bezel Door Lower Retaining Post

Bezel Door Replacement

To replace the bezel door, do the following:

1. Set the bezel door on the lower retaining post. See the preceding 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 into its mating hole.

   Note: The mating 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 procedures, read the "Safety Notices" on page vii.

Front Bezel Removal (Model 6C3)

To remove the front bezel, do the following:

1. Open the front rack door and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.
2. Press in on both bezel-release tabs at the same time.
3. Remove the system-retaining thumbscrews if they are in place.
4. Gently pull the bezel away from the system.
5. Put the bezel in a safe place.
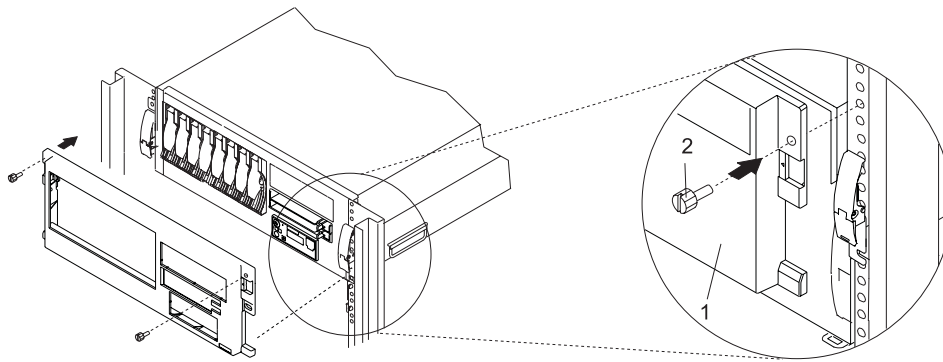
1 Model 6C3 Front Bezel	**2** System-Retaining Thumbscrews for System Drawer Transport

Front Bezel Replacement (Model 6C3)

To replace the front bezel, do the following:

1. Open the front rack door and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.
2. Seat the two tabs located on the bottom edge of the bezel into their mating slots located on the bottom edge of the system.
3. Pivot the bezel up, aligning the release tabs to the mating slots located on the front of the system.
4. Gently push the tabs into the slots until the bezel seats against the front of the system.
5. If needed, replace the system-retaining thumbscrews.
6. Push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.
7. Close the rack door.

Front Bezel Removal (Model 6E3)

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

To remove the front bezel, do the following:

1. Remove the bezel door as described in "Bezel Door (Model 6E3)" on page 56.
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.
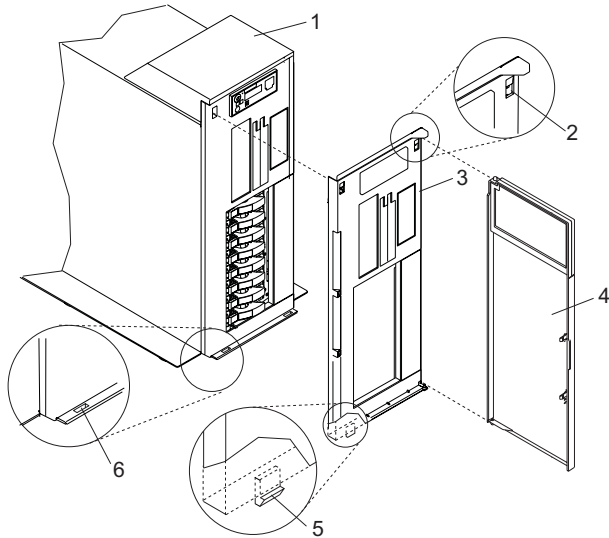
1	Model 6E3	**4**	Front Door
2	Bezel-release lever	**5**	Lower Bezel Locking Tab (Quantity 2)
3	Front Bezel	**6**	Lower Bezel Retaining Slots (Quantity 2)

Front Bezel Replacement (Model 6E3)

To replace the front bezel, do the following:

1. Place 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 mating 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 6E3)" on page 56.

Covers

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

Service Access Cover Removal (Model 6C3)

To remove the service access cover, do the following:

1. Ensure that the rack has been correctly stabilized before opening the front and rear rack doors.
2. Open the front rack door and place the Model 6C3 into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.
3. Loosen the two 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.
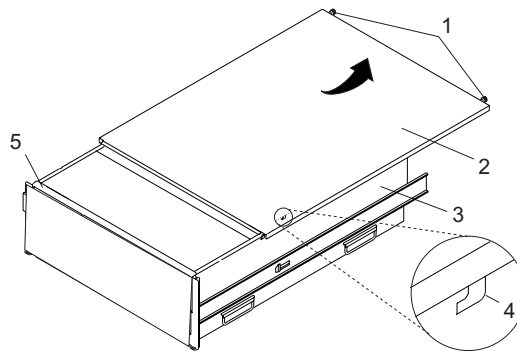
1 Thumbscrews		**4** Access Cover Locking Tab	
2 Service Access Cover		**5** Upper Chassis Ledge	
3 Model 6C3			

Service Access Cover Replacement (Model 6C3)

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. 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 slides beneath the upper chassis ledge.
3. Tighten the thumbscrews located on the rear of the cover.

Service Access Cover Removal (Model 6E3)

To remove the service access cover, do the following:

1. Loosen the two captive thumbscrews located on the rear of the cover. See the following illustration for thumbscrew locations.
2. 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 and off the system unit.

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 system components.
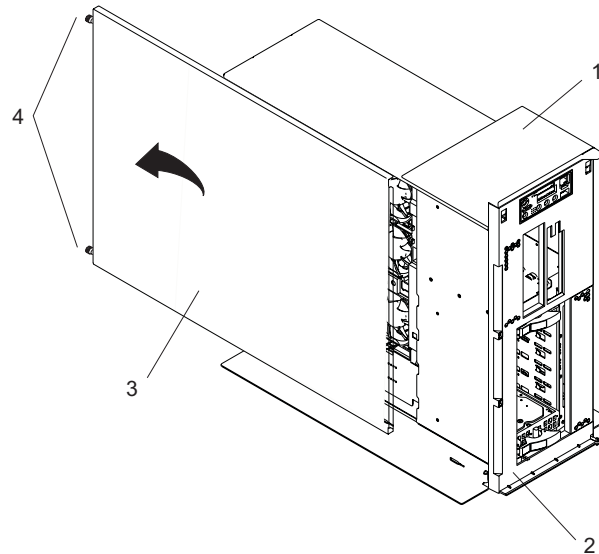
1 Model 6E3	**3** Service Access Cover
2 Front Chassis Ledge	**4** Thumbscrews

Service Access Cover Replacement (Model 6E3)

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 slides beneath the chassis ledge.
3. Tighten the three thumbscrews located on the rear of the cover.

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 64.
- Hot-pluggable, go to "Hot-Pluggable PCI Adapter Removal" on page 69.

PCI Hot-Plug Manager Access

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before installing any PCI adapter. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

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*.

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

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. The following section describes the menu options.

PCI Hot-Plug Manager Menu

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

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 the "Unconfigure a Device" option).

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.

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 set up to run HACMP clustering. Consult with your system administrator or software support to determine the correct method to configure the replacement device.

Return to the procedure that directed you here.

Non-Hot-Pluggable PCI Adapter Removal

To remove a PCI adapter, do the following:

1. On a Model 6C3, open the front and rear rack doors and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 51.

3. Disconnect the power source to the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the system power source is completely disconnected.

4. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60. See the following illustration.

5. Determine which adapter you plan to remove, then label and disconnect all cables attached to that adapter.

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

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

7. Before handling any card, board, or memory DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

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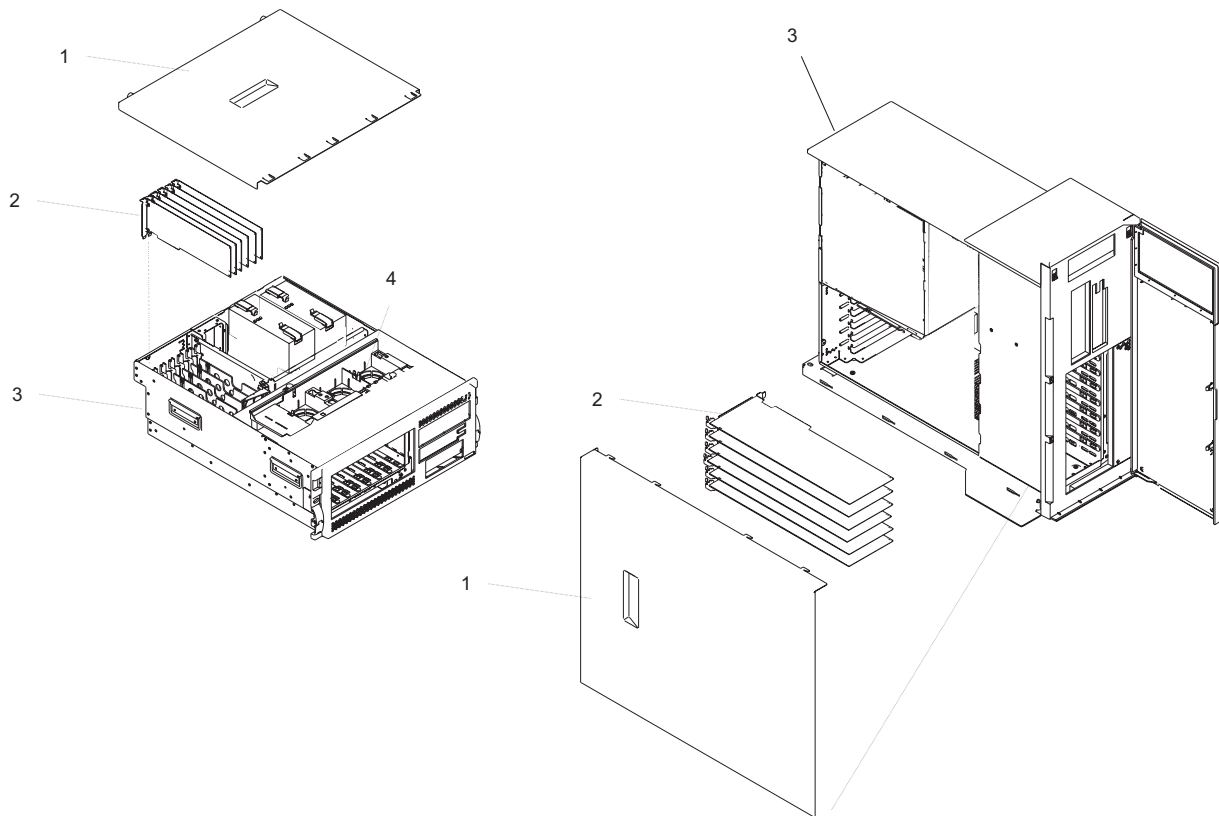
1	Service Access Cover	**3**	System Unit
2	PCI Adapters	**4**	Cooling Fan Bracket

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

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

1 Model 6C3 or Model 6E3		**5** PCI adapter faceplate (dotted lines)	
2 Adapter Retainer Assembly		**6** Adapter Retainer Assembly (in the unlocked position)	
3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)		**7** PCI Adapter	
4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)			

11. 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.

12. 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" on page 67.

13. If you have other options to install, refer to "Options and Task List" on page 50. If you do not have other options to install, continue on to the next step.

14. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

15. On a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

16. Connect the adapter cables.

17. Reconnect the power source to the system.

18. On a Model 6C3, route the cables through the cable-management arm.

19. Power on the system as described in "Starting the System" on page 51.
20. On a Model 6C3, close the rack doors.

On a Model 6E3, 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 6C3, open the front and rear rack doors and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 51.

3. Disconnect the power source to the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the system has been completely disconnected from its power source.

4. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.

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

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

7. Before handling any card, board, or memory DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

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

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

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

10. Set any jumpers or switches as instructed by the adapter's manufacturer.

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

12. 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.

13. Lower the tab onto the PCI adapter EMC shield/connector faceplate. Rotate the adapter retainer clip clockwise until it covers the tab at approximately a 45-degree angle. See the following illustration.

1 Model 6C3 or Model 6E3	**5** PCI adapter faceplate (dotted lines)
2 Adapter Retainer Assembly (in the unlocked position)	**4** Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)
3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)	

14. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.
15. If you are servicing a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.
16. Connect the adapter cables.
17. Reconnect the power source to the system.
18. If you are servicing a Model 6C3, route the cables through the cable-management arm.
19. Power on the system as described in "Starting the System" on page 51.
20. On a Model 6C3, close the rack doors.

    On a Model 6E3, close the bezel door.

Hot-Pluggable PCI Adapter Removal

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before installing any PCI adapter. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

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*.

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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 6C3, open the front and rear rack doors, and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.
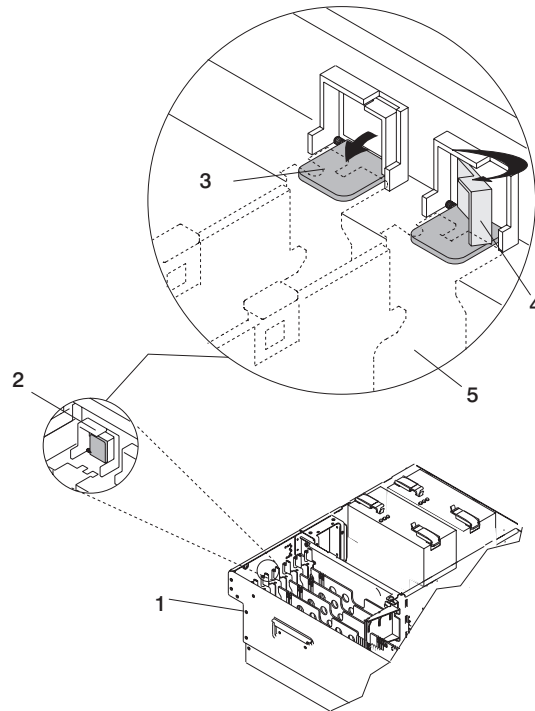
    On a Model 6E3, open the bezel door.
2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.
3. Determine which adapters you plan to remove.
4. Record the slot number and location of each adapter 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 61, 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.
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 **List PCI Hot-Plug Slots**.
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, be sure to use your electrostatic discharge strap 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 the molded grooves located on the back wall of the PCI cooling fan bracket.
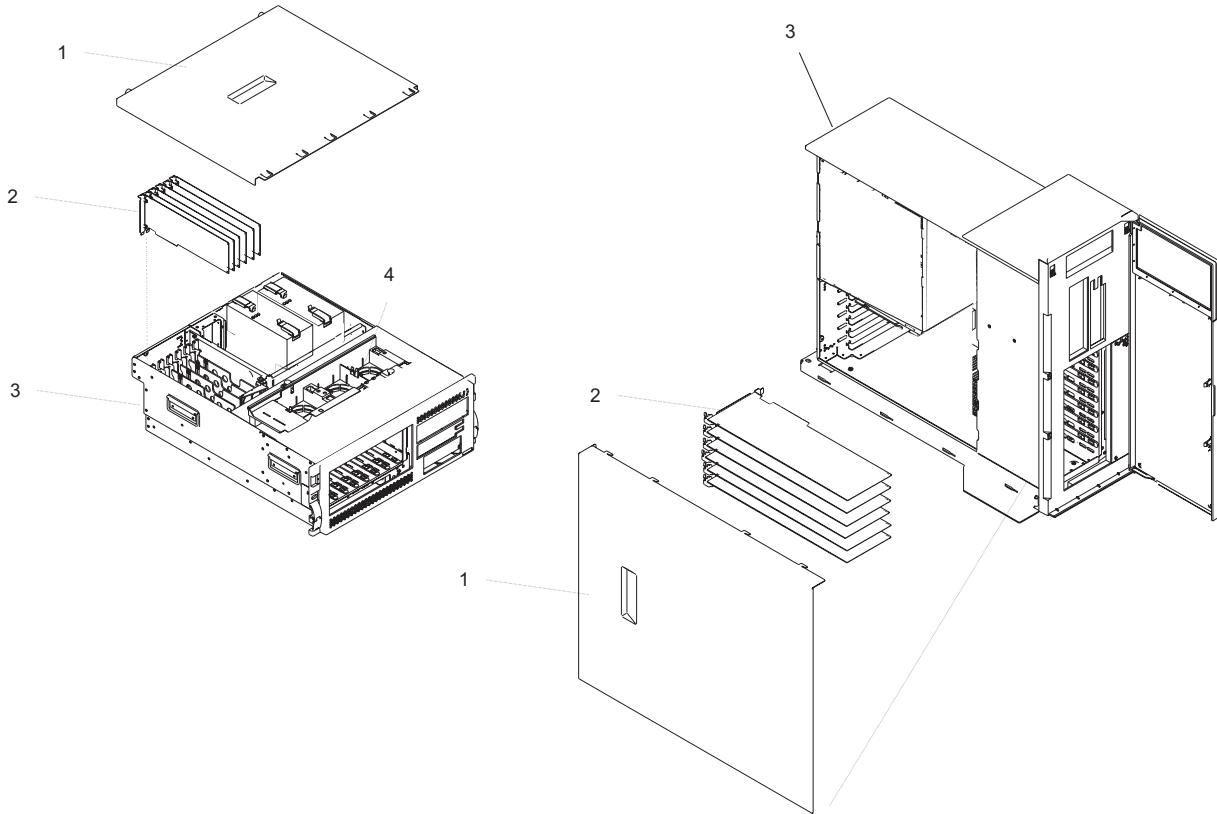
1 Service Access Cover
2 PCI Adapters
3 System Unit
4 Cooling Fan Bracket

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

1	Model 6C3 or Model 6E3	**5**	PCI adapter faceplate (dotted lines)
2	Adapter Retainer Assembly	**6**	Adapter Retainer Assembly (in the unlocked position)
3	Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)	**7**	PCI Adapter
4	Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)		

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 opening.
22. Lower the plastic retainer seat over the PCI adapter faceplate.
23. Rotate the locking latch clockwise until it clicks into the locked position.
24. 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.
25. 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 69.
26. Press F10 to exit the Hot-Plug Manager.

27. 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.

28. If you have other options to install, refer to "Options and Task List" on page 50. If you do not have other options to install, continue on to the next step.

29. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

30. On a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

31. Connect the adapter cables.

32. On a Model 6C3, route the cables through the cable-management arm.

33. On a Model 6C3, close the rack doors.

On a Model 6E3, close the bezel door.

Replacing a Hot-Pluggable PCI Adapter

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before installing any PCI adapter. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

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 69 and afterwards, "Installing a Hot-Pluggable PCI Adapter" on page 78.

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*.

   Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

   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 6C3, open the front and rear rack doors and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, open the bezel door.

2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.

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, be sure to use your electrostatic discharge strap 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 61, 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 67.

9. Press F4 to display the Device Names menu.

10. From the menu, select the adapter you are removing.

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 F3 to cancel.

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

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

17. Press the Tab key until the entry field displays the replace operation, and then press Enter. Follow the instructions that display on the screen until you are instructed to remove the adapter.
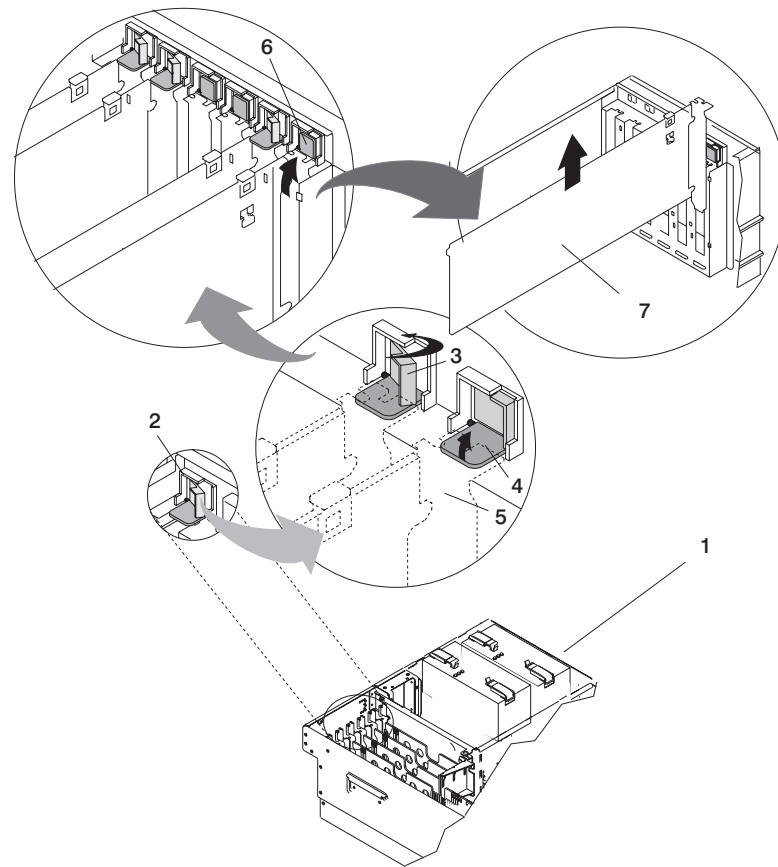
18. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed.

19. Turn the locking latch, and lift the plastic stop for the adapter.

20. Carefully grasp the adapter by the edges, and pull it straight out from the PCI adapter slot connector.

1	Model 6C3 or Model 6E3	**5**	PCI adapter faceplate (dotted lines)
2	Adapter Retainer Assembly	**6**	Adapter Retainer Assembly (in the unlocked position)
3	Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)	**7**	PCI Adapter
4	Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)		

21. Remove the replacement adapter from the antistatic package.

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

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

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

24. Replace the adapter into 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.

25. Lower the plastic retaining seat over the PCI adapter faceplate (dotted lines). 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.
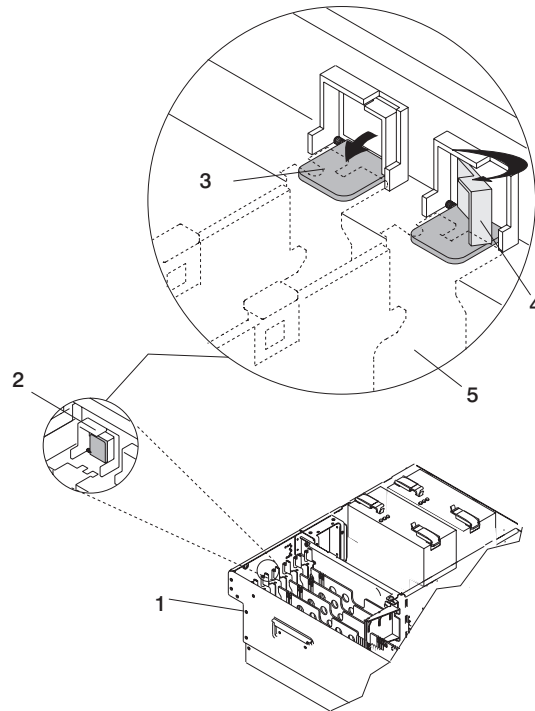
1 System Unit
2 Adapter Retainer Assembly (in the unlocked position)
3 Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)
4 Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)
5 PCI adapter faceplate (dotted lines)

26. Connect appropriate cables and devices to the adapter.
27. 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.
28. Press the F3 key to return to the PCI Hot-Plug Manager menu.
29. Select **Install/Configure Devices Added After IPL** and press Enter. Follow the instructions on the screen. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.

    Do not use **Install/Configure Devices Added After IPL** if your system is set up to run HACMP clustering. Consult with your system administrator or software support to determine the correct method to configure the replacement device.
30. 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 15 on page 74.
31. 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.

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

32. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

33. On a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

34. Connect the adapter cables.

35. On a Model 6C3, route the cables through the cable-management arm.

36. On a Model 6C3, close the rack doors.

    On a Model 6E3, close the bezel door.

Installing a Hot-Pluggable PCI Adapter

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before installing any PCI adapter. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

Note: This system supports 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 6C3, open the front and rear rack doors and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, open the bezel door.

2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.

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, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

5. Refer to "PCI Hot-Plug Manager Access" on page 61, and follow the steps in the access procedure to select **PCI Hot Plug Manager**. Then return here to continue.

6. 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.

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

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

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

1	Model 6C3 or Model 6E3	**5**	PCI adapter faceplate (dotted lines)
2	Adapter Retainer Assembly	**6**	Adapter Retainer Assembly (in the unlocked position)
3	Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)	**7**	PCI Adapter
4	Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)		

10. Follow the instructions on the screen to install the adapter until the LED for the specified PCI slot is set to the Action state.
11. If necessary, remove the adapter from the antistatic package.

    Attention: Avoid touching the components and gold-edge connectors on the adapter.
12. Place the adapter, component-side up, on a flat, static-protective surface.
13. Set any jumpers or switches as described by the adapter's manufacturer.
14. 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.

15. Lower the tab onto the PCI adapter faceplate. Rotate the adapter retainer clip clockwise until it covers the tab at approximately a 45-degree angle. See the following illustration.

1	Model 6C3 or Model 6E3	**4**	Adapter Retainer Assembly (retainer seat down and the retainer clip in the locked position)
2	Adapter Retainer Assembly (in the unlocked position)	**5**	PCI adapter faceplate (dotted lines)
3	Adapter Retainer Assembly (retainer seat down and the retainer clip in the unlocked position)		

16. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

17. On a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

18. Connect the adapter cables.

19. On a Model 6C3, route the cables through the cable-management arm.

20. On a Model 6C3, close the rack doors.

    On a Model 6E3, close the bezel door.

21. Select **Install/Configure Devices Added After IPL** and press Enter. Follow the instructions on the screen. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.

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

Hot-Swap System Fans

This system supports hot plug and redundant cooling. The DASD and system electronics is cooled with three system cooling fans. Before performing the following procedures, read "Safety Notices" on page vii.

Note: If you system has a failure for this device, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that this device is the source of the problem, return to these procedures.

Hot-Swap System Fans Removal

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

1. Place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.

2. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59, or "Service Access Cover Removal (Model 6E3)" on page 60

3. Locate the cooling fans, as shown in the following illustration.

4. Pull on the locking knob of the failing fan until you feel it unlock.

5. Pull on the locking knob of the failing fan again until you feel the fan pull loose from its connector.

6. Grasp the sheet metal lip of the fan and pull the fan towards the side that contains the locking knob.

7. Lift out the failing fan unit.

Model 6C3
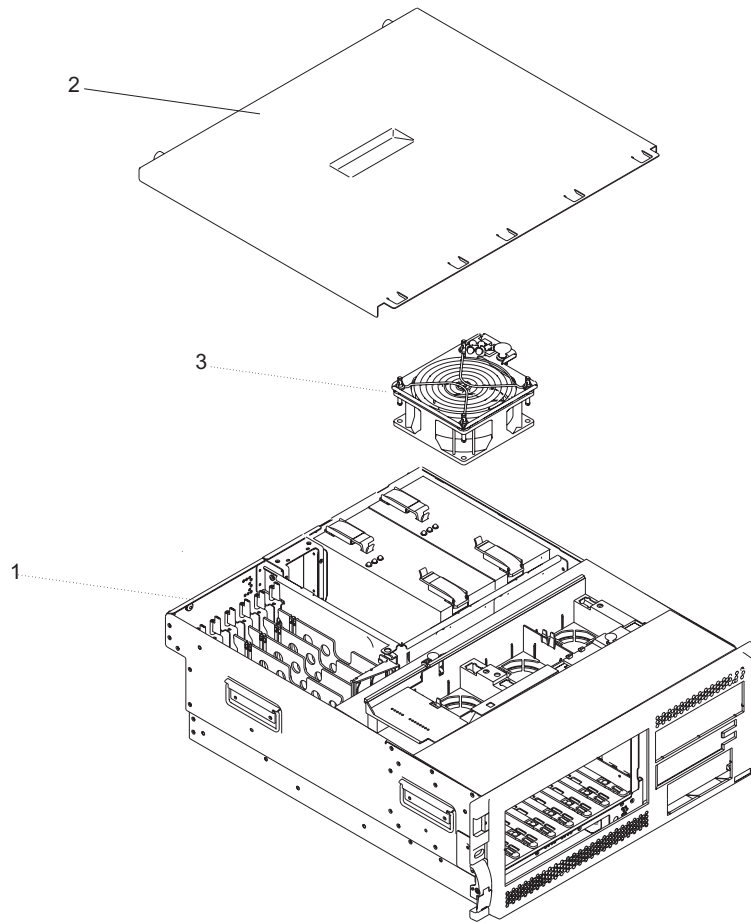
1 Model 6C3

2 Service Access Cover

3 Cooling Fan (Fan #1)

4 Cooling Fan (Fan #2)

5 Cooling Fan (Fan #3)

Model 6E3

1	Model 6C3	**4**	Cooling Fan (Fan #2)
2	Service Access Cover	**5**	Cooling Fan (Fan #3)
3	Cooling Fan (Fan #1)		

Hot-Swap System Fan Replacement

Notes:

1. On systems with LINUX installed you may be required to shutdown and run AIX diagnostics to verify the hot-swap repair.

2. This note applies only to systems running the AIX operating system. 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. Use the **crontab -l** command to read the **crontab** file to determine if an entry exists. Use the **crontab -e** command to edit the file.

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

To replace the hot-swap cooling fans, do the following:

1. Pull our on the locking knob on the replacement fan to ensure that it is unlocked.

2. Align the fan with the slot in the fan tray assembly with the power plug over the connector.

3. Place the fan into the fan tray.

4. Press down on the fan to ensure that the power plug is connected.

   Note: The fan starts to run when the power plug connects.

5. Press the locking knob down until you feel it lock.

6.

7. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

8. Return the system to the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.

Fan Tray Assembly

The three system cooling fans rest in a fan tray. The fans can remain in the tray as it is removed or replaced.

Note: If you system has a failure for this device, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that this device is the source of the problem, return to these procedures.

Removing the Fan Tray Assembly

To remove the fan tray assembly, do the following:

1. Place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.

2. Shut down the system as described in "Stopping the System" on page 51 or"Stopping the System with an HMC Attached and AIX Installed" on page 51.

3. Disconnect the power source from the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system is completely disconnected.

4. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59.

5. Remove the front bezel as described in "Front Bezel Removal (Model 6C3)" on page 57 or "Front Bezel Removal (Model 6E3)" on page 58

6. Remove the media drives as described in "Media Removal" on page 92.

7. Press the media mounting latches and pull the mounting forward in, but not out of the chassis.

8. Locate the fan tray, as shown in the following illustration.

9. Pull up on the two latch buttons located at either end of the fan tray until you feel them unlock.

10. Release the LED light pipe plate by pressing the latches and rotating the plate up off the LED light pipes.

11. Lift the fan assembly plate straight up and out from the system unit.

Model 6C3
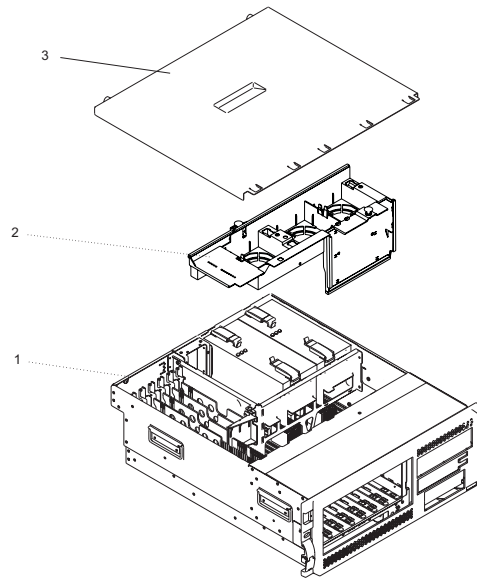
1 Model 6C3	**3** Service Access Cover
2 Fan Tray Assembly	
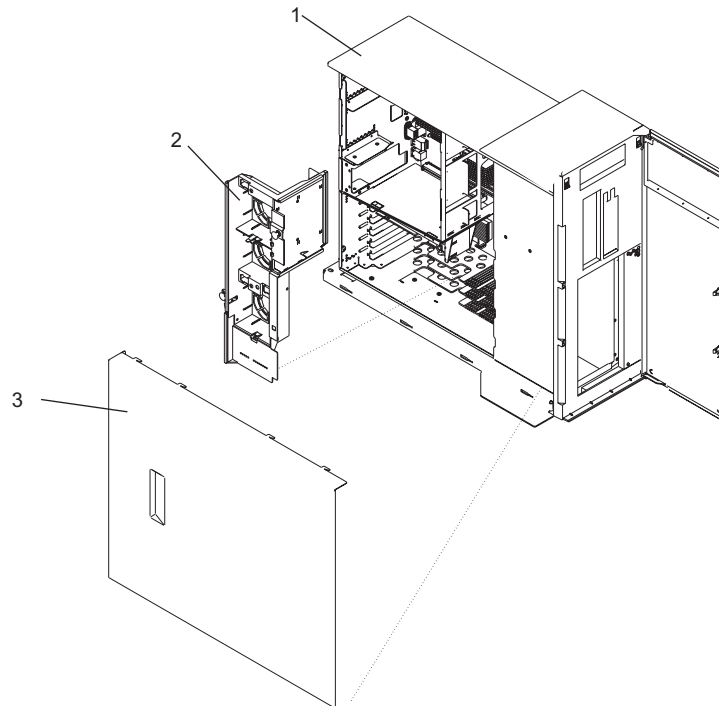
Model 6E3

1 Model 6E3	**3** Service Access Cover
2 Fan Tray Assembly	

Replacing the Fan Tray Assembly

To replace the fan tray, do the following:

1. Confirm that the latch buttons are in the unlocked position

2. Place the fan tray in the system with the LED light pipe plate toward the LED light pipes.

3. Press the latch buttons down until you feel them lock.

4. Latch the LED light pipe plate over the LED light pipes. Be sure to line up the LED light pipes with the appropriate holes in the LED light pipe plate.

5. Press the media mounting back into place until you feel the latches lock.

6. Replace the media drives as described in "Media Drive Replacement" on page 95.

7. Replace the front bezel as described in "Front Bezel Removal (Model 6E3)" on page 58 or "Front Bezel Replacement (Model 6E3)" on page 58

8. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59.

9. Return the system to the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.

Power Supply

This system unit can have up to two power supplies. If you are installing an option that requires removal of the power supplies, perform the procedures below. If you are replacing a power supply, go to "Power Supply Replacement" on page 89. If you are installing a second power supply as an optional feature, go to "Installing a Power Supply" on page 90

Note: If you system has a failure for this device, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that this device is the source of the problem, return to these procedures.

Power Supply Removal

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

To install options on the system backplane, you must first remove the power supplies. Do the following:

1. On a Model 6C3, open the front and rear rack doors and place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, open the bezel door.
2. Shut down the system as described in "Stopping the System" on page 51.
3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.
4. Remove the power cable from the rear of the power supply.
5. Wait at least 10 seconds before performing the next step.
6. 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.
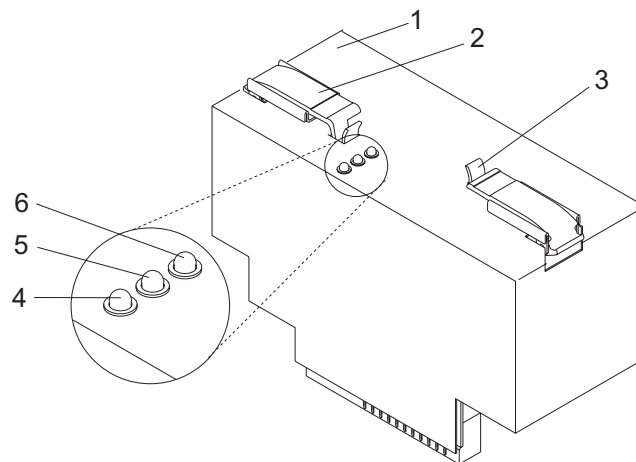
1 Power supply
2 Power supply handle latch
3 Retractable spring-activated portion of the handle

7. 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 helps pry the power supply from its connector located on the system backplane.
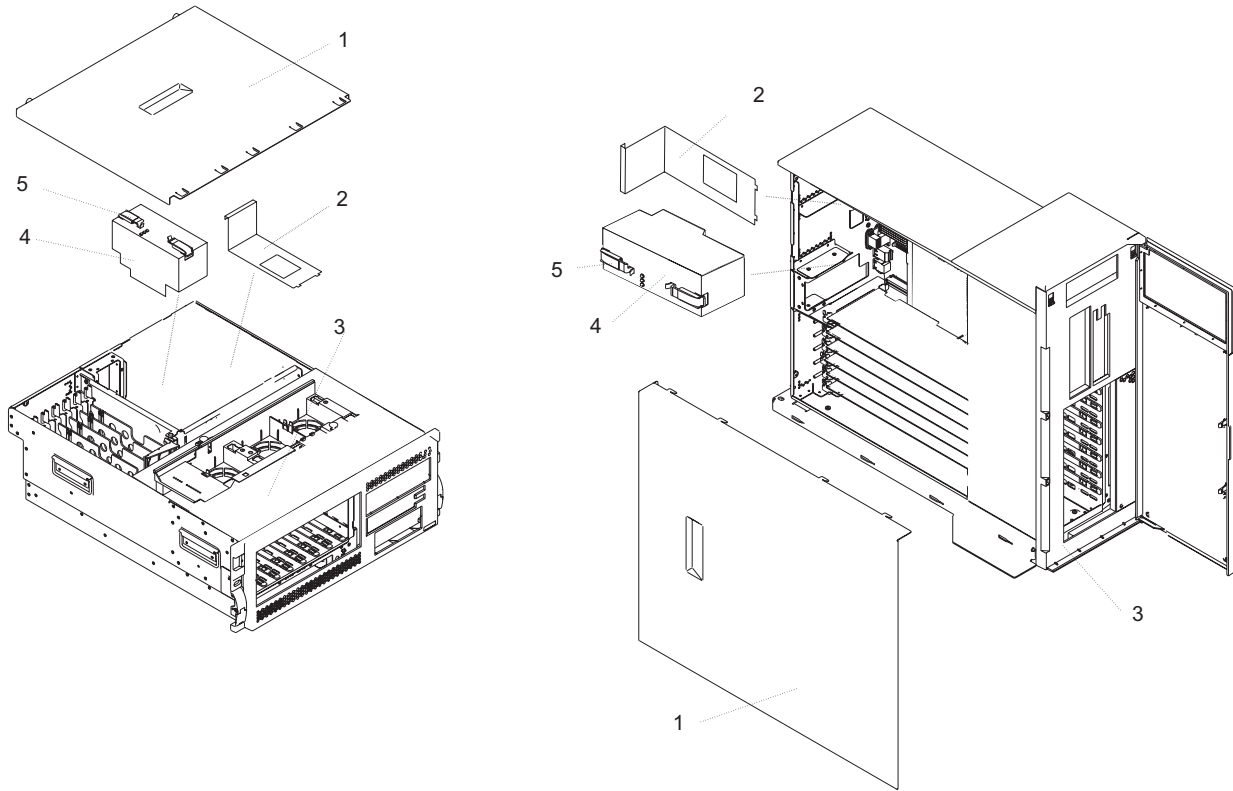
1	Service Access Cover	**4**	Power Supply #1 (Primary)
2	Power Supply Filler Panel	**5**	Power Supply Release Handle
3	System Unit		

8. After the power supply is released from its connector, pull the power supply straight out from the system unit. Repeat this procedure for the secondary power supply, if it is installed.

Power Supply Replacement

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

To replace a 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 power supply bay.

3. Lower the power supply release 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.
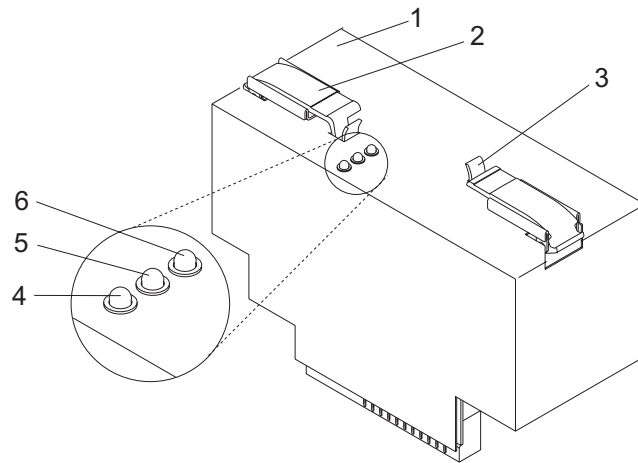
1	Power supply	**4**	Fault LED (Amber)
2	Power supply handle latch	**5**	DC Good LED (Green)
3	Retractable spring-activated portion of the handle	**6**	AC Good LED (Green)

4. Plug the power cables into the back of the power supplies.

   Note: Do not connect the power cables to the power source until you are instructed to do so.

5. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60. If you are working on a Model 6E3, go to step 8.

   If you are working on a Model 6C3, continue with the next step.

6. Route the cables through the cable-management arm.

7. Place the system unit back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

8. Reconnect the system unit to the power source.

9. Power on the system unit as described in "Starting the System" on page 51.

Installing a Power Supply

The second power supply can be installed with the power turned on. To install a power supply, do the following:

1. Put the system in the service position.

2. Remove the service access cover.

3. If you are installing the redundant power supply, remove the power supply filler by grasping the handle and pulling the filler inward and then up and out of the system unit.

4. 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.

5. Carefully insert the new power supply into the optional power supply bay.

6. Lower the power supply release 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.
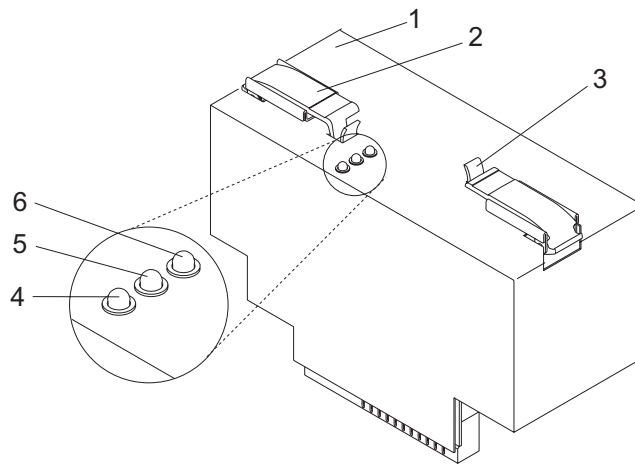
1	Power supply	**4**	Fault LED (Amber)
2	Power supply handle latch	**5**	DC Good LED (Green)
3	Retractable spring-activated portion of the handle	**6**	AC Good LED (Green)

7. Plug the second power cable into the back of the new power supply.

    Note: Do not connect the power cable to the power source until your are instructed to do so.

8. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60. If you are servicing a Model 6E3, go to step 11.

    If you are servicing a Model 6C3, continue with the next step.

9. Route the cables through the cable-management arm.

10. Return the system to the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

11. Connect the power source to the system unit.

12. Power on the system unit as described in "Starting the System" on page 51.

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

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before installing any PCI adapter. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

Notes:

1. The two media bays can be used to house a CD-ROM, DVD-ROM, or diskette drive. For the location of the two media bays, see the illustration on "Model 6C3" on page 93 and "Model 6E3" on page 94. However, if your system has a CD-ROM, it should be placed in media bay 1.

2. Hot swap devices are not supported in the optional media device bay, labeled 4 in the illustration "Model 6C3" on page 93 and "Model 6E3" on page 94.

3. If you system has a failure on one of these parts, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that one of these parts is the source of the problem, return to these procedures.

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

Media 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 6C3, open the front rack door.

   On a Model 6E3, open the bezel door.

2. Using the hot plug manager, ensure that the media drive you are removing is stopped and the drive is available to be removed.

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

4. Put the media drive in a safe place.

Model 6C3
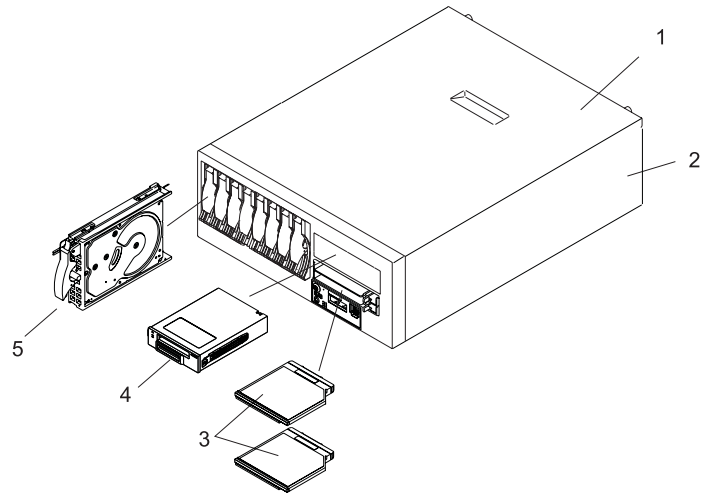
1	Service Access Cover	**4**	Optional Media Device (for example: Tape Drive, DVD, CD-ROM, Diskette Drive)
2	Model 6C3	**5**	Disk Drive
3	CD-ROM or Diskette Drive		
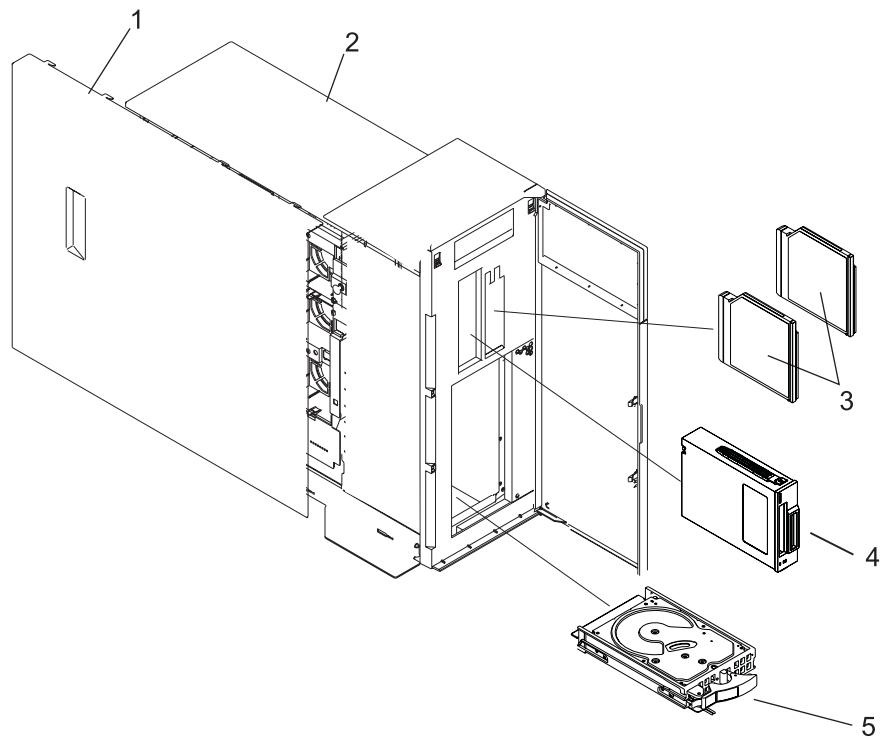
Model 6E3

1	Service Access Cover	**4**	Optional Media Device (for example: Tape Drive, DVD, CD-ROM, Diskette Drive)
2	Model 6C3	**5**	Disk Drive
3	CD-ROM or Diskette Drive		

Media Drive Replacement

To replace a media drive, do the following:

1. Before handling any card, board, or memory DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

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

3. Replace the bezel as described in "Front Bezel Replacement (Model 6C3)" on page 57 or "Front Bezel Replacement (Model 6E3)" on page 58.

Disk Drive Bezels and Fillers

Each disk drive slot in the model Model 6C3 and 6E3 must contain either a disk drive or the appropriate filler panel.

Installing a Disk Drive Bezel to a Disk Drive

1. Remove the disk drive filler panel from the slot you wish to use.
2. Remove the disk drive bezel plug from the front of the filler panel.
3. Remove the disk drive bezel from the front edge of the filler panel.
4. Attach the disk drive bezel to the front of the disk drive.
5. Follow the procedures for adding a disk drive as described in "Hot-Plug Disk Drives" on page 98.

| **1** Filler Panel with Bezel Attached | **3** Disk Drive Bezel |
| **2** Disk Drive Bezel Plug | |

| **1** Disk Drive Bezel | **2** Disk Drive |
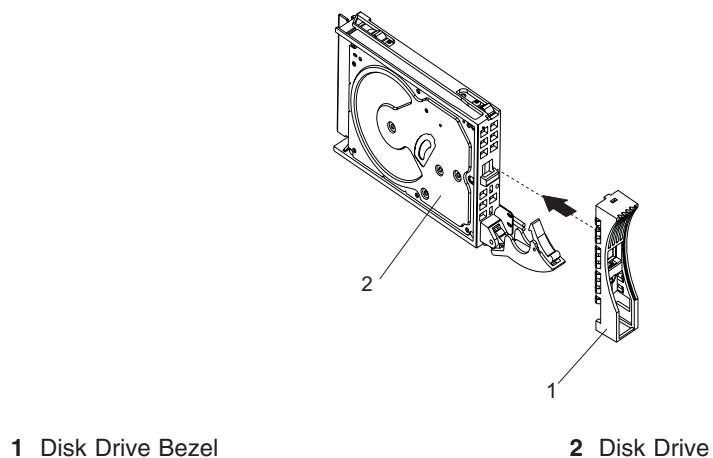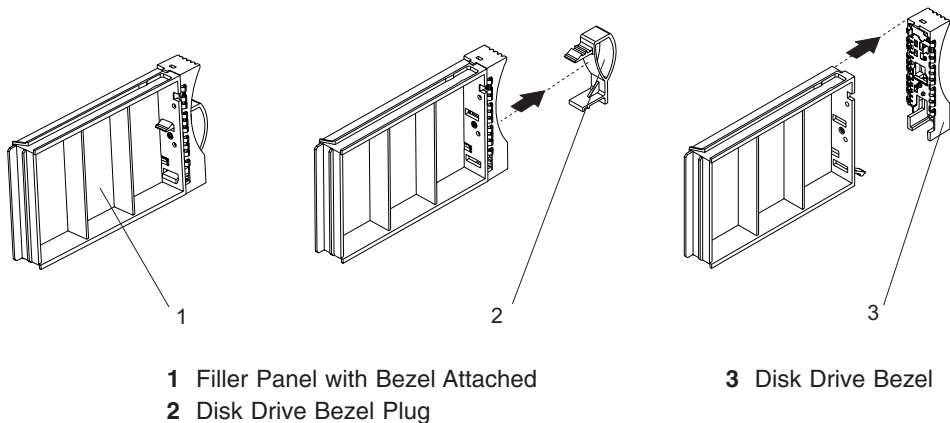
Removing a Disk Drive Bezel from a Disk Drive or Filler

1. Remove the filler panel from the disk drive slot or follow the procedures for removing a disk drive described in "Hot-Plug Disk Drives" on page 98.
2. Remove the disk drive bezel from the front of the filler or disk drive.
3. Attach the disk drive bezel to the front edge of the filler panel or replacement disk drive.
4. Place the filler panel in the empty disk drive slot or follow the procedures for adding a disk drive as described in "Hot-Plug Disk Drives" on page 98.

Hot-Plug Disk Drives

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

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before installing any PCI adapter. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

Notes:

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

2. If you system has a failure for this part, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that this part is the source of the problem, return to these procedures.

Deconfiguring (Removing) or Configuring a Disk Drive

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

Deconfiguring (Removing)

Before removing a disk drive from a volume group, do the following:

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. Use AIX Logical Volume Manager to perform this task.

   Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

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. Press the F3 key enough times to return to first smitty menu. Then select **System Storage Management (Physical and Logical Storage)**.

12. Select **Removable Disk Management**.

13. Select **Remove a Disk**.

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

15. Follow the instructions on the screen to remove the drive.

16. When you are asked ″Are you sure?,″ press Enter. The power LED on the drive that you selected will remain on.

17. Remove the disk drive by pulling the disk drive lever toward you until it is completely open. Then remove the disk drive from the slot. The LED on the top of the slot will turn off when the disk drive is removed.

18. Press F10 to exit smitty.

Configuring (Replacing)

1. Remove the disk drive from its protective packaging, and open the drive latch handle.

2. Install the disk drive in the drive slot. Align the disk drive with the drive slot rails, and slide the disk drive into the slot until it contacts the backplane at the rear of the drive bay. The drive should be in far enough for the latch handle to engage the latch. Push the disk drive lever up and to the rear to lock the disk drive. The LED above the slot will turn on.

3. Log in as root user.

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

5. Select **Devices**.

6. 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

7. Press F3s, Cancel, to go back to the first menu and select **System Storage Management (Physical and Logical Storage)** and press Enter.

8. Select **Logical Volume Manager** and press Enter.

9. Select **Volume Groups** and press Enter.

10. Select **Set Characteristics of a Volume Group** and press Enter.

11. Select **Add a Physical Volume to a Volume Group**.

12. Fill in the fields for the drive you are adding to the system. Press F4 for a list of selections.

13. See the *AIX System Management Guide: Operating System and Devices* to finish the drive configuration.

    Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.
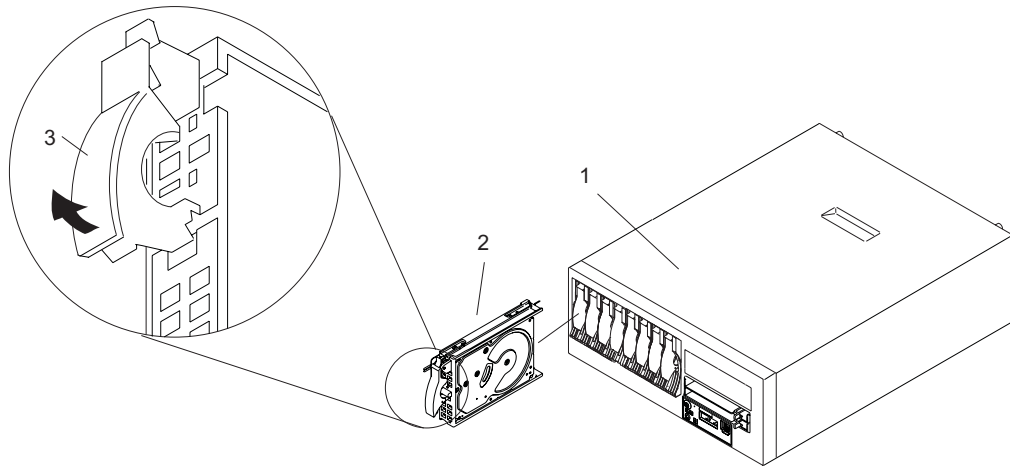
14. Press F10 to exit smitty.

Hot-Plug Disk Drive Removal

Attention: Before you perform the following procedure, 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)" on page 98.

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before replacing any PCI adapter assigned to a Linux partition. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

To remove a hot-plug disk drive, do the following:
 1. Before removing the disk, ensure all data has been saved.
 2. Deconfigure the drive you are removing from the system. See "Deconfiguring (Removing)" on page 98.
 3. On a Model 6C3, open the rack front door.

    On a Model 6E3, open the front bezel door.
 4. Locate the hot-plug disk drive you plan to remove. If you are removing a faulty disk drive, a lit amber LED located at the front of each disk drive will help you isolate the faulty drive.
 5. Log in as root user.
 6. At the command line, type `smitty`.
 7. Select **System Storage Management (Physical and Logical Storage)**.
 8. Select **Removable Disk Management**.
 9. Select **Remove a Disk**.
10. Select the desired disk from the list on the screen and press Enter.
11. Remove the disk drive by placing the handle on the disk drive into the open position (perpendicular to the drive) and pulling the hot-plug disk drive away from the bay. The lit LED on the disk drive will turn off when the disk drive is removed.
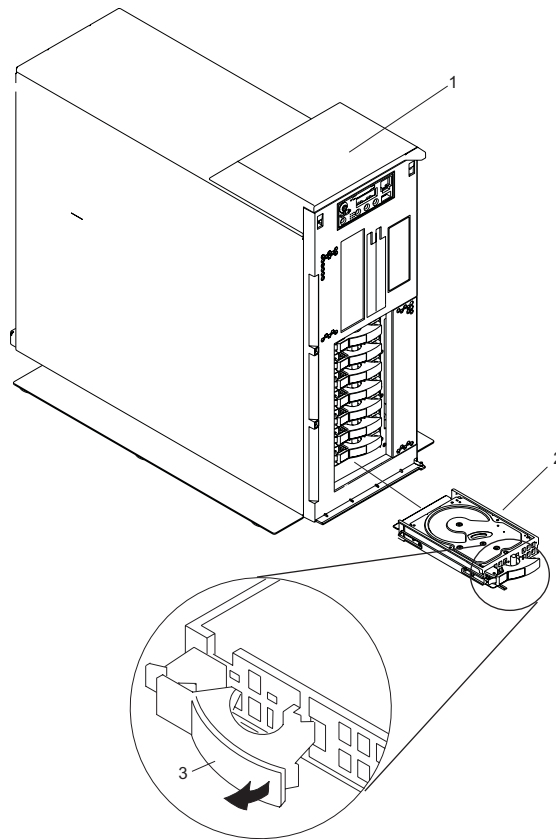
| **1** | Model 6C3 | **3** | Disk Drive Release Handle |
| **2** | Disk Drive | **4** | Front Bezel |

| **1** | Model 6E3 | **3** | Disk Drive Release Handle |
| **2** | Disk Drive | **4** | Disk Drive Access Cover |

12. Press F10 to exit smitty.

Installing Hot-Plug Disk Drive

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)" on page 98.

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

Attention: The Linux operating system does not support these hot-pluggable procedures. Also, Linux does not support hot-plugging any hot-pluggable PCI adapters. A system with Linux installed must be shut down and powered off before replacing any PCI adapter assigned to a Linux partition. Use the non-hot-pluggable adapter procedures when replacing a PCI adapter with the Linux operating system installed.

To install a hot-plug disk drive, do the following:
1. Ensure the handle on the front of the disk drive is open (perpendicular to the drive).
2. Align the drive assembly so that it engages the guide rails in the bay.
3. Push the drive assembly into the bay until the drive handle engages the lock mechanism.
4. Push the disk drive handle in until it locks. The lit LED on the disk drive will turn on.
5. Log in as root user.
6. At the command line, type smitty.
7. Select **Devices**.
8. 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.
9. Press F10 to exit **smitty**.
10. On a Model 6C3, close the rack doors.

    On a Model 6E3, close the bezel door.

Disk Drive Backplane

If your system is a Model 6C3, it is strongly recommended that the system drawer be removed from the rack. If your system is a Model 6E3, it is strongly recommended that the system be placed on its side, on a flat and stable surface. To avoid potential breakage, the system front foot must not be resting on the surface.

If your system came from the factory with only one disk drive backplane, you must remove the disk-drive-backplane filler and then insert the the disk drive backplane in place of the filler.

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

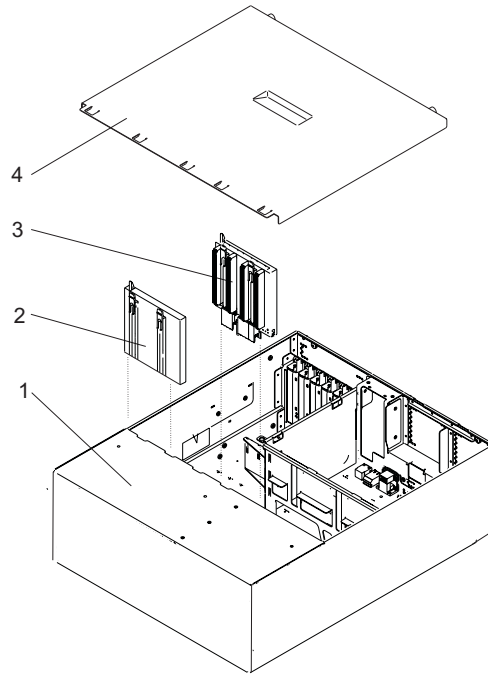# Removing the Disk Drive Backplane

To remove the disk drive backplane, do the following:

1. Place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.
2. Shut down the system as described in "Stopping the System" on page 51.
3. Disconnect the power source from the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
4. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59.
5. Remove the cooling fan assembly as described in "Removing the Fan Tray Assembly" on page 84.
6. Before handling any card, board, or DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.
7. Record the slot number and location of each adapter.
8. Remove and label the PCI adapter cables.
9. Remove the PCI adapters as described in "Non-Hot-Pluggable PCI Adapter Removal" on page 64.
10. Remove the PCI adapter dividers.
11. Remove all disk drives as described in "Hot-Plug Disk Drive Removal" on page 101.
12. Squeeze the latch tabs and pull the disk drive backplane or disk drive backplane filler up out of the system.

1 System Unit in Service Position   **3** Disk Drive Back Plane
2 Disk Drive Filler Panel   **4** Service Access Cover

Installing or Replacing the Disk Drive Backplane

To replace the disk drive backplane, do the following:

1. Before handling any card, board, or memory DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

2. If necessary, remove the disk drive backplane from the antistatic package.

3. If necessary, remove the disk drive backplane filler from the slot.

4. Carefully grasp the disk drive backplane by the latch tabs and insert it into the system chassis.

5. Firmly press the disk drive backplane into the connector until you feel the latch tabs lock into place.

6. Replace all hot-plug disk drives as described in "Installing Hot-Plug Disk Drive" on page 103.

7. Replace the PCI adapter dividers.

8. Replace the PCI adapters as described in "Adding or Replacing a Non-Hot-Pluggable PCI Adapter" on page 67.

9. Reconnect all adapter cables, located at the rear of the system unit.

10. Reconnect the power source to the system.

11. Replace the service access cover as described in "Covers" on page 59.

12. Return the system to the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.

13. Power on the system as described in "Starting the System" on page 51.

Memory DIMMs

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

Notes:

1. If you system has a failure for this device, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that this device is the source of the problem, return to these procedures.

2. Memory DIMMs must be installed in quads (groups of four) and in the correct slots. M2, M4, M5, and M7 are in one quad. M1, M3, M6, and M8 are in the other quad. Either quad can be populated first.

Installing a Memory DIMM

If a memory DIMM must be removed before you can install one, refer to "Removing a Memory DIMM" on page 108. To install a memory DIMM, do the following:

1. Shut down the system as described in "Stopping the System" on page 51.

2. On a Model 6C3, place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, lay the system on its right side for this procedure.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.

4. Remove the fan assembly as described in "Hot-Swap System Fans Removal" on page 81.

5. The following illustration shows the system backplane with the memory DIMM slots labelled. Determine which DIMM slots you need to access to install a memory DIMM.
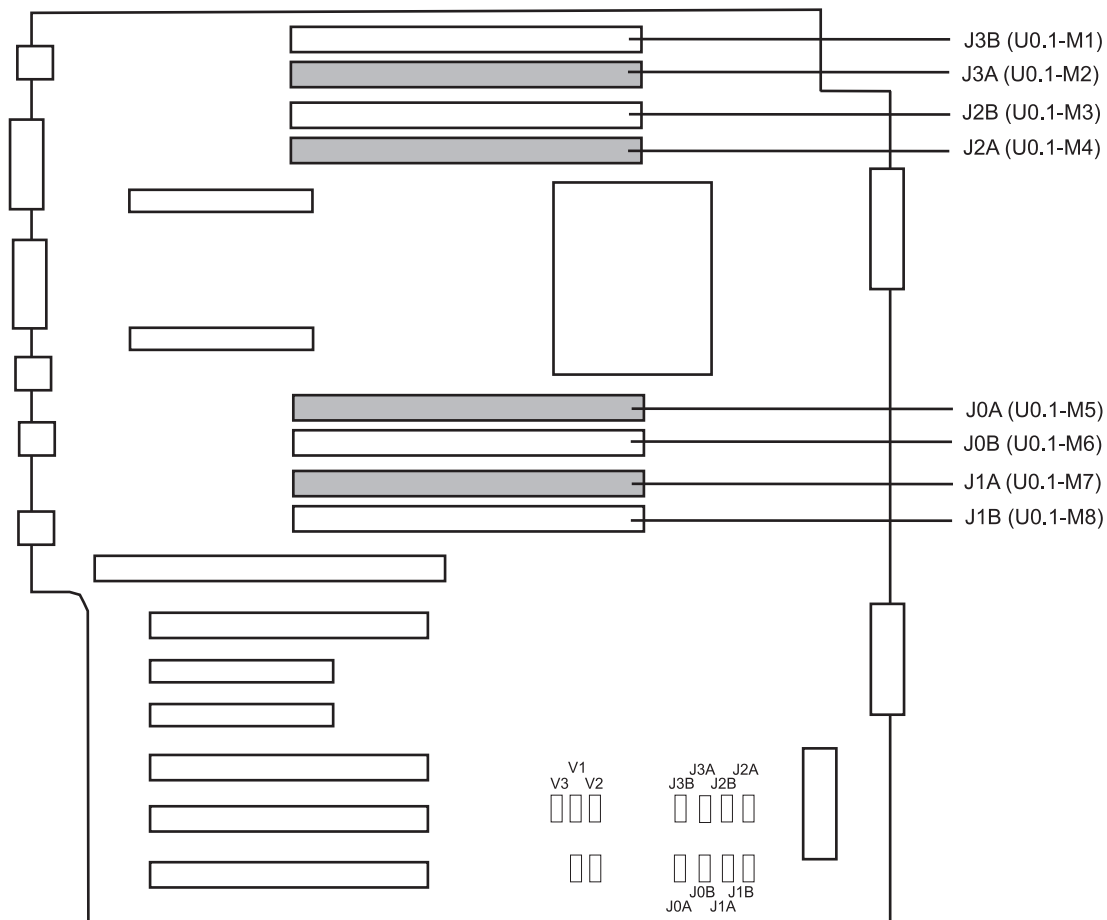
Number	Description	Location Code
M1	Memory slot 1 (J3B)	U0.1-P1-M1
M2	Memory slot 2 (J3A)	U0.1-P1-M2
M3	Memory slot 3 (J2B)	U0.1-P1-M3
M4	Memory slot 4 (J2A)	U0.1-P1-M4
M5	Memory slot 5 (J0A)	U0.1-P1-M5
M6	Memory slot 6 (J0B)	U0.1-P1-M6
M7	Memory slot 7 (J1A)	U0.1-P1-M7
M8	Memory slot 8 (J1B)	U0.1-P1-M8

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

6. Remove components such as a power supplies or the service processor if necessary to access the DIMM slots. Refer to "Power Supply Removal" on page 87 and "Removing the Service Processor Assembly" on page 110.

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

8. Remove the new memory DIMM from its antistatic package.

9. Before installing a new memory DIMM, as shown in the following illustration ensure that the connector locking tabs are pushed out in the unlocked position.

10. Carefully grasp the memory DIMM along two edges and align the connector.

11. Insert the memory card firmly into the connector.

12. 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 four (quads).
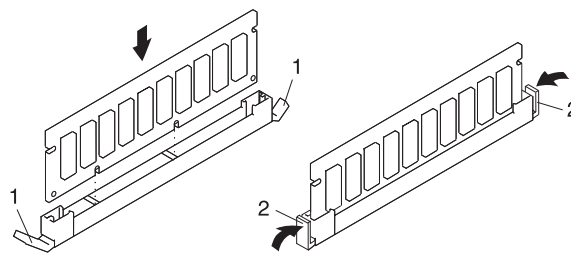
1 Locking Tabs (unlocked position)
2 Locking Tabs (locked position)

13. Replace components such as a power supplies or the service processor if they were removed to gain access to the DIMM slots. Refer to "Power Supply Replacement" on page 89 and "Reinstalling the Service Processor Assembly" on page 112.

14. Replace the service access cover as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

15. Reconnect all power and signal cables.

16. On a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

17. Power on the system as described in "Starting the System" on page 51.

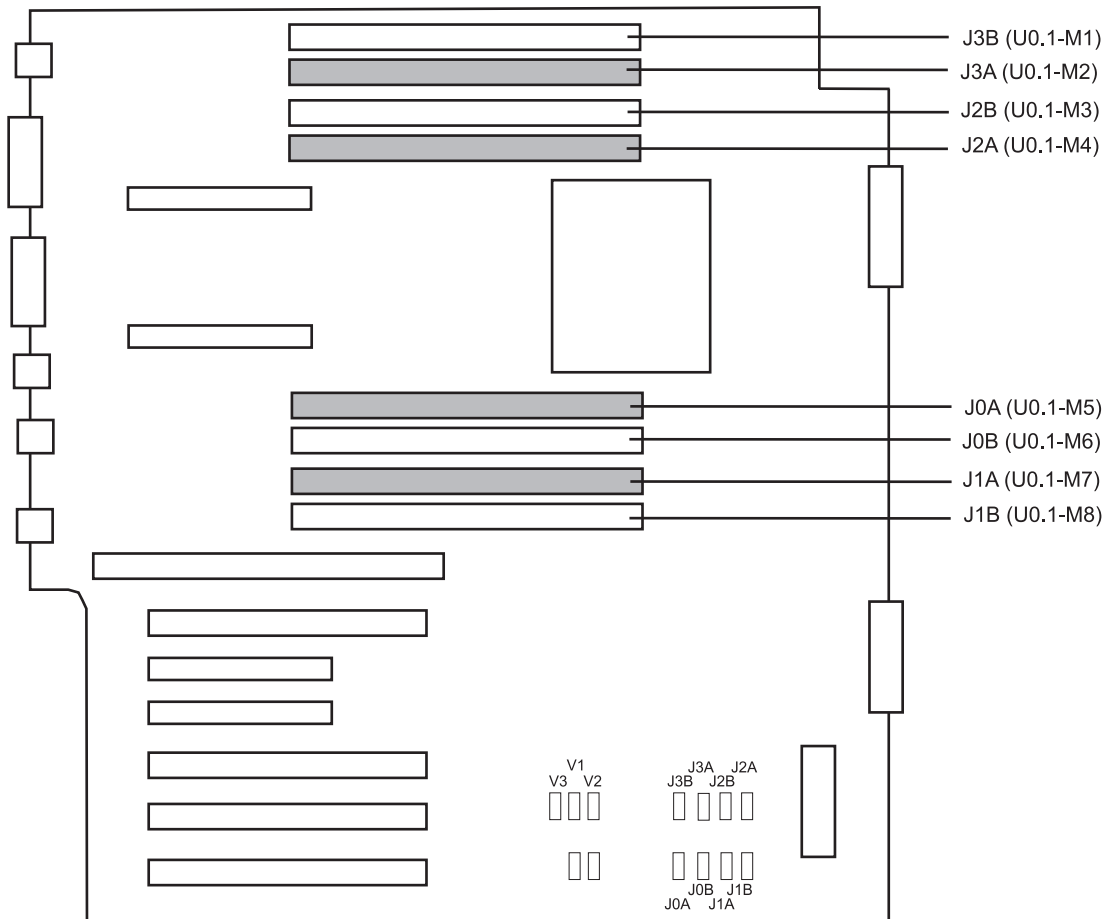18. If the Model 6C3 has successfully powered on, close the rack doors.

If the Model 6E3 has successfully powered on, close the bezel door.

Removing a Memory DIMM

To remove the memory DIMMs, do the following:

1. Shut down the system as described in "Stopping the System" on page 51.

2. On a Model 6C3, place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

   On a Model 6E3, lay the system on its right side for this procedure.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.

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

5. The following illustration shows the system backplane with the memory DIMM locations. Determine which DIMM you want to remove.

   Note: Memory DIMMs must be installed in quads (groups of four) and in the correct slots. M2, M4, M5, and M7 are in one quad. M1, M3, M6, and M8 are in the other quad. Either quad can be populated first.

J3B (U0.1-M1)
J3A (U0.1-M2)
J2B (U0.1-M3)
J2A (U0.1-M4)
J0A (U0.1-M5)
J0B (U0.1-M6)
J1A (U0.1-M7)
J1B (U0.1-M8)

Number	Description	Location Code
M1	Memory slot 1 (J3B)	U0.1-P1-M1
M2	Memory slot 2 (J3A)	U0.1-P1-M2
M3	Memory slot 3 (J2B)	U0.1-P1-M3

Number	Description	Location Code
M4	Memory slot 4 (J2A)	U0.1-P1-M4
M5	Memory slot 5 (J0A)	U0.1-P1-M5
M6	Memory slot 6 (J0B)	U0.1-P1-M6
M7	Memory slot 7 (J1A)	U0.1-P1-M7
M8	Memory slot 8 (J1B)	U0.1-P1-M8

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

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

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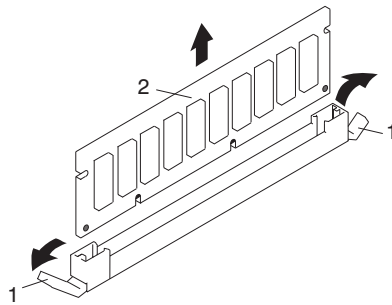
1 Connector Tabs (unlocked position)
**2** Memory DIMM

Service Processor Assembly

Removing the Service Processor Assembly

Note: If you system has a failure for this device, refer to Appendix D, "Identifying a Problem Device", on page 133. When you have determined that this device is the source of the problem, return to these procedures.

1. Shut down the system as described in "Stopping the System" on page 51.
2. Place the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53. If you are work on a desk side model, place the desk side on its right side.
3. Disconnect the power source from the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
4. Label and disconnect all cables connected to the service processor assembly.
5. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59.
6. Before handling any card, board, or memory DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.
7. Locate the service processor assembly as shown in the following figure.
8. Unlock the two caming latches on top of the service processor assembly.
9. Using the caming latches, cam the service processor assembly up an lift the assembly out of the chassis.
10. Place the service processor assembly in a safe place.
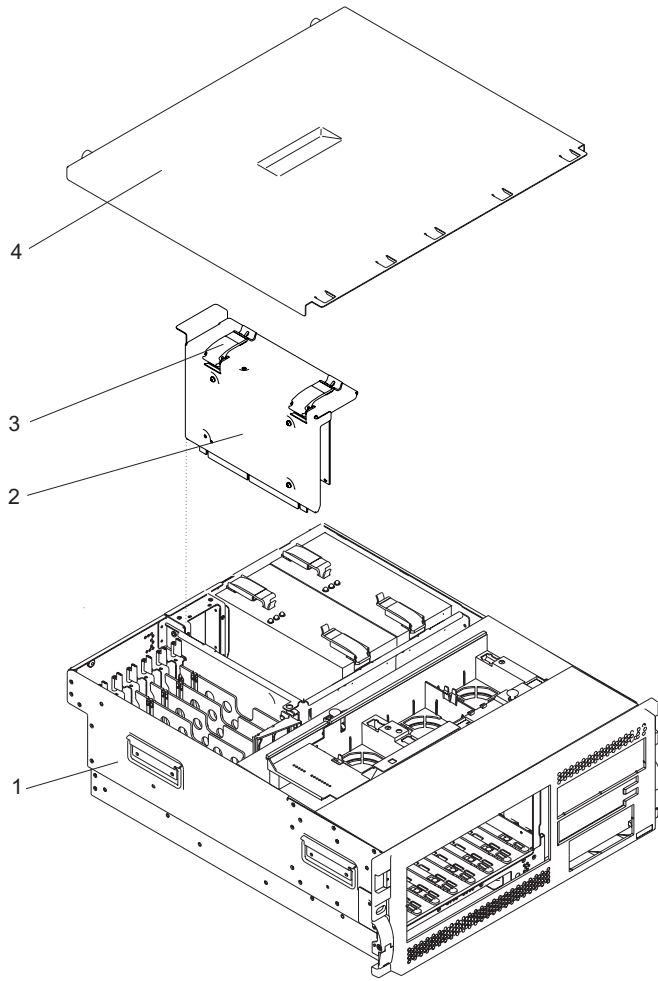
1 Model 6C3
2 Service Processor Assembly
3 Caming Latch
4 Service Access Cover
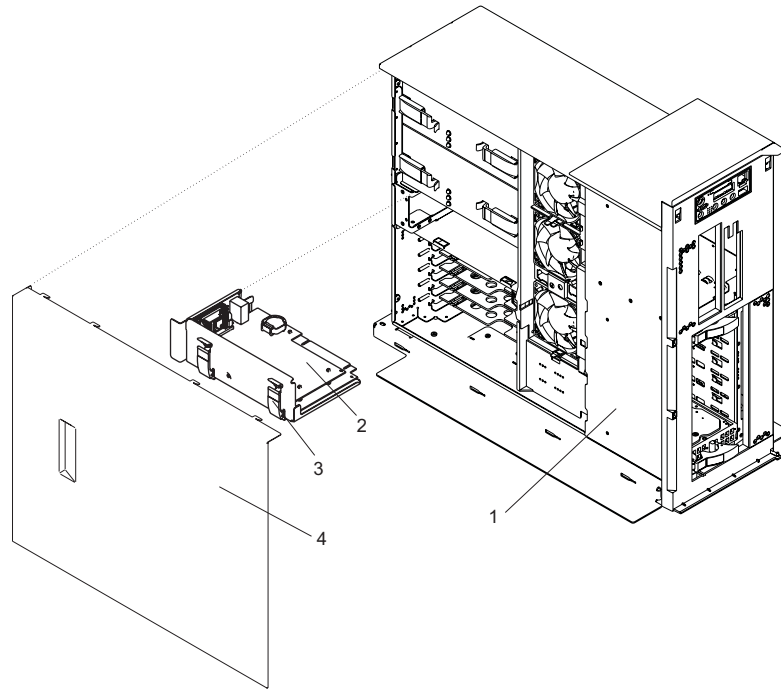
1 Model 6E3
2 Service Processor Assembly

3 Caming Latch
4 Service Access Cover

Reinstalling the Service Processor Assembly

1. Before handling any card, board, or memory DIMM, be sure to use your electrostatic discharge strap to minimize static-electric discharge. Refer to "Handling Static-Sensitive Devices" on page 50.

2. Unlock the two caming latches on the top of the service processor assembly and rotate them into the open position.

3. Align the service processor assembly with the slot in the system chassis.

4. While holding the service processor assembly by the caming latches, lower it into place.

   Note: Ensure that the two alignment pins on the top flange of the service processor align with the corresponding holes in the rear bulkhead as the service processor is pressed into place.

5. Press firmly on the top of the service processor assembly until you feel it lock into place.

6. Rotate the caming latches downward until they lock into place.

7. Replace the service access cover, as described in "Service Access Cover Replacement (Model 6C3)" on page 59.

8. Reconnect cables to the service processor assembly.

9. Reconnect all system power cables.

10. Power on the system as described in "Starting the System" on page 51.

11. Return the system to the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55 or "Placing the Model 6E3 into the Service and Operating Position" on page 55.

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 6C3, open the front and rear rack doors and put the system into the service position as described in "Placing the Model 6C3 into the Service Position" on page 53.

    On a Model 6E3, open the bezel door.

2. Shut down the system as described in "Stopping the System" on page 51.

3. Remove the service access cover as described in "Service Access Cover Removal (Model 6C3)" on page 59 or "Service Access Cover Removal (Model 6E3)" on page 60.

4. Remove the service processor card assembly as described in "Removing the Service Processor Assembly" on page 110.

5. Locate the battery on the service processor card assembly.

6. Use your fingernail to pry the battery out of its plastic mount. After the bottom of the battery has cleared the top edge of the plastic mount, pull it up and away from the system planar.
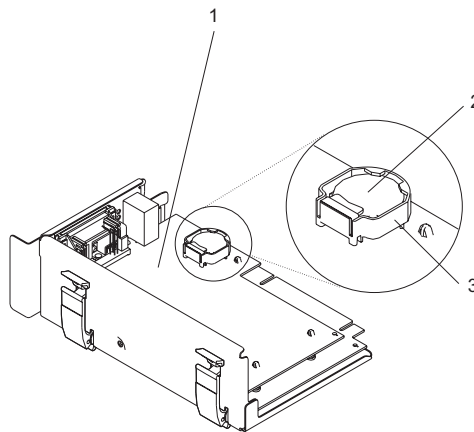
1 Service processor assembly
2 Battery
3 Battery plastic mount

7. Replace the battery with (FRU) part number 00P3903 or equivalent.

8. 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.

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

10. Replace the service processor assembly in the system unit as described in "Reinstalling the Service Processor Assembly" on page 112.

11. Replace the service access cover, as described in "Service Access Cover Replacement (Model 6C3)" on page 59 or "Service Access Cover Replacement (Model 6E3)" on page 60.

12. If you are servicing a Model 6C3, push the system drawer back into the operating position as described in "Returning the Model 6C3 to the Operating Position" on page 55.

13. Turn on the system power.

14. 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.

    Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

Install the Hardware Management Console (HMC)

The Hardware Management Console (HMC) user interface provides many functions. For more information about the HMC, see the *IBM Hardware Management Console for pSeries Installation and Operations Guide*.

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 rear 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.
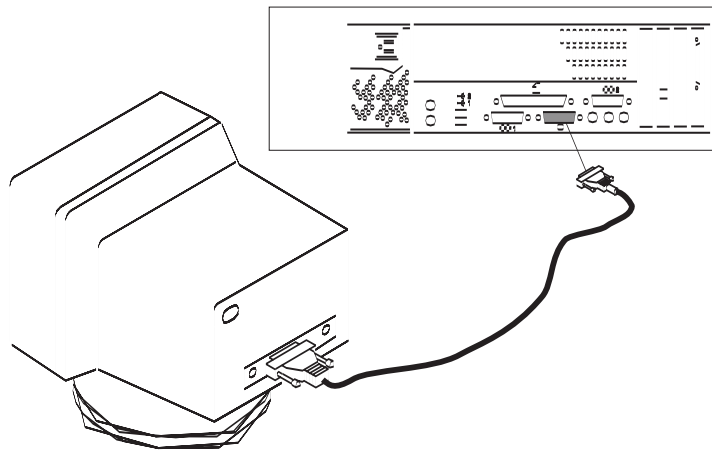
2. If a label for the monitor was provided with your system, attach the label to the lower-right corner of the monitor.
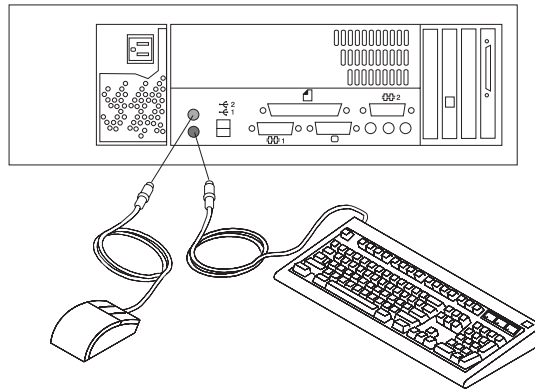
3. Attach the power cable to power cable receptacle on the monitor. If the HMC has a voltage switch, ensure that it is in the correct position for the supply voltage.

   **Attention:** *Do not* plug the power cables into an electrical outlet at this time.
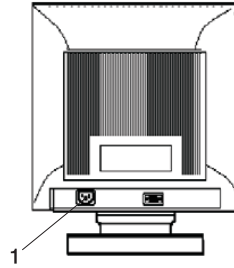
   1 Power Cable Receptacle

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 rear of your system unit. For two HMCs, connect the redundant HMC serial cable into the HMC2 connector, located on the rear 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.
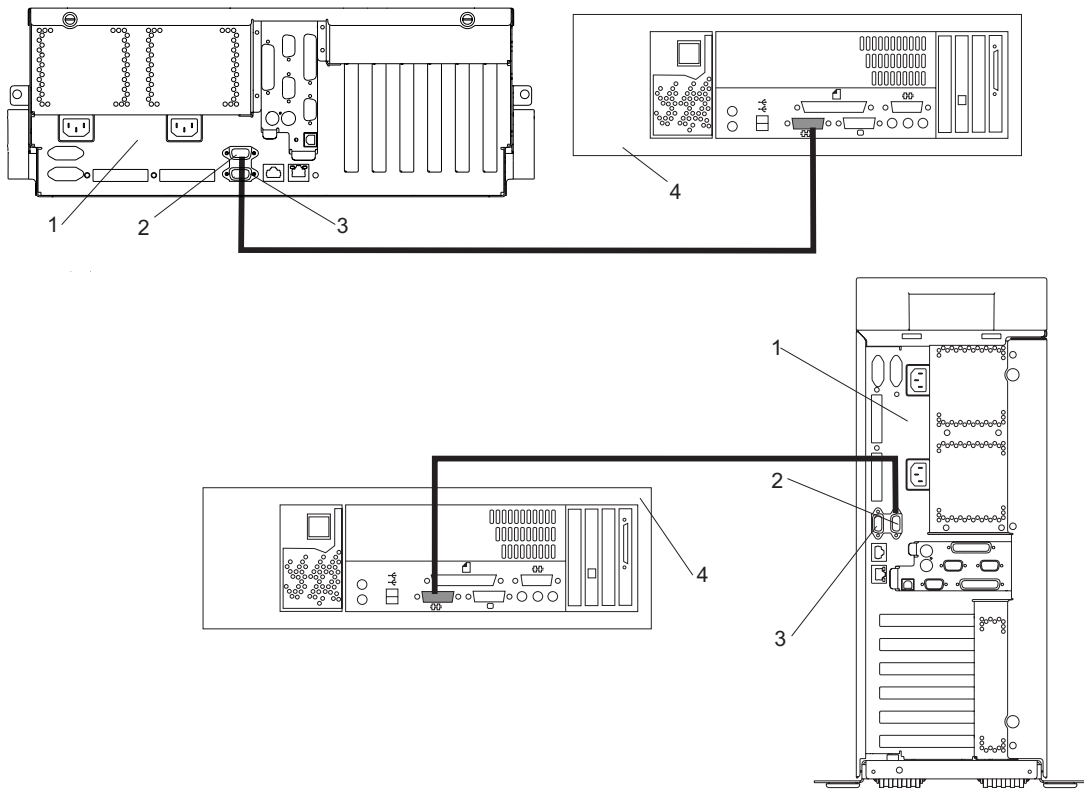

1 Model 6C3 or Model 6E3
2 HMC1 Connector
3 HMC2 Connector
4 Hardware Management Console (HMC)

To order the correct-length serial cables to connect the Model 6C3 or Model 6E3 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.
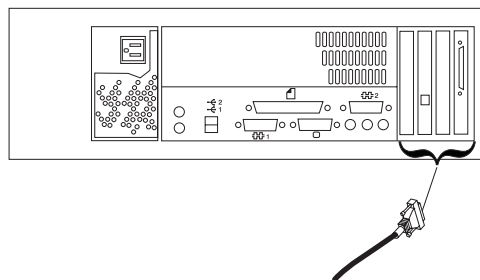
Connect the External Modem

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 Service Agent" on page 121.

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.
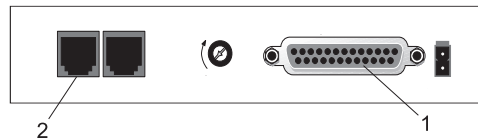
Check the Microswitch Setting on the Modem

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.		

Plug in the HMC Power Cable

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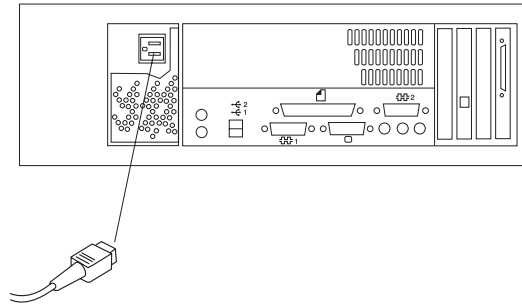
2. Plug the power cables for the monitor, HMC, and modem into electrical outlets.

Configure the Network

To configure the network, do the following:

1. 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.

2. Select the **System Configuration** Application in the Navigation area.

3. Select **Customize Network Settings** in the Contents area.

4. Type the appropriate network information in the **IP Address**, **Name Services**, and **Routing** tabs on the Network Configuration window.

5. Click **OK**.

For more information about configuring the network, refer to the *IBM Hardware Management Console for pSeries Installation and 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 managed system, you must be a member of one of the following roles:

*   System Administrator
*   Advanced Operator
*   Service Representative

For more information on the previous roles, refer to the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.

Documentation for the AIX operating system is available from the IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base. Select **AIX documentation**. The *AIX Documentation* CD contains the base set of publications for the operating system, including system-management and end-user documentation.

Notes:

1.

2. The partition password requested in the following procedure is the password for Inventory Scout (invscout) User ID on the AIX images.

3. The Inventory Scout listening port is set by starting the **invscout** daemon on the AIX images. This port will default to 808.

4. 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. Click **Next**.

5. From the list, select the partition you want to configure.

6. Click **Next**.

7. The next window identifies the selected partition. Type the following:
   - Partition password
   - Inventory Scout listening port
   - IP address of the AIX partition

If you have completed configuration of all partitions, click **Finish**.

OR

To continue to configure additional partitions until all are configured, click **Back**.

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. Click **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, see the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.

Configure Service Agent

Note: You must configure the network before you configure Service Agent.
To start 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. For the initial password prompt, type:

   ```
   password
   ```

   This 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. Click **Continue**. The Service Agent interface displays.
5. Click **Network**. Fill in the appropriate information.

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

6. Click **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. Click **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. Click **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 about Service Agent, see the *IBM Hardware Management Console for pSeries Installation and Operations Guide*, order number SA38-0590.

Appendix A. Communications Statements

Model 6C3 Communications Statements

The following statements apply to the Model 6C3. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

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

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

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

European Union (EU) Statement

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

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

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

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC 60950.

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

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interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

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

Canadian Department of Communications Compliance Statement

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

VCCI Statement

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

Model 6E3 Communications Statements

The following statements apply to the Model 6E3 . The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

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

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

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

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

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

FCC Tested to Comply
With FCC Standards

FOR HOME OR OFFICE USE

European Union (EU) Statement

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

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

International Electrotechnical Commission (IEC) Statement

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

United Kingdom Telecommunications Safety Requirements

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

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

Avis de conformité aux normes du ministère des Communications du Canada

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

Canadian Department of Communications Compliance Statement

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

VCCI Statement

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

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

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

Radio Protection for Germany

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

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

Appendix B. Environmental Notices

Product Recycling and Disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. For country specific instructions 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).

Declared Acoustical Noise Emissions

Product Configuration	Declared A-Weighted Sound Power Level, *LWAd* (B)	
	Operating	Idling
6E3 (Deskside)	6.0	5.9
6C3 (Rack Drawer)	6.1	6.0

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. 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.

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: THIS MANUAL IS PROVIDED ″AS IS″ WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

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. Identifying a Problem Device

The attention and FRU LEDs assist in identifying failing components in your server. The following section discusses the purpose of LEDs, how to use LEDs in identifying problem devices, reporting problems, and repair actions.

For more service information about the system, see the *pSeries 615 Model 6C3 and Model 6E3 Service Guide* (SA38-0630-00). This publications is available online. To access the online books, visit our IBM @server pSeries Information Center at http://publib16.boulder.ibm.com/pseries/en_US/infocenter/base.

Operator Panel Display

When a failing component is detected in your server, the amber colored attention LED is turned on solid (not blinking).
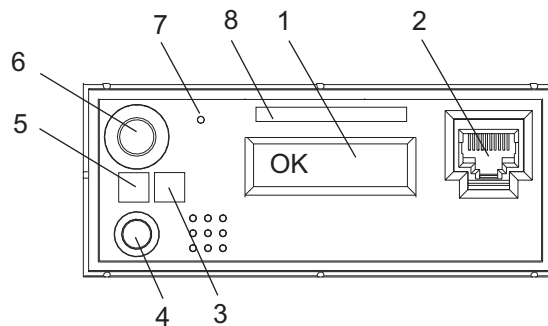
1	Operator Panel Display	**5**	Power LED
2	Front Serial Connector (FS1)	**6**	Power-On Button
3	Attention LED	**7**	Service Processor Reset Switch (Pinhole)
4	System Reset Button	**8**	Serial Number Label

Component LEDs

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

The LEDs are amber, except for the power LEDs which are green. For the power supplies, the two green LEDs (AC Power Good and DC Power good) along with the amber Identify/Fault LED indicate the power supply status. Normally both green LEDs will be on solid indicating Power Good. If the DC Power or Identify/Fault LED is blinking then it indicates a power supply problem.

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

Activating a Device LED

A problem device may generate an error code, however, an error does not automatically cause the component identify LED to light. To light the identify LED of a problem device, do the following:

1. Obtain the location code for the device. The location code will be shown as part of the error code. If AIX is your operating system, the location code will also be listed in the AIX error log.
2. Log into the system as the root user.

3. At the command prompt, enter:

   `/usr/lpp/diagnostics/bin/usysident [-s {normal | identify}] [-l ` *location code* `]`

4. The LED for the problem device will blink.

   Note: Device LEDs are located at various locations on the system. It may be necessary to remove the service access cover in order to see the LED.

Reporting the Problem

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

1. Record the following information before calling for service:
   - Machine type and model
   - Server serial number
   - Any error codes that appear in the operator panel display or console
   - Any LEDs lit on the operator panel
2. Call for service. If you are replacing the failing component, go to "Repair Action" for instructions.

Repair Action

1. Replace the failing component with the new component. Refer to Chapter 4, "Installing Options in the Model 6C3 and Model 6E3", on page 49 for instructions.
2. Log in as root user.
3. At the command line, type `diag`.
4. Select **Task Selection**.
5. Select **Log Repair Action**.
6. Select the device that was repaired. (If the device is not listed, select **sysplanar0**).
7. Press F10 to exit diagnostics.

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

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 615 Model 6C3 and Model 6E3

Serial Number

Key Serial Number

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

Serial Number
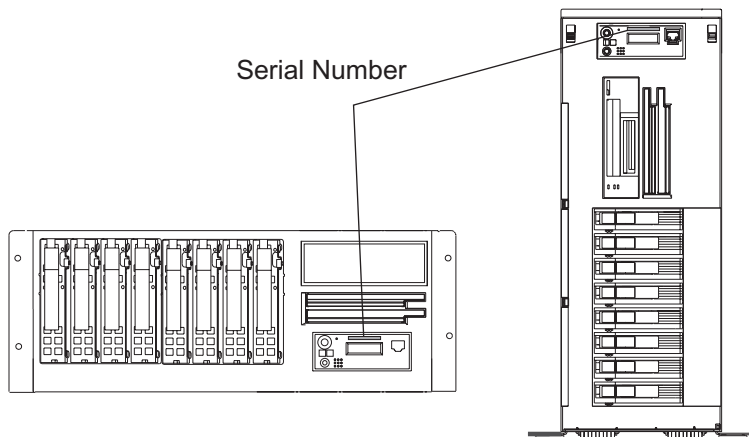
Device Records

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 Card

	1 2 3 4	
J3B	256MB()512MB()1024MB()2048MB()	
J3A	256MB()512MB()1024MB()2048MB()	
J2B	256MB()512MB()1024MB()2048MB()	
J2A	256MB()512MB()1024MB()2048MB()	
J0A	256MB()512MB()1024MB()2048MB()	5
J0B	256MB()512MB()1024MB()2048MB()	6
J1A	256MB()512MB()1024MB()2048MB()	7
J1B	256MB()512MB()1024MB()2048MB()	8
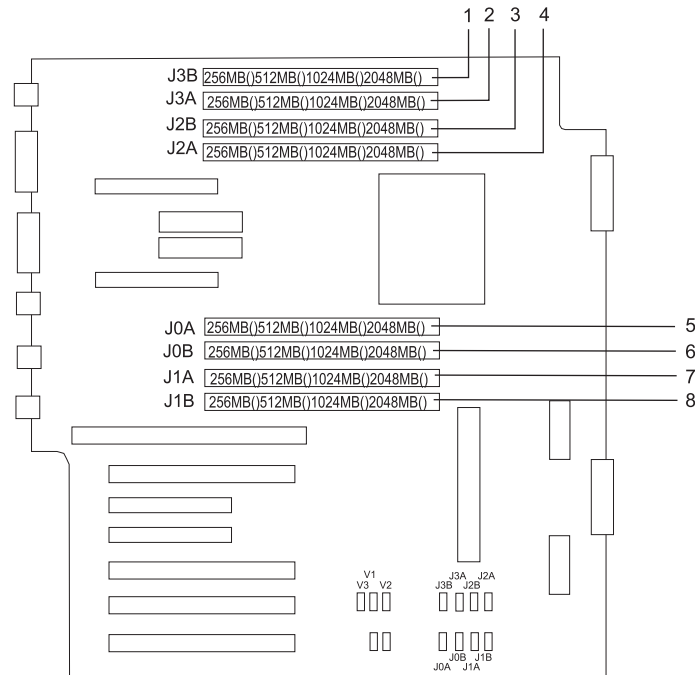
1 Memory DIMM 1 J3B
(U0.1-P1-M1)

2 Memory DIMM 2 J3A
(U0.1-P1-M2)

3 Memory DIMM 3 J2B
(U0.1-P1-M3)

4 Memory DIMM 4 J2A
(U0.1-P1-M4)

5 Memory DIMM 5 J0A
(U0.1-P1-M5)

6 Memory DIMM 6 J0B
(U0.1-P1-M6)

7 Memory DIMM 7 J1A
(U0.1-P1-M7)

8 Memory DIMM 8 J1B
(U0.1-P1-M8)

Options

Location	Option Description
Mouse Connector	IBM Mouse ☐ Other:_____
Keyboard Connector	Space Saving ☐ Enhanced ☐ Other:_____
Expansion Slot 6	_____
Expansion Slot 5	_____
Expansion Slot 4	_____
Expansion Slot 3	_____
Expansion Slot 2	_____
Expansion Slot 1	_____
Parallel Port	_____
Serial Port 1	_____
Serial Port 2	_____
Serial Port 3	_____
Ethernet 1	_____
Ethernet 2	_____
	_____

SCSI IDs and Bay Locations

The following figures show the SCSI bay locations for the pSeries 615 Model 6C3 and Model 6E3

Note: One disk drive backplane is standard in the pSeries 615 Model 6C3 and Model 6E3; a second backplane can be added. In the figure below, the systems are shown fully populated with two backplanes and eight disk drives.

Model 6C3

Index	Drive Name	SCSI ID	
1	Operator Panel		
2	Diskette Drive or IDE Optical Drive	(U0.1-P1-X1/Q6-A1, for optical drive)	
3	IDE CD-ROM (Default) or IDE DVD-ROM (Optional)	IDE (Non-SCSI) (U0.1-P1-X1/Q6-A0)	
4	Tape Drive (Optional)	SCSI ID 0	
4	SCSI DVD-RAM (Optional)	SCSI ID 1	
5	Disk Drive 1	SCSI Bus 0	SCSI ID 8
6	Disk Drive 2		SCSI ID 5
7	Disk Drive 3		SCSI ID 4
8	Disk Drive 4		SCSI ID 3
9	Disk Drive 5	SCSI Bus 1	SCSI ID 8
10	Disk Drive 6		SCSI ID 5
11	Disk Drive 7		SCSI ID 4
12	Disk Drive 8		SCSI ID 3

Model 6E3

Index	Drive Name	SCSI ID	
1	Operator Panel		
2	Diskette Drive or IDE Optical Drive	(U0.1-P1-X1/Q6-A1, for optical drive)	
3	IDE CD-ROM (Default) or IDE DVD-ROM (Optional)	IDE (Non-SCSI) (U0.1-P1-X1/Q6-A0)	
4	Tape Drive (Optional)	SCSI ID 0	
	SCSI DVD-RAM (Optional)	SCSI ID 1	
5	Disk Drive 1	SCSI Bus 0	SCSI ID 8
6	Disk Drive 2		SCSI ID 5
7	Disk Drive 3		SCSI ID 4
8	Disk Drive 4		SCSI ID 3
9	Disk Drive 5	SCSI Bus 1	SCSI ID 8
10	Disk Drive 6		SCSI ID 5
11	Disk Drive 7		SCSI ID 4
12	Disk Drive 8		SCSI ID 3

Notes:

1. The SCSI bus IDs are the recommended values and indicate how the IDs are set when the system is shipped from the factory. Field installations might not comply with these recommendations.

2. Media bay location D02 is designed to house one of the following optional devices:
   - IDE Optical Drive
   - Diskette Drive

   Any SCSI device used in media bay location D04 must be connected to a PCI SCSI adapter.

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.
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).
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.

Keyboard Setup Attributes	3151/11 /31/41 Settings	3151 /51/61 Settings	3161 /3164 Settings	Description
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 at
http://www.rs6000.ibm.com/support/micro. Always check the Web site for the latest images and
instructions for checking the firmware level.

The firmware level is denoted by vFyymmdd, where v = version number, F = the system's firmware
designation, yy = year, mm = month, and dd = day of the release.

If the system is running AIX, 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.

If the system is running Linux, the platform firmware level can be determined by the following methods:

- On the Linux command line type:

  ```
  /usr/sbin/ibmras/nvram/ --print-vpd | grep 3F
  ```

  A line similar to the following displays the firmware level that is currently on the system:

  ```
  Alterable ROM Level 3F030504
  ```
- Look at the top of the service processor menu 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 running the following command:

   ```
   mkdir /tmp/fwupdate
   ```
3. The firmware update file must be downloaded or copied 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 system.

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

   After the firmware update file has been downloaded or copied into the **/tmp/fwupdate** directory, verify
   its existence by running the following command:

   ```
   ls /tmp/fwupdate/3F*.img
   ```

   The update file will have the format 3Fyymmdd.img. The 3F indicates that this is an update image for
   your 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/3Fyymmdd.img
   ```

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

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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.

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Installation Guide**

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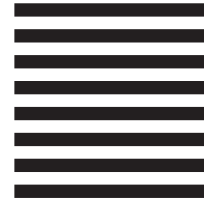
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