Upgrade Guide

HP Integrity rx2600 / HP 9000 rp34x0 to HP Integrity rx2620

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Preface

This preface contains the following sections:

- Intended Audience
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Intended Audience

This document is intended to provide technical product and support information for authorized service providers, customer system administrators, and HP support personnel.

What's New?

- The layout of this document was changed to improve usability
- Added 4 GB DIMM information
- Added RAID card information

Notational Conventions

The following notational conventions are used in this publication.

WARNING	**A warning lists requirements that you must meet to avoid personal injury.**

CAUTION	A caution provides information required to avoid losing data or avoid losing system functionality.

NOTE	A note highlights useful information such as restrictions, recommendations, or important details about HP product features.

- `Commands and options` are represented using `this font`.
- **`Text that you type exactly as shown`** is represented using **`this font`**.
- *`Text to be replaced with text that you supply`* is represented using *`this font`*.

    Example:
    "Enter the `ls -l` *`filename`* command" means you must replace *`filename`* with your own text.

- **Keyboard keys and graphical interface items (such as buttons, tabs, and menu items)** are represented using **this font**.

    Examples:
    The **Control** key, the **OK** button, the **General** tab, the **Options** menu.

- **Menu —> Submenu** represents a menu selection you can perform.

  Example:
  "Select the **Partition —> Create Partition** action" means you must select the **Create Partition** menu item from the **Partition** menu.

- `Example screen output` is represented using `this font`.

Reader Comments and Feedback

HP welcomes your feedback on this publication. Please address your comments to **edit@presskit.rsn.hp.com** and note that you will not receive an immediate reply. All comments are appreciated.

Related Information

You can find other information on HP server hardware management, Microsoft® Windows®, and diagnostic support tools in the following publications.

Web Site for HP Technical Documentation:
http://docs.hp.com

The main Web site for HP technical documentation is **http://docs.hp.com**, which has complete information available for free.

Server Hardware Information:
http://docs.hp.com/hpux/hw/

The **http://docs.hp.com/hpux/hw/** Web site is the systems hardware portion of the docs.hp.com and provides HP nPartition server hardware management details, including site preparation, installation, and more.

Windows Operating System Information

You can find information about administration of the Microsoft® Windows® operating system at the following Web sites, among others:

- **http://docs.hp.com/windows_nt/**

- **http://www.microsoft.com/technet/**

Diagnostics and Event Monitoring: Hardware Support Tools

Complete information about HP's hardware support tools, including online and offline diagnostics and event monitoring tools, is at the **http://docs.hp.com/hpux/diag/** Web site. This site has manuals, tutorials, FAQs, and other reference material.

Web Site for HP Technical Support:
http://us-support2.external.hp.com

HP's IT resource center Web site at **http://us-support2.external.hp.com/** provides comprehensive support information for IT professionals on a wide variety of topics, including software, hardware, and networking.

Books about HP-UX Published by Prentice Hall

The **http://www.hp.com/hpbooks/** Web site lists the HP books that Prentice Hall currently publishes, such as HP-UX books including:

- *HP-UX 11i System Administration Handbook*
  http://www.hp.com/hpbooks/prentice/ptr_0130600814.html

- *HP-UX Virtual Partitions*
  http://www.hp.com/hpbooks/prentice/ptr_0130352128.html

HP Books are available worldwide through bookstores, online booksellers, and office and computer stores.

Printing History

The Printing History below identifies the edition dates of this manual. Updates are made to this publication on an unscheduled, *as needed*, basis. The updates will consist of a complete replacement manual and pertinent on-line or CD-ROM documentation.

First Edition . . . . December 2004

Second Edition . . . . June 2005

1 HP Integrity rx2620 Upgrade

Introduction

This hardware upgrade guide lists the required components and provides the instructions for converting an HP Integrity rx2600 server or HP 9000 rp34x0 server to an HP Integrity rx2620 server.

The upgrade guide is organized into the following sections:

- "Introduction"
- "Upgrade Checklist"
- "Upgrade Kit Contents"
- "Safety and Environmental Considerations"
- "Upgrade Preparation and System Shutdown"
- "System Hardware Component Upgrade Instructions"
- "System Validation and Reconfiguration Procedures After Hardware Upgrade from rx2600"
- "System Validation and Reconfiguration Procedures After Hardware Upgrade from rp34x0"

Time Required

Upgrading your HP Integrity rx2600 server or HP 9000 rp34x0 server to an HP Integrity rx2620 server may require several hours, depending on preparatory time, but you should plan for one hour of system downtime. Preparatory time includes checking the upgrade kit, preparing an ESD-safe work station, and backing up your data.

Upgrade Assistance

Several system components must be removed, upgraded and reinstalled to successfully complete this upgrade. Review the entire guide before attempting this upgrade to ensure you can complete the procedure yourself. Contact your local HP support representative for upgrade assistance.

Upgrade Checklist

Use the following checklist to assist in completing your upgrade from an HP Integrity rx2600 server or HP 9000 rp34x0 server to an HP Integrity rx2620 server.

Table 1-1   **Upgrade Checklist**

Step	Procedure	Completed
1	Verify Upgrade Kit Contents (page 15)	
2	Upgrade preparation	
3	Shutting down the system	
4	Hardware component upgrades	
	a. System board	
	b. CPU(s)	
	c. CPU Fans	
5	Validate system upgrade	
	a. Powering on the System	
	b. Restoring the product, serial and UUID numbers	

Upgrade Kit Contents

The following items comprise the contents of the upgrade kit. The hardware components listed under the "Additional Upgrade Components Required" list are also required for the upgrade, but must be ordered separately. Verify the contents of the upgrade kit against the packing list. Resolve any discrepancies before continuing.

Table 1-2   **Upgrade Kit Hardware Contents**

Part No.	Description	Qty	Qty Rcvd
AB331-67001	System Board	1	
AB331-04001	CPU Fans	2	
AB331-40001	Nameplate, Integrity rx2620 (Rack)	1	
AB331-40002	Nameplate, Integrity rx2620 (Tower)	1	
AB331-10001	Documentation CD-ROM	1	
5021-1184	Read Me First	1	
7121-8194	Intel® Itanium® 2 Rack Label	1	
AB359-84001	UUID Upgrade Label (only used if upgrading from rp34xx server)	1	
5971-4257	Media, CD-ROM, Offline Diagnostics	1	
5182-4257	Upgrade Returns Instruction Packet	1	
Additional Upgrade Components Required			
AB334A, AB335A or AB336A	CPU (Cannot mix CPU types within the same server.)	1 min; 2 max	

Service Tools Required

Service of this product may require one or more of the following tools:

- IPF CPU Install Tool Kit (P/N 5069-5441), consisting of:

    - Disposable ESD Kit

    - Label-less CPU install tool (2.5mm hex and Torx 15)

- 1/4 inch Flat Blade Screwdriver

- Phillips No. 1 Screwdriver

- ACX-10 Torx Screwdriver

- ACX-15 Torx Screwdriver

- ACX-25 Torx Screwdriver

Safety and Environmental Considerations

WARNING	**Voltages are present at various locations within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position.**
	Ensure that the system is powered-down and all power sources have been disconnected from the server prior to attempting the following procedures.
	Failure to observe this warning could result in personal injury or damage to equipment.

Communications Interference

HP system compliance tests are conducted with HP supported peripheral devices and shielded cables, such as those received with the system. The system meets interference requirements of all countries in which it is sold. These requirements provide reasonable protection against interference with radio and television communications.

Installing and using the system in strict accordance with HP's instructions minimizes the chances that the system will cause radio or television interference. However, HP does not guarantee that the system will not interfere with radio and television reception.

Take these precautions:

- Use only shielded cables.
- Install and route the cables per the instructions provided.
- Ensure that all cable connector screws are firmly tightened.
- Use only HP supported peripheral devices.
- Ensure that all panels and cover plates are in place and secure before system operation.

Electrostatic Discharge

HP systems and peripherals contain assemblies and components that are sensitive to electrostatic discharge (ESD). Carefully observe the precautions and recommended procedures in this manual to prevent component damage from static electricity.

WARNING	**Connect to ground with a wrist strap. Connection can be made to any grounded metal assembly in the cabinet. Both you and the electronic devices must be grounded to avoid static discharges that can cause damage.**

Take these precautions:

- Prepare an ESD safe work surface large enough to accommodate the various assemblies handled during the upgrade. Use a grounding mat and an anti-static wrist strap, such as those included in the ESD Field Service Kit (A3024-80004).
- The anti-static bag can not function as a static dissipating mat. Do not use the anti-static bag for any other purpose than to enclose a product.

- Treat all assemblies, components, and interface connections as static-sensitive.

- When unpacking cards, interfaces, and other accessories that are packaged separately from the system, keep the accessories in their conductive plastic bags, until they are ready to be installed.

- Avoid working in carpeted areas, and keep body movement to a minimum while installing accessories.

Upgrade Preparation and System Shutdown

In general, your system should be stable before beginning the upgrade procedure. In addition, perform the following actions before you begin your server upgrade:

- Verify the system meets minimum software and firmware requirements

- Update system firmware and software if required

- Back up your system

- Shut down the system

Firmware Requirements

Ensure the server meets the minimum firmware revisions listed below. Update as necessary.

- Management Processor (MP) firmware E.03.13 (if upgrading from MP firmware version E.02.23, then you need to upgrade to version E.02.29, then upgrade to version E.03.13)

- VGA/Bus card ROM Firmware:

  ECI Rev. A: Revision yi000018.001 or higher

  ECI Rev. B: Revision yi004325.001 or higher

Software Requirements

Ensure the server meets the minimum software revisions listed below. Update as necessary.

- IPF Offline Diagnostics 0412, December 2004

Minimum Operating System Requirements

- HP-UX 11i v2

- MicroSoft Windows Server 2003, Enterprise Edition for 64 bit Itanium 2 Systems

- Red Hat Linux Advanced Server 3

- SUSE Linux Enterprise Server 9

- OpenVMS I64 Version 8.2

LAN Requirements

The LAN paths for the right and left LAN ports on the rear panel will change as a result of installing this upgrade. Refer to your OS manual to modify your LAN configuration.

HP Integrity rx2600 LAN path configuration before upgrade:

LAN 10/100 (right) –   `0/0/3/0`   `0x00306E38594B` `0` `UP`   `lan0` `snap0` `1` `ETHER Yes` `119`

LAN 10/100/1000 (left) – `0/1/2/0`   `0x00306E38D9B9` `1` `UP`   `lan1` `snap1` `2` `ETHER Yes` `119`

HP Integrity rx2620 LAN path configuration after upgrade:

LAN 10/100/1000 (right) – `0/1/2/0`   `0x000E7F7E101C` `1` `UP`   `lan1 snap1` `1` `ETHER Yes` `119`

LAN 10/100/1000 (left) – `0/1/2/1`   `0x000E7F7E101D` `2` `UP`   `lan2 snap2` `2` `ETHER Yes` `119`

NOTE	Use the appropriate operating system tool (for example, `ifconfig` for HP-UX) to validate your LAN configuration.

Back Up Your System

Before performing the server upgrade, protect yourself by backing up all data and your server OS. In the event of interruptions (for example power failure or interference), it may be necessary to resume operation in the old configuration before upgrading the server.

Back Up Your Data

Back up your data in accordance with local procedures.

Back Up the Operating System

Always keep a backup copy of the current operating system (OS) available for emergency use. The OS was provided on CD with your server.

System Shutdown

Step 1. Press the power switch on the server front panel. Verify that the power LED goes off.

Step 2. Disconnect the AC power cords from the server rear panel.

System Hardware Component Upgrade Instructions

This section contains detailed instructions for upgrading the rx2600 or rp34x0 to an rx2620 using the following procedure:

Step 1. Remove system top metal cover and bezel.

Step 2. Remove system fans, PCI card cage, airflow guides, memory, processors, management processor and system board.

Step 3. Upgrade system board.

Step 4. Upgrade processors.

Step 5. Reinstall system fans 2 and 3, PCI card cage, airflow guides, memory, and management processor.

Step 6. Upgrade system fans 1A and 1B.

Step 7. Install HP Integrity rx2620 name plate.

Step 8. Affix Itanium 2 label to rack (rp34x0 upgrade only).

Step 9. Apply UUID label to pull tab (rp34x0 upgrade only).

Step 10. Replace system top metal cover and bezel.

Step 11. Perform system validation and reconfiguration procedures after hardware upgrade (rx2600 and rp34x0 specific instructions).

Removing System Top Metal Cover and Bezel

To upgrade, remove, or replace most system components, you must first remove the top metal cover from the system chassis. This section explains how to remove the cover for both the rackmount and pedestal configurations.

WARNING   **Do not remove the system cover(s) without first turning the system off and unplugging the power cord from the outlet or power protection device unless you are only replacing a hot-swappable fan. Always replace the cover(s) before turning the system on.**

Accessing a Rack Mounted Server

The HP Integrity rx2620 server is designed to be rack mounted. The following procedure explains how to gain access to an HP Integrity rx26xx or rp34xx server that is mounted in an approved rack.

WARNING   **Ensure that all anti-tip features (front and rear anti-tip feet installed; adequate ballast properly placed, etc.) are employed prior to extending the server.**

Extending the Server from the Rack

NOTE   Ensure that there is enough area (approximately 1.5 meters (4.5 ft.) to fully extend the server out the front of the rack and work on it.

To extend the server from the rack, perform the following steps:

Step 1. Remove the T-25 screws that fasten the server to the rack.

Step 2. Release the rack latches by rotating them outward.

Figure 1-1 Release the Rack Latches

Front of Chassis
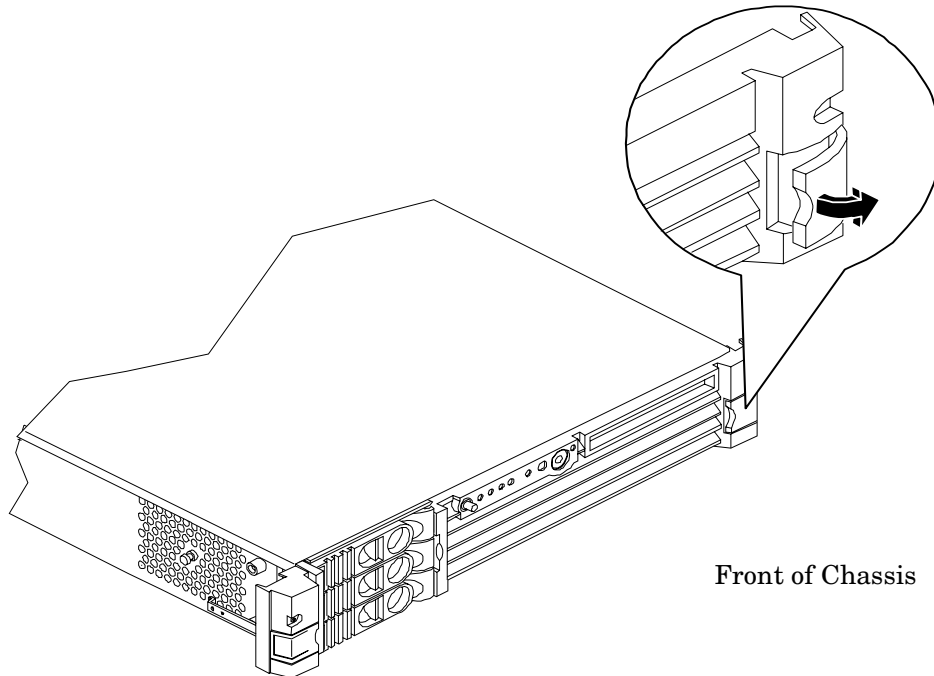
Step   3. Slide the system out of the rack until the guide-rail release clips are visible.

Accessing an rx2600 or rp34x0 Pedestal Mounted Server

The HP Integrity rx2600 and HP 9000 rp34x0 servers are also designed to be pedestal mounted. You do not need to remove the pedestal from the HP server to gain access to internal components. The front bezel, front cover, and top cover may be removed with the pedestal attached to the HP server.

Figure 1-2   **Pedestal Mounted HP Integrity rx2600 or HP9000 rp34x0 Server**
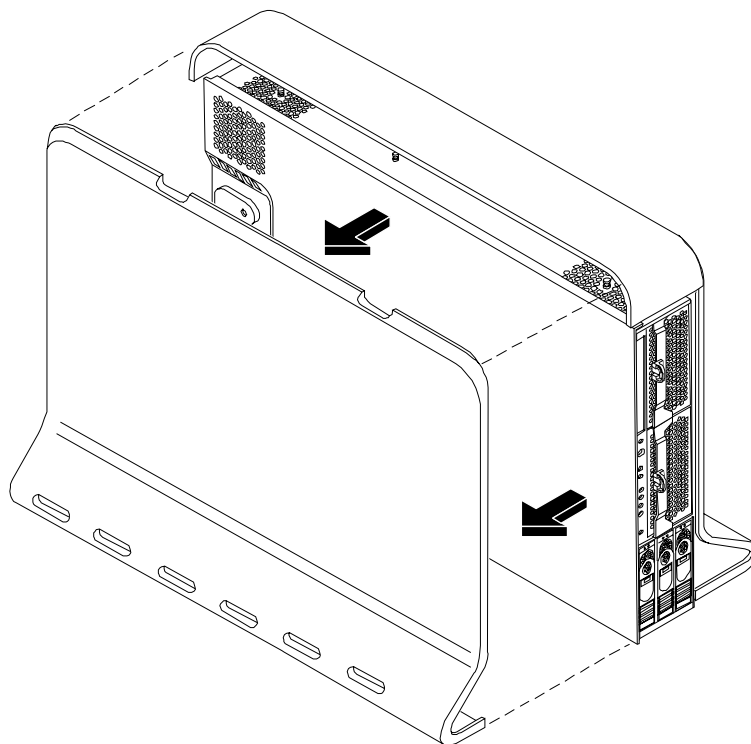
Removing the Top Metal Cover

Step 1. Ensure the top metal cover lock keyswitch is in the unlocked position. Rotate the blue release lever toward the back of the system and slide the cover toward the back of the system.

Figure 1-3 Removing the Top Metal Cover

Front of Chassis
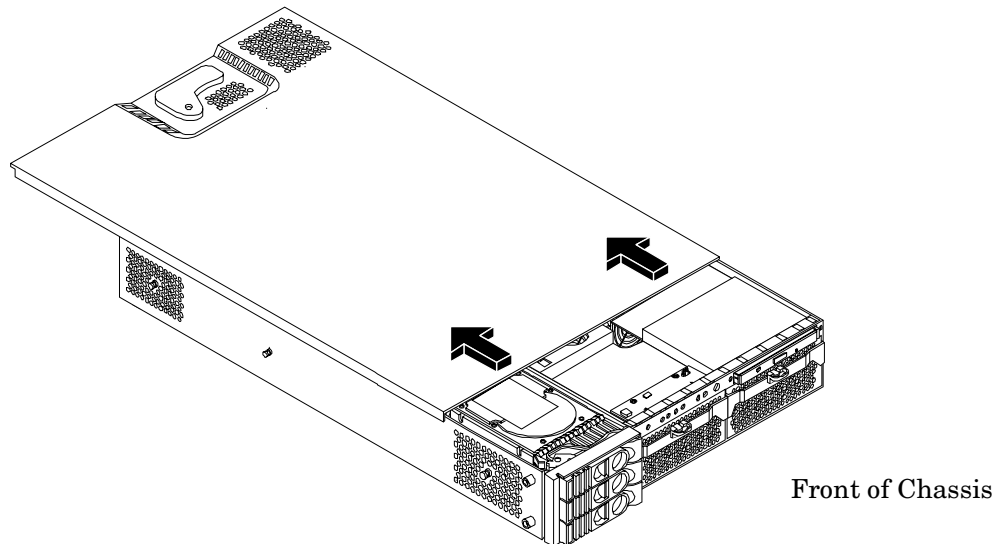
Step 2. Lift the top metal cover off the system chassis.

Removing the Front Bezel

You must remove the front bezel from the chassis to replace the system name plate.

Step 1. Press in on the retaining clips located on the right-side of the front panel.

Figure 1-4 Front Bezel Retaining Clip

Front of Chassis
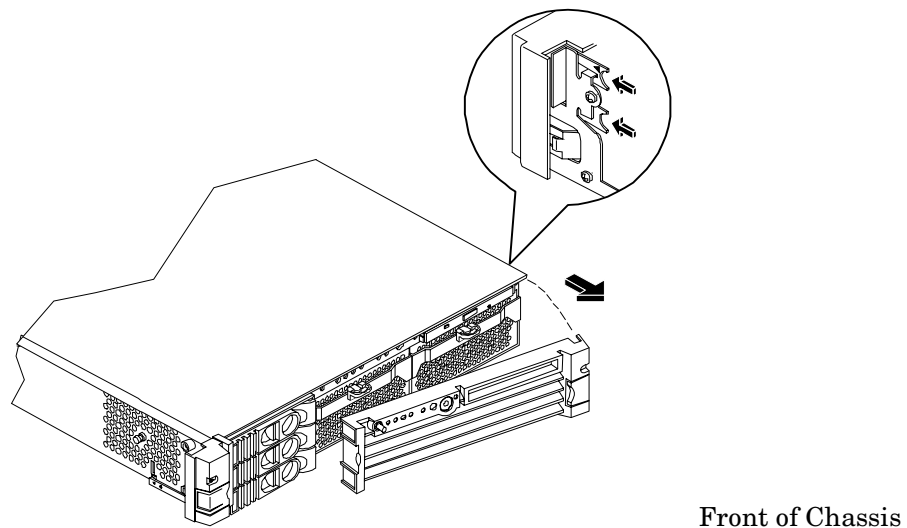
Step 2. Rotate the front panel outward and lift it away from the system chassis.

Removing System Fans, PCI Card Cage, Airflow Guides, Memory, Processors, and the Management Processor

Location of Internal Components and Connectors

Figure 1-5   Internal Physical Layout
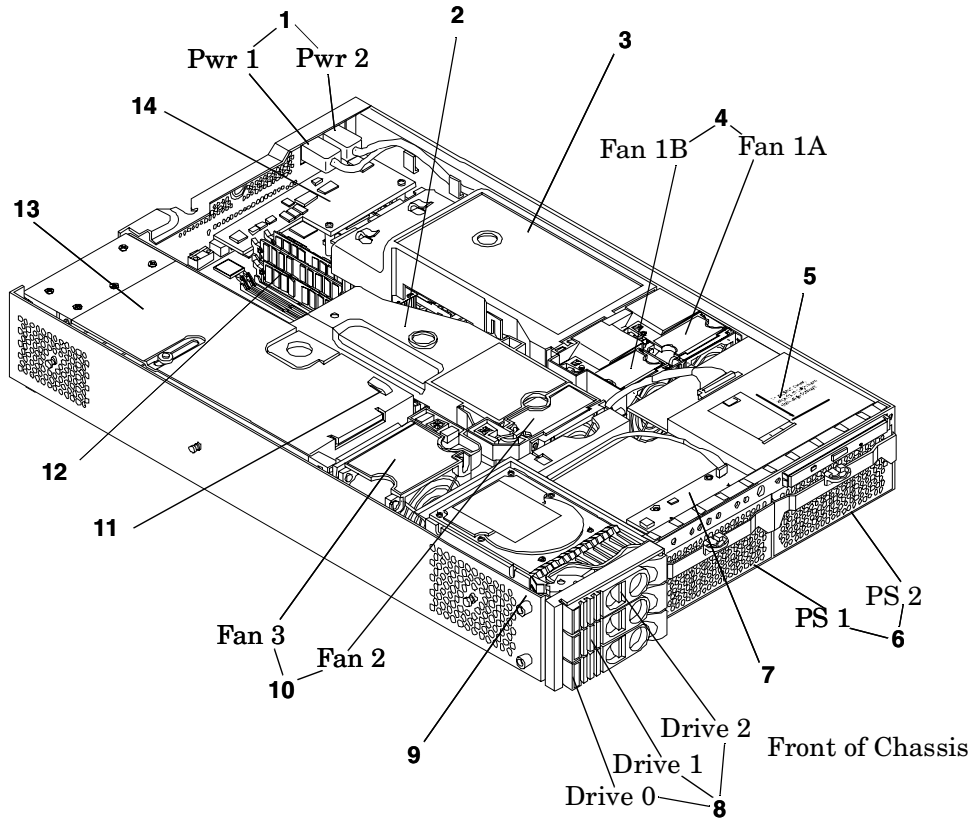
Table 1-3   Component Locations

1 Power receptacles (PWR1 right, PWR2 left)	8 Hot-pluggable hard drives (up to 3)
2 Memory Airflow guide	9 Hard disk lock
3 Processor Airflow guide	10 System fans (Fan 2 - center, Fan 3 - I/O cage)
4 System fans (Fan 1A - right, Fan 1B - left)	11 Intrusion switch
5 Slimline optical drive	12 Memory sockets
6 Power supplies (PSU1 center, PSU2 under optical drive)	13 PCI card cage
7 Status panel board	14 Management controller (Optional)

Figure 1-6   System Board Connectors and Slots

SCSI CH A

SCSI CH B

Front of Chassis
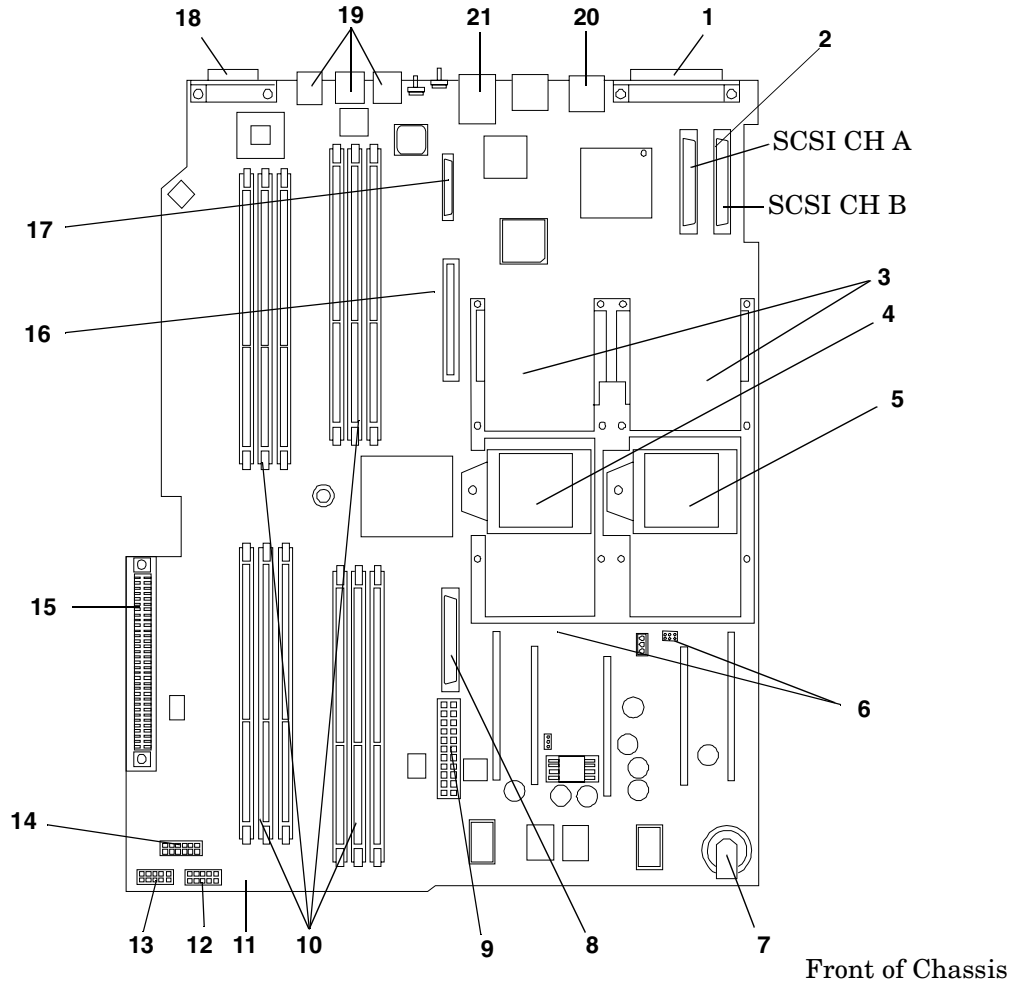
Table 1-4   Connector Locations

1 External SCSI Connector	9 Power Module Power Connector	17 iLO Manageability Card connector
2 SCSI Connectors A & B	10 Memory Sockets	18 Serial Ports (2)
3 CPU Power Pods	11 Status Panel Connector	19 USB Connectors
4 CPU1	12 Power Module Auxiliary Connector	20 LAN Connector
5 CPU0	13 SCSI Backplane Power Connector	21 LAN Connector (rx26xx only)
6 Turbo Fan Power Connectors	14 PCI/Memory Fan Cable Connector	
7 Battery	15 PCI Backplane Connector	
8 PS Fan Connectors	16 IDE Drive Connector	

Removing System Fans

Step   1. To remove fans 1A, 1B, 2 and 3 from the system, grasp the appropriate fan and lift it out of the fan socket.

Figure 1-7 Fan 1A or Fan 1B Removal

Fan 1A

Fan 1B

Front of Chassis
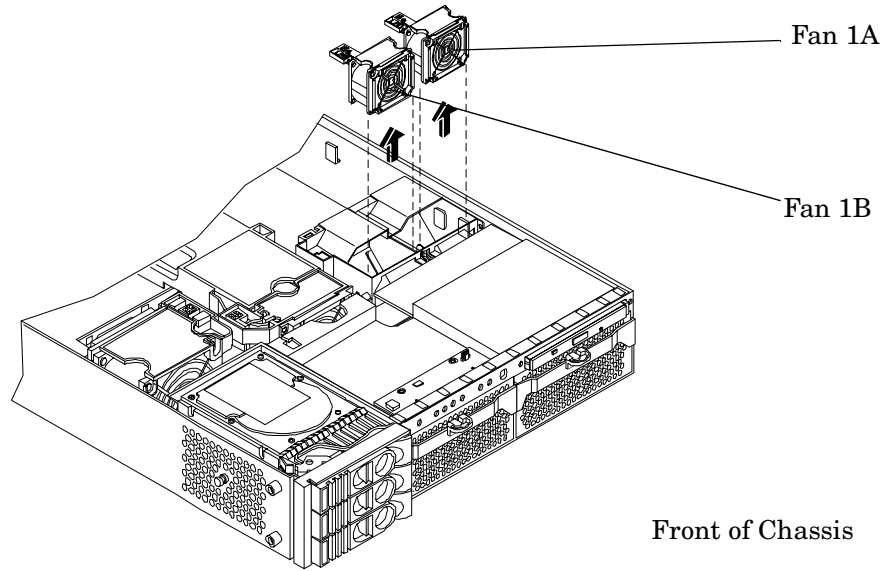
Figure 1-8 Fan 2 Removal

Fan 2

Front of Chassis
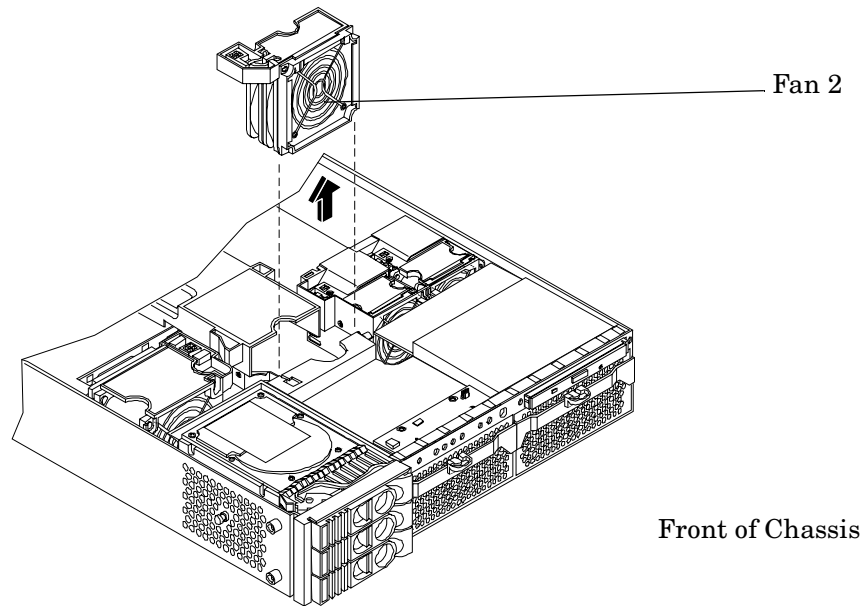
Figure 1-9 Fan 3 Removal

Fan 3

Front of Chassis
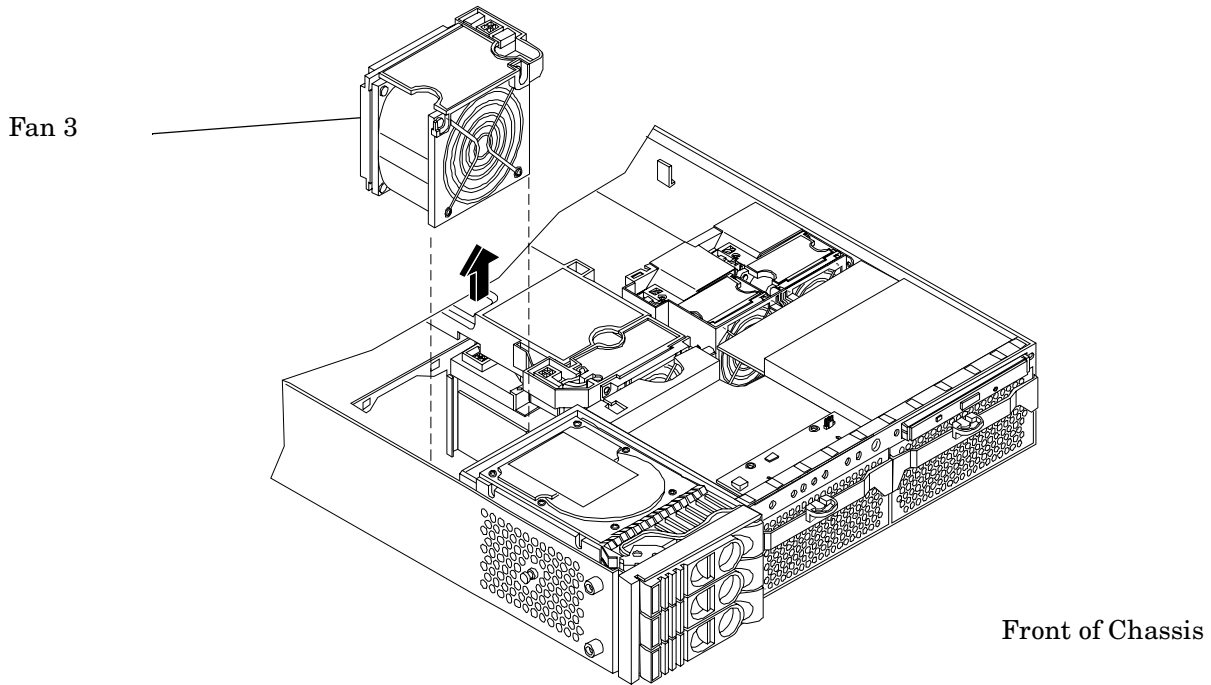
Removing Airflow Guides

The system has the following airflow guides:

Figure 1-10   Airflow Guides Locations

Processor Airflow Guide

Memory Airflow Guide
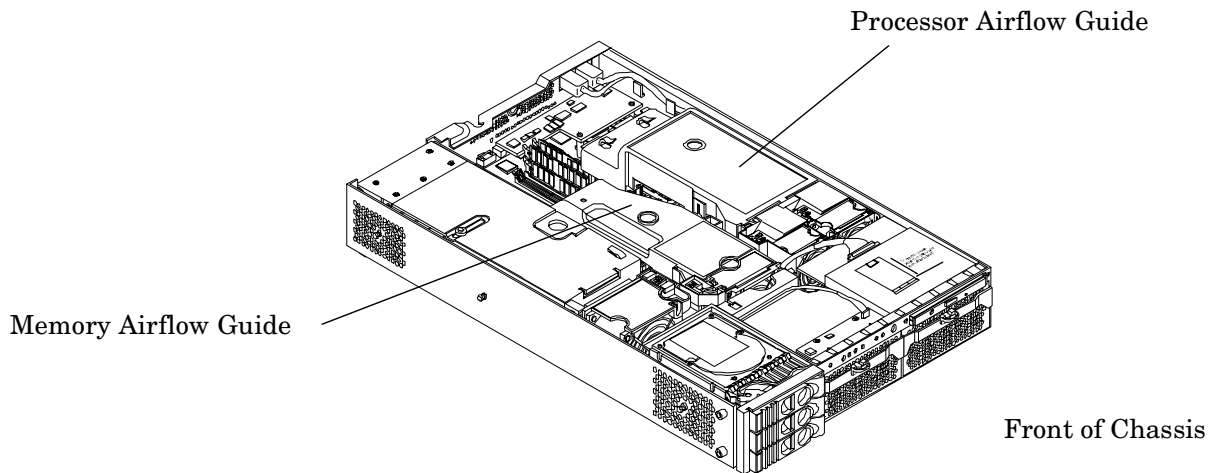
Front of Chassis

Removing the Memory Airflow Guide

Step   1. Grasp the memory airflow guide and lift it out of the system.

Figure 1-11 Removing the Memory Airflow Guide
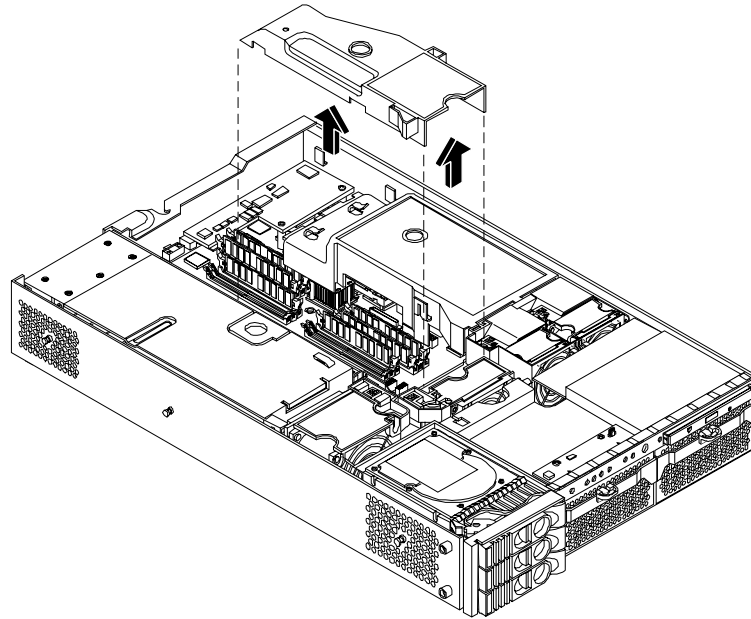
Front of Chassis

Removing the Processor Airflow Guide

Step   1. Remove the IDE cable and power module cables from the processor airflow guide cable clips.

Step   2. Remove the main portion of the airflow guide:

   a. Hold the guide using the opening on top of the guide.

   b. At the same time, grasp the back end of the airflow guide and lift the guide out of the system.

Figure 1-12 Removing the Processor Airflow Guide
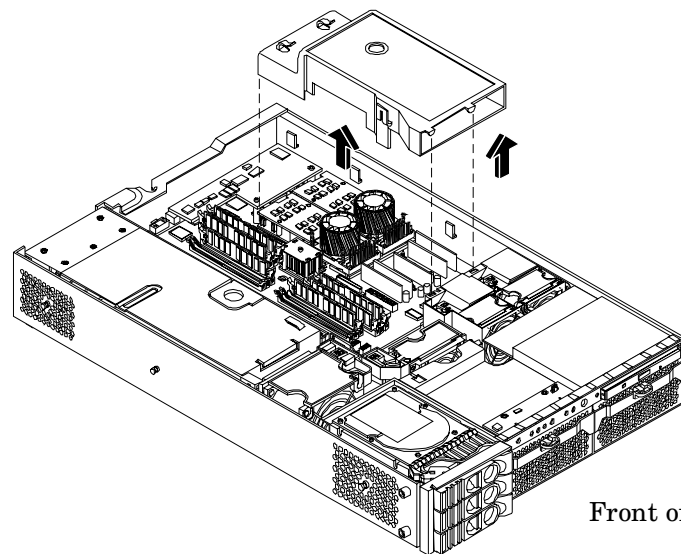
Front of Chassis

Step 3. Remove the front portion of the airflow guide:

    a. Rotate the clip clockwise to release the latch.

Figure 1-13 Open the Release Clip

Front of Chassis
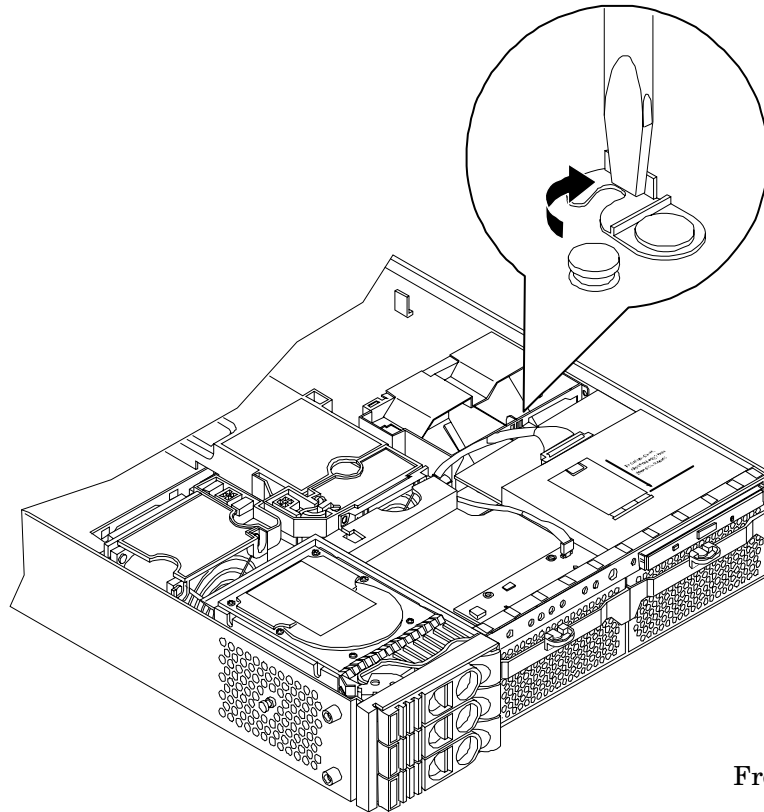
Step 4. Disconnect the power cable connected to the guide from the system board.

Step 5. Lift the front portion of the airflow guide out of the system.

Figure 1-14 Remove the Front Airflow Guide

Front of Chassis
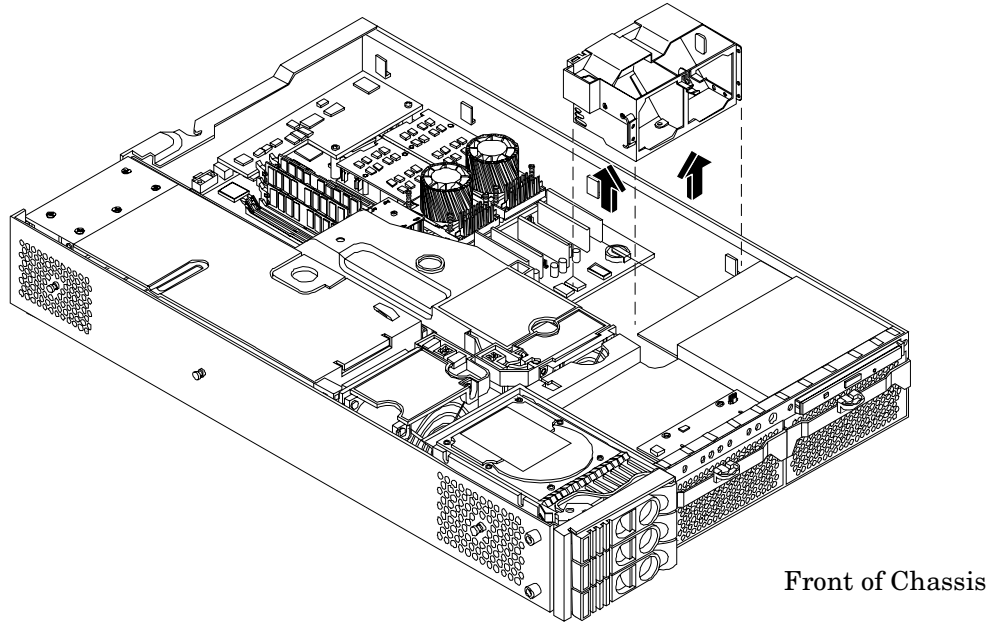
Removing System Memory

Next, remove all system memory by performing the following steps:

Step 1. Push the appropriate extraction levers found on either side of the DIMM slot outward to the open position. The DIMM will eject from the slot.

Step 2. Remove the DIMM from the socket and store it in a static-free container.

Removing Processor Modules

Figure 1-15   Processor Location
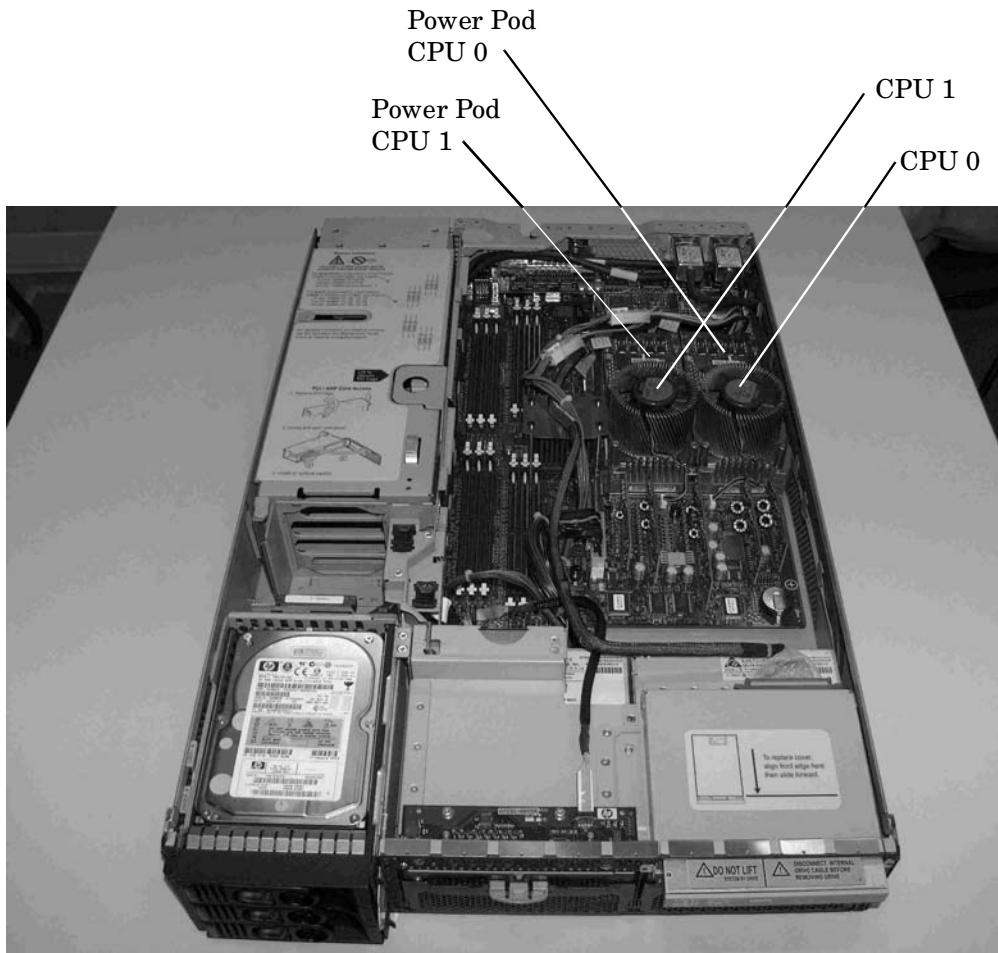
Front of Chassis

Step   1. Disconnect the power pod cable from the power connector on the system board.

Figure 1-16 Disconnect Power Pod Cable

Front of Chassis
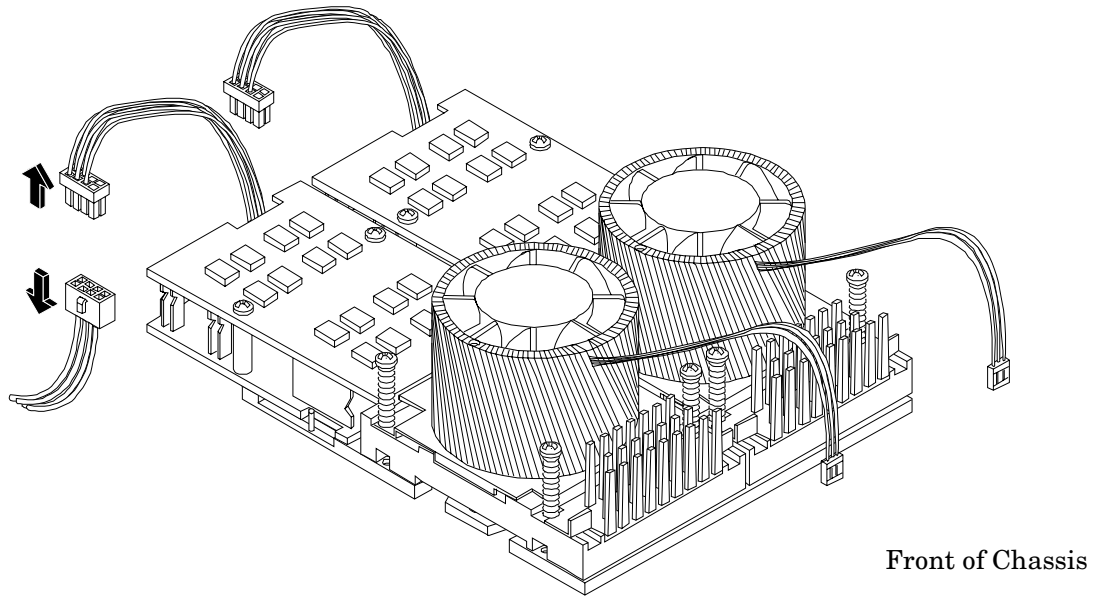
Step   2. Remove the two power pod mounting screws.

Figure 1-17 Remove Power Pod Mounting Screws

Front of Chassis
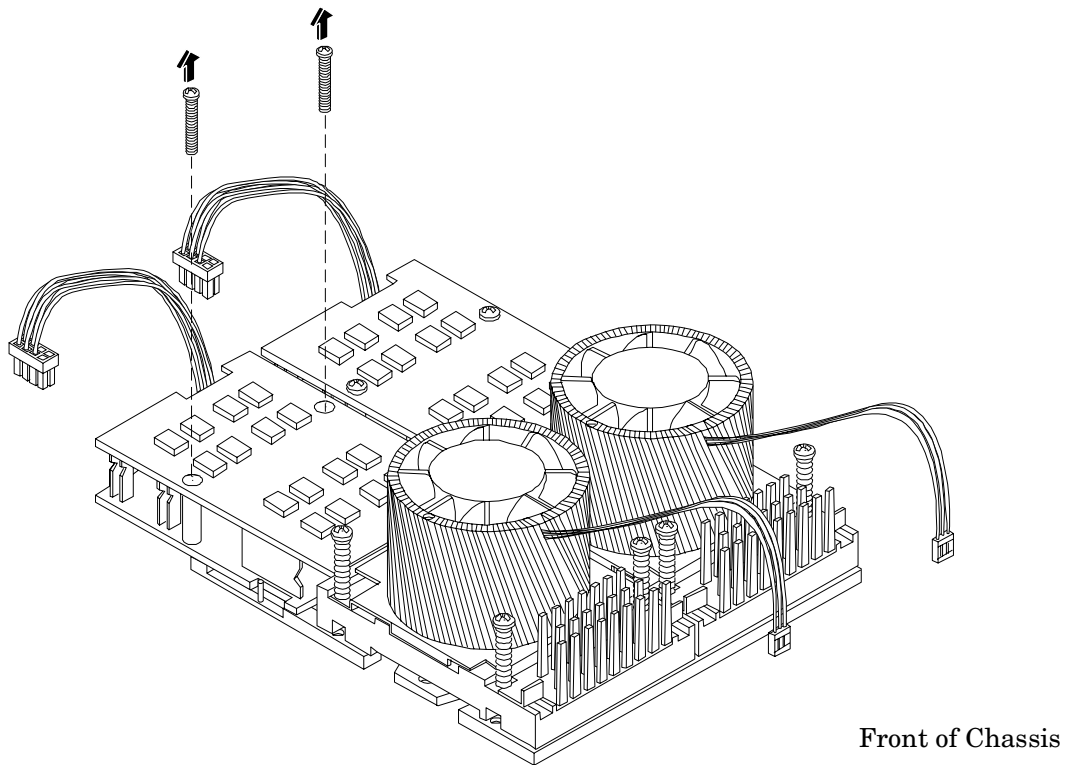
Step   3. Slide the power pod toward the rear of the system board disconnecting the power pod from the processor module.

Figure 1-18 Disconnect Power Pod from Processor Module

Front of Chassis
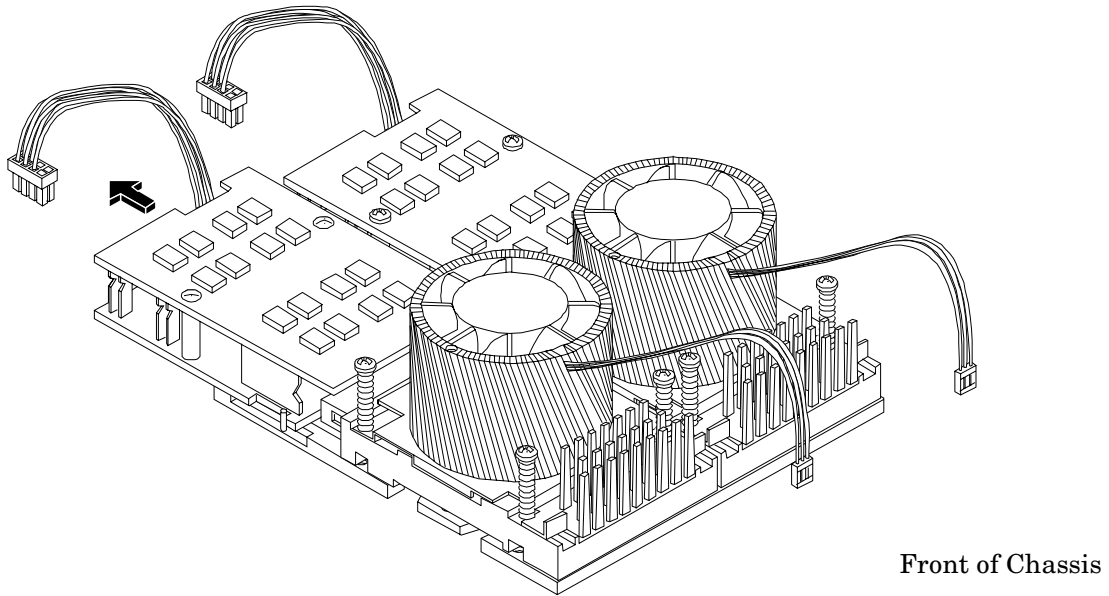
Step   4. Lift the power pod up and out of the chassis. Place the power pod into an anti-static container.

Figure 1-19 Remove Power Pod

Front of Chassis
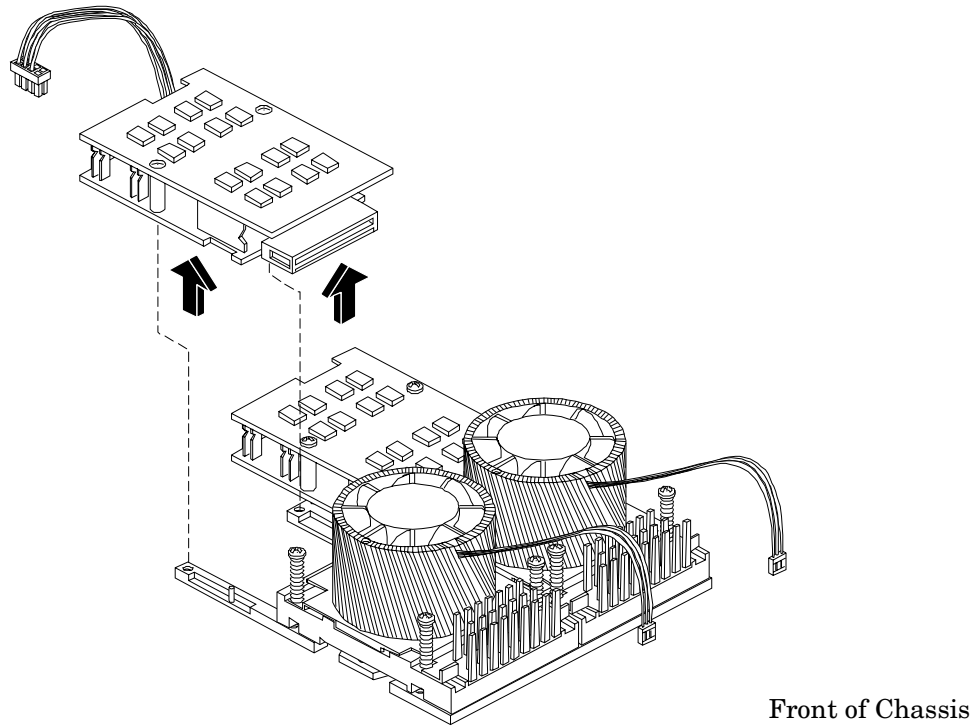
Step   5. Disconnect the processor module turbo fan power cable.

Figure 1-20 Disconnect the Turbo Fan Cable

Front of Chassis
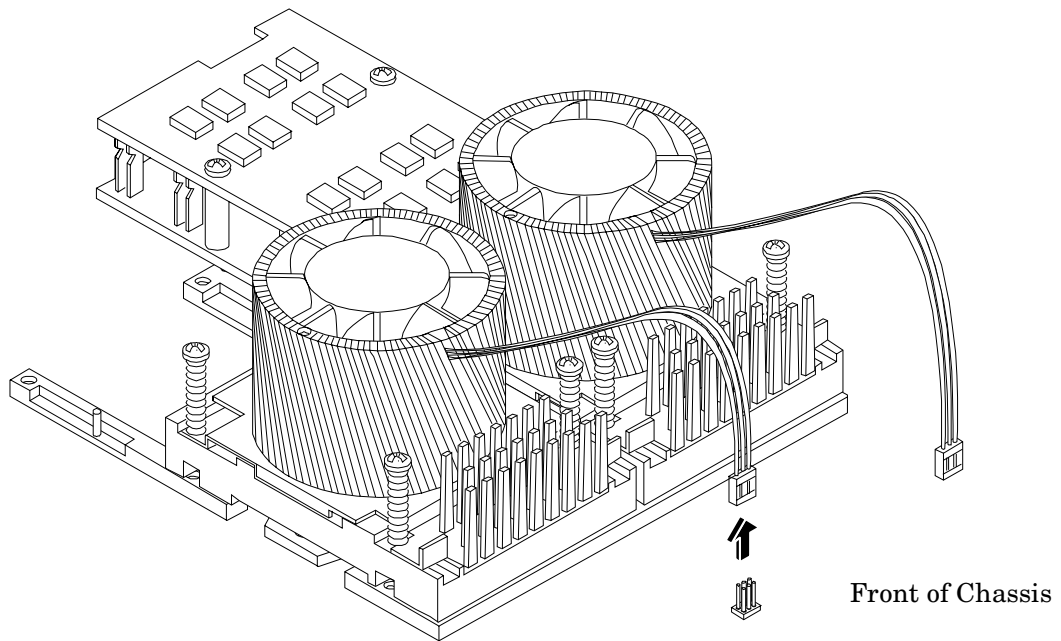
Step   6. Release the four heatsink captive screws on the processor module heat sink.

Figure 1-21 Release Heatsink Captive Screws

Front of Chassis
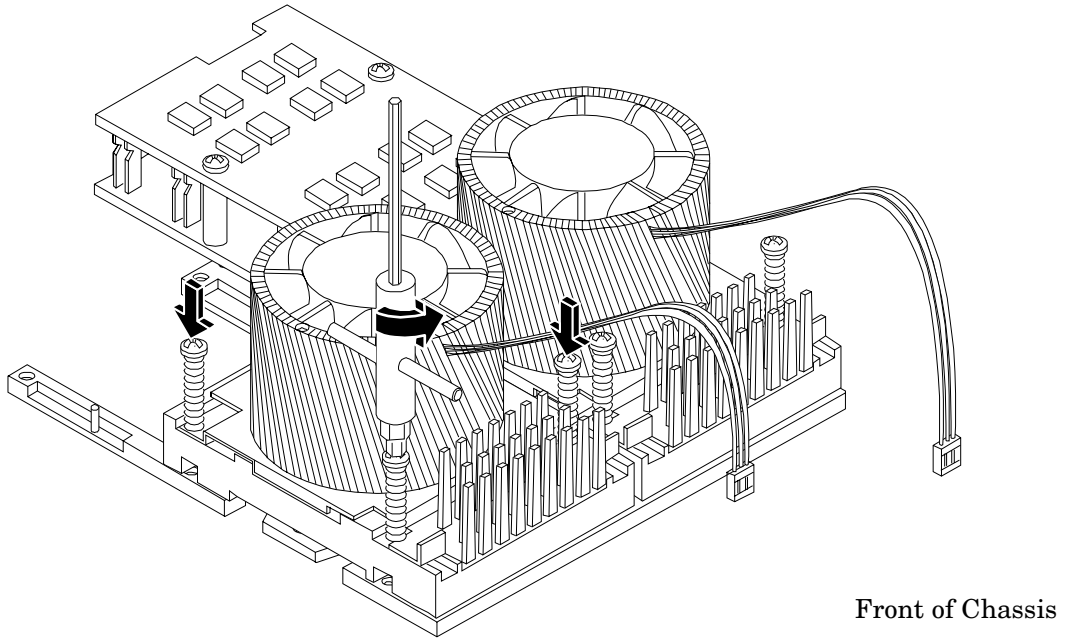
Step   7. Slide the sequencing retainer plate toward the back of the system to open the hole in the edge of the heatsink for insertion of the special processor tool into the processor module locking mechanism.

Figure 1-22 Slide Sequencing Retainer Plate
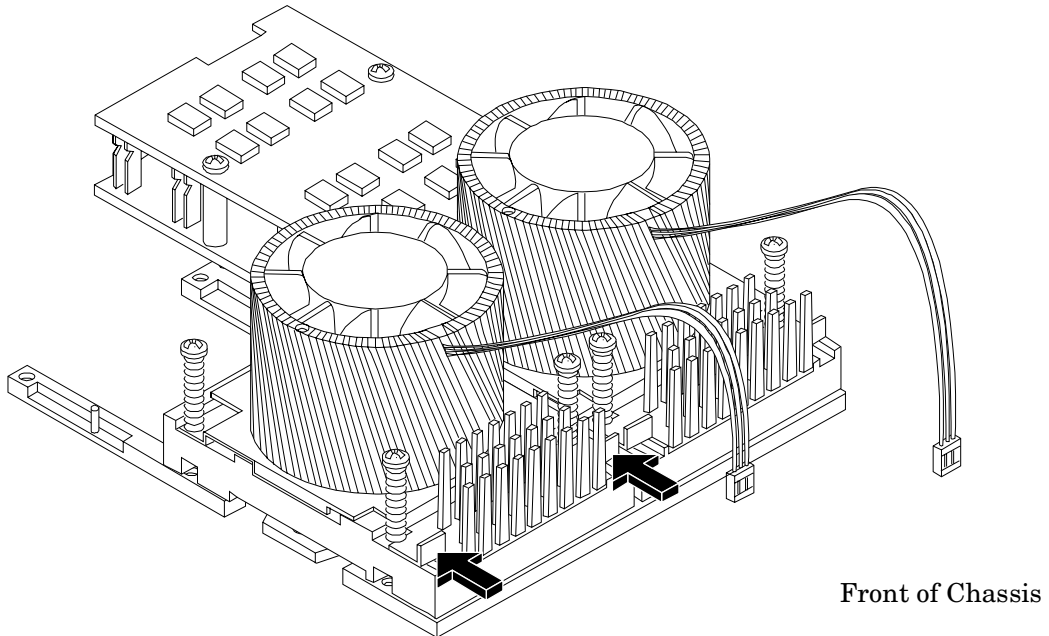
Front of Chassis

Step 8. Unlock the processor-locking mechanism using the special processor tool (P/N 5069-5441), or equivalent 2.5 mm hex tool, shipped with your replacement processor assembly. Insert the tool into the lock and rotate the special processor tool 180 degrees counterclockwise. Verify that the processor-locking mechanism is rotated into the unlocked position.

WARNING	**The zero insertion force (ZIF) socket for the processor is locked and unlocked by 1/2 of a full turn of the 2.5 mm hex tool. The counterclockwise 180 degree rotation (1/2 turn) unlocks the socket. A clockwise 180 degree rotation locks the socket. Attempting to turn the locking mechanism more that 180 degrees can severely damage the socket.**

Figure 1-23 Unlock Processor Module Locking Mechanism

Unlocked   Locked

Front of Chassis
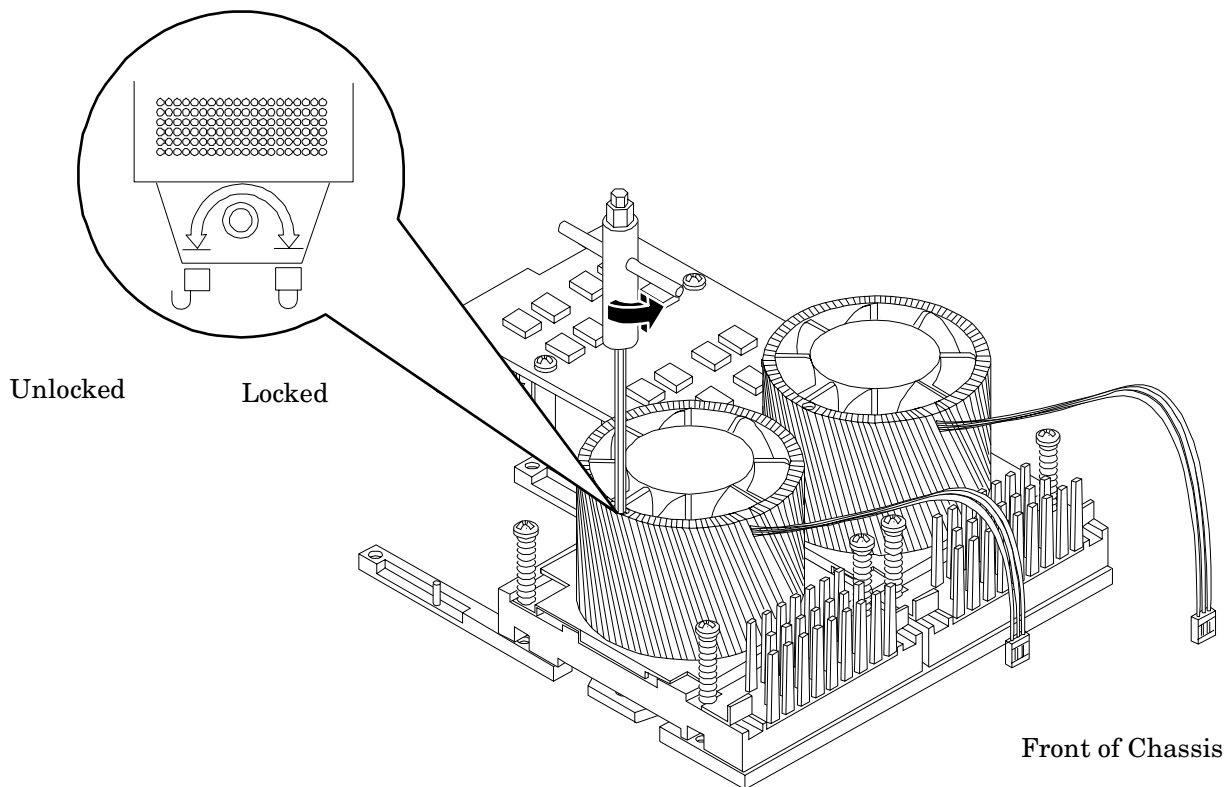
Step 9. Lift the processor module and the turbo fan assembly up and out of the chassis. Place the processor module into an anti-static container.

WARNING   **Carefully handle the CPU to avoid damaging the pins. If possible, cover the exposed CPU pins with a pin cover.**

Figure 1-24 Remove Processor Module

Front of Chassis
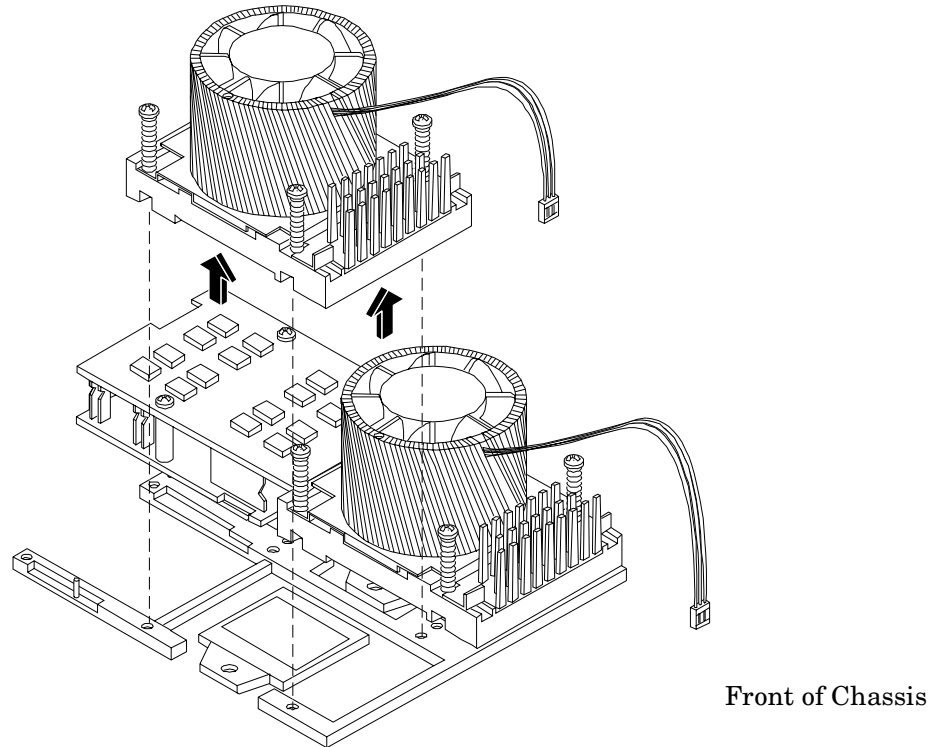
Removing the iLO Manageability Card

Step 1. Unscrew the two mounting screws that connect the iLO Manageability card to the internal chassis post and the two external mounting screws that are located on both sides of the 25-pin serial connector.

Figure 1-25 Removing the iLO Manageability Card

Rear of Chassis   iLO Manageability Card
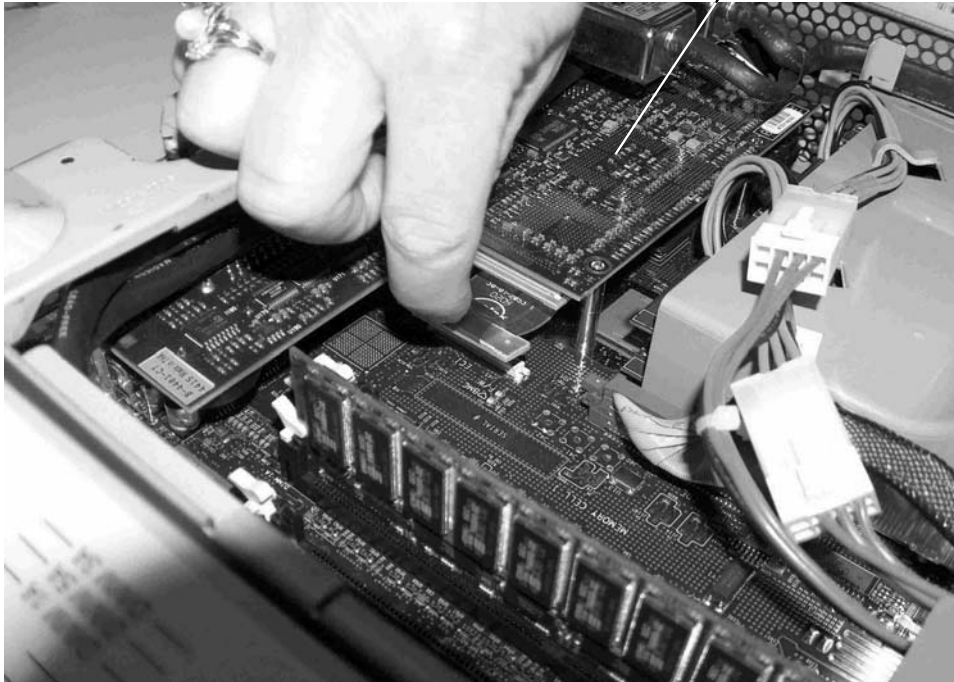
Step 2. Disconnect the iLO Manageability card connector.

Step 3. Remove the iLO Manageability card from the system by grasping it by its edges.

Removing the PCI Card Cage

To remove the PCI cage from the server, perform the following steps:

Step 1. Lift up on the PCI card cage release lever and the back edge of the PCI card cage and lift the PCI card cage out of the system.

Figure 1-26 Removing the PCI Card Cage

Front of Chassis
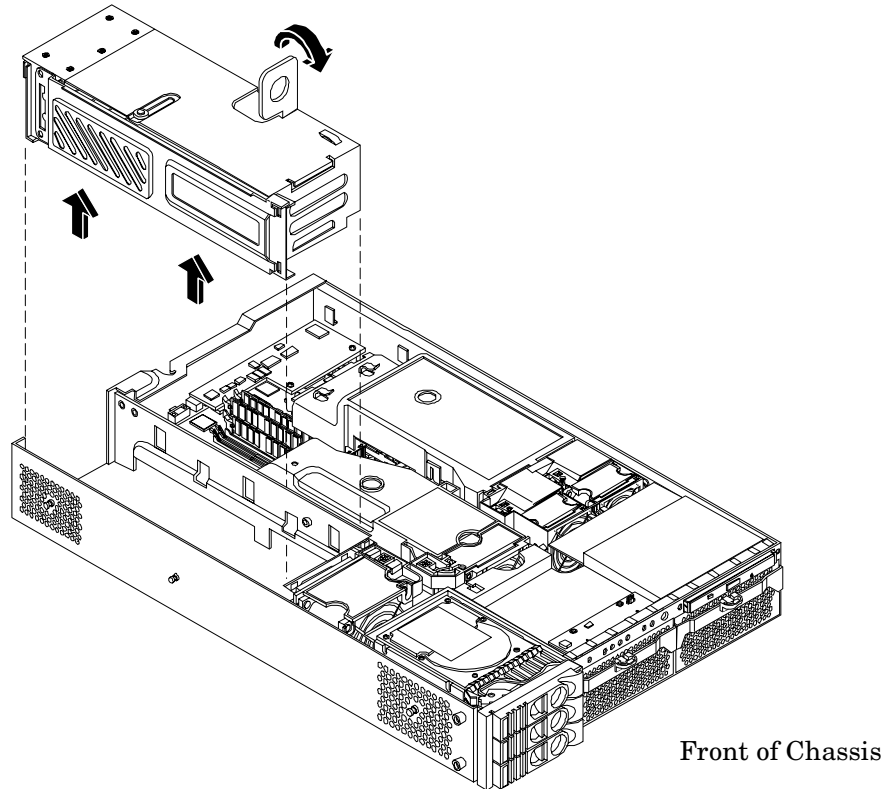
Removing the System Board

Step 1. Remove the power connector plate.

   a. Unscrew the two power connector mounting screws on the back of the system.

   b. Reach inside the system to remove the power connectors from the socket. The power connectors will still be connected to their cables.

Step 2. Remove the VGA port mechanical cover located on the right side of the rear of the chassis (if necessary). See Figure 1-27 for the location of the cover.

Step 3. Remove the DB9 port mechanical cover located on the MP area of the rear of the chassis (if necessary). See Figure 1-27 for the location of the cover.

Figure 1-27 VGA and DB9 Mechanical Cover Locations

VGA cover   DB9 cover
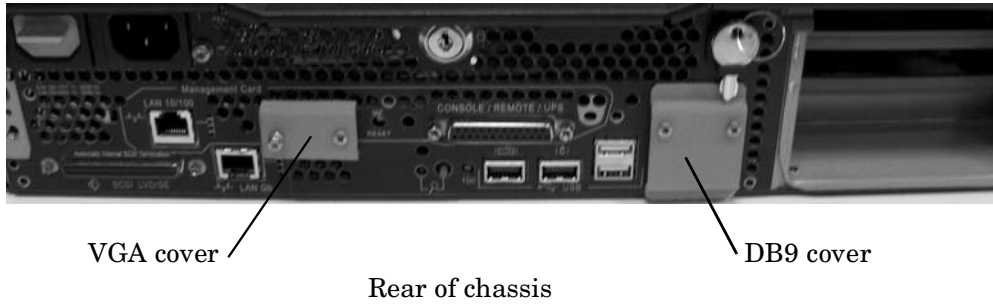
Rear of chassis

Step 4. Unscrew the six backplane system board mounting screws that connect the system board to the rear of the system chassis.

Figure 1-28 Remove System Board Mounting Screws

Rear of chassis
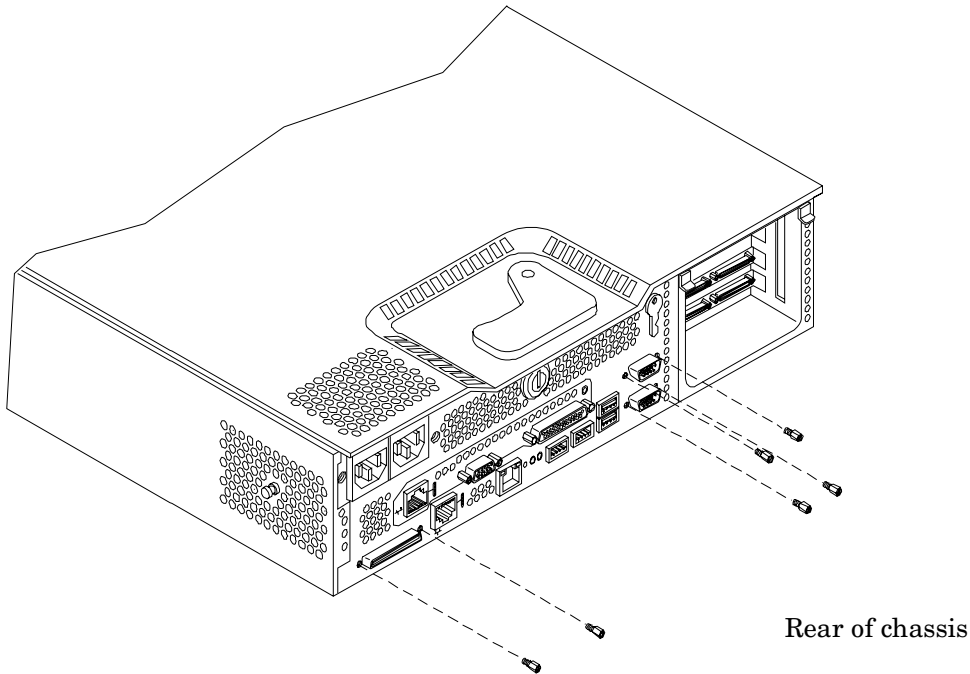
Step 5. Disconnect all cables that are connected to the system board. To help with re-assembly, make note of which cables were connected to which connector.

NOTE   To access the three power cables near the PCI cage, you must lift up the connector bridge for the PCI cage fan.

Step 6. Unscrew the system board mounting screw. A screw symbol is adjacent to the mounting screw.

Figure 1-29 Remove the System Board Mounting Screw
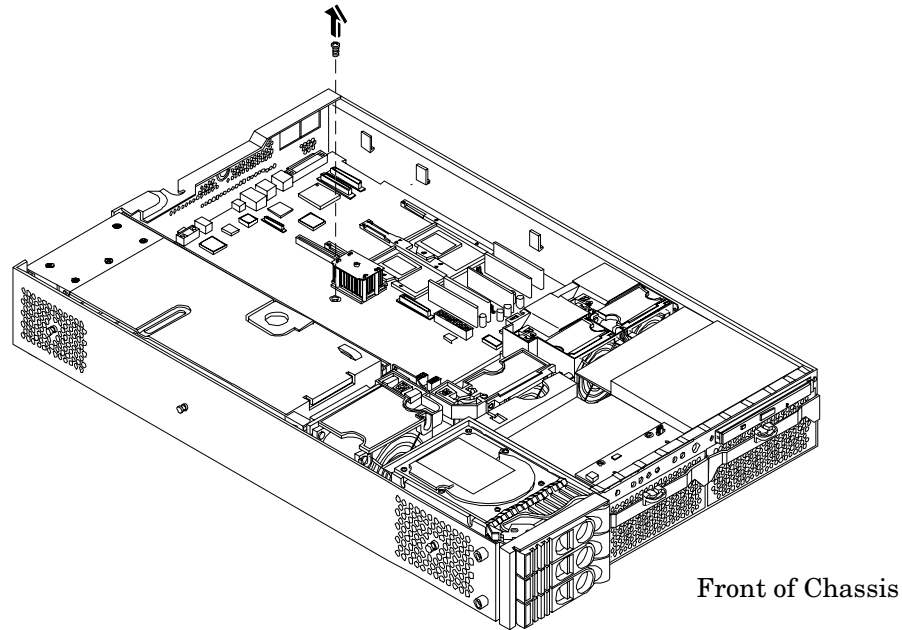
Front of Chassis

Step 7. Remove the system board:

a. Grasp the memory controller chip heatsink and slide the system board toward the front of the system. This releases the system board from its chassis standoffs.

b. Lift up the processor module side of the system board and slide it free of the PCI cage bay.

Figure 1-30 Remove the System Board

Front of Chassis
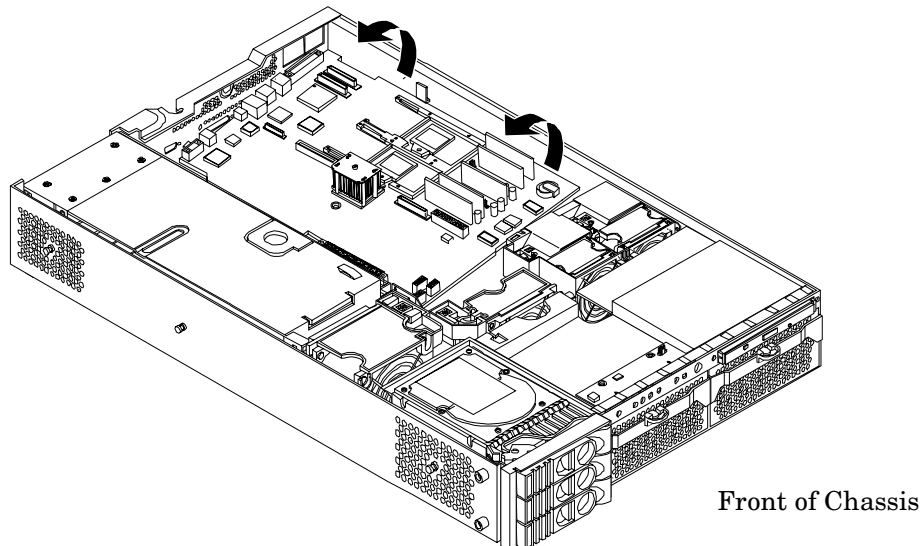
Remove Rear Chassis Port Label (rp34x0)

NOTE	This procedure applies only to an upgrade from an rp34x0 machine.

In rp34x0 machines, the VGA and secondary LAN ports are not functional. A label on the rear of the rp34x0 chassis designates the VGA port as Not Available and covers the secondary LAN port. Before the system board is upgraded, the label must be removed. The following figures show the rear chassis with and without the port label.

Figure 1-31   Rear Chassis with Port Label
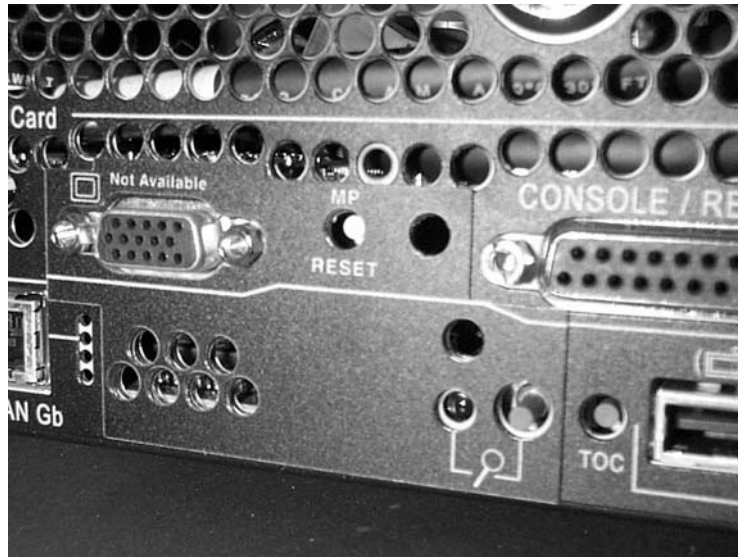
Figure 1-32   Rear Chassis with Port Label Removed

Upgrading the System Board

Installing the New System Board

Step   1. Verify the part number of the system board (AB331-67001).

Step   2. Grasp the new system board by its edges and carefully align it in the system:

a. Angle the board to allow the PCI connector to slide into the PCI cage bay area.

Figure 1-33 Slide System Board into Chassis

Front of Chassis
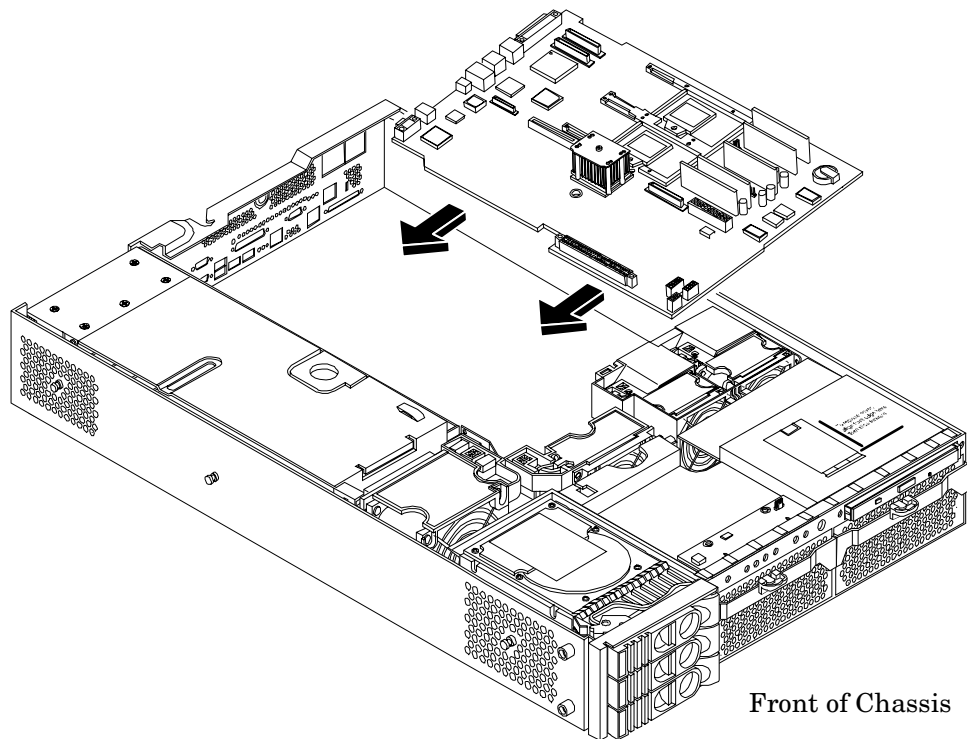
b. Align the system board keyholes with their standoffs on the chassis.

c. Slide the PCI connector posts on the system board into their slots on the system chassis.

Figure 1-34 Align the System Board PCI Connector

Front of Chassis
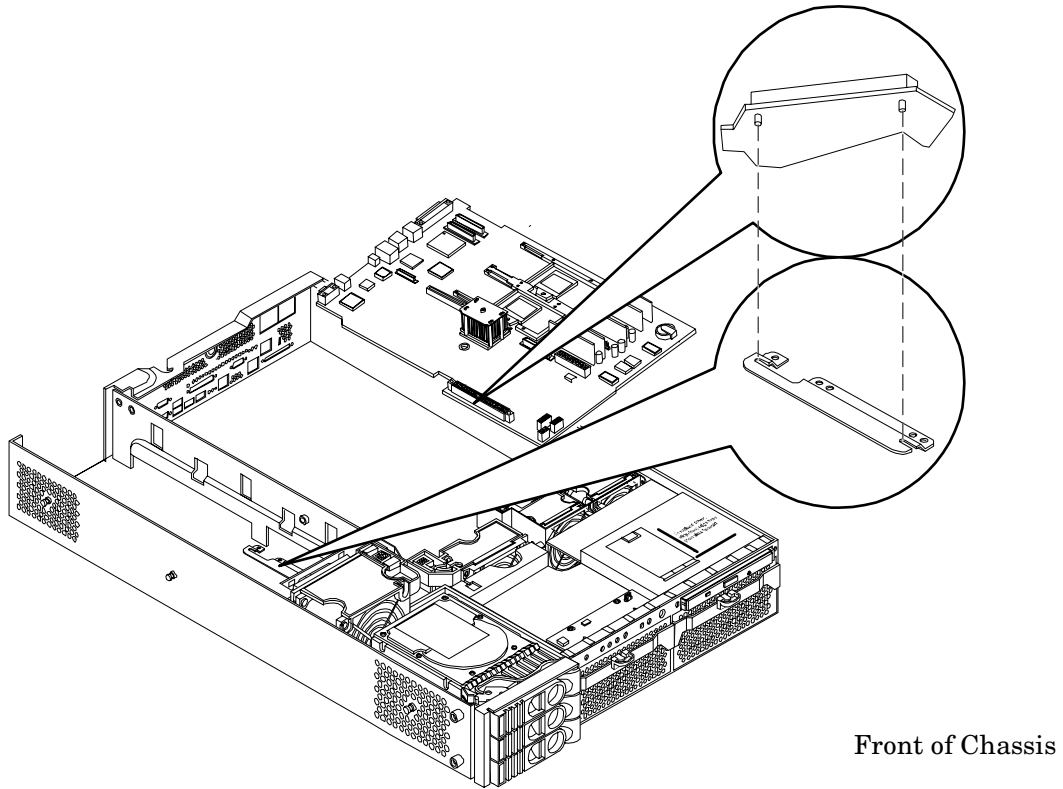
Step   3. Slide the system board back toward the rear of the system to secure the system board on its standoffs.

Figure 1-35 Slide System Board in Chassis

Front of Chassis
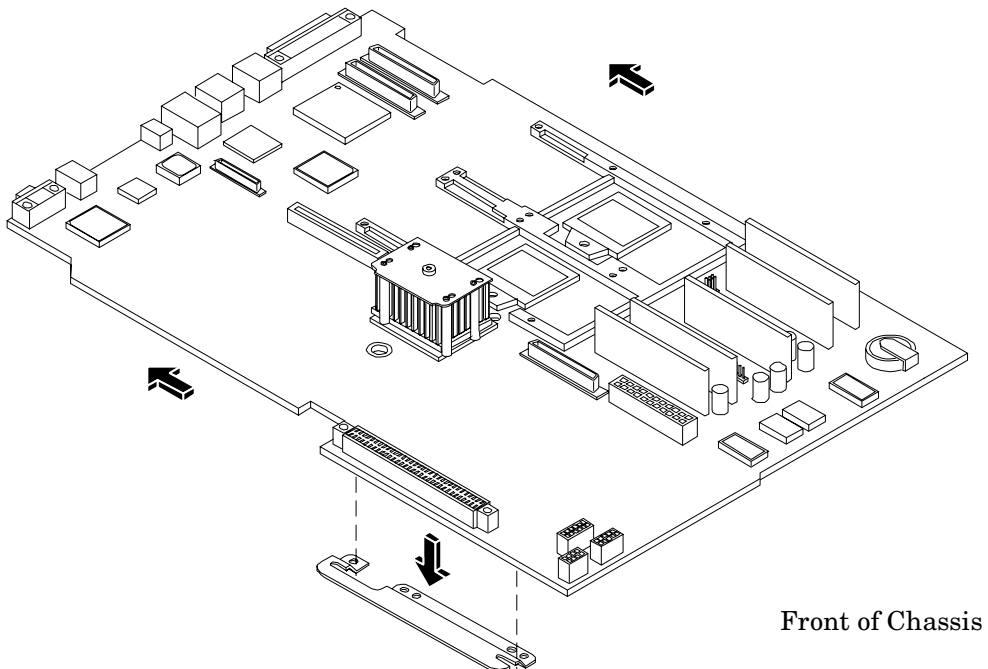
Step 4. Screw in the system board mounting screw.

Step 5. Connect all cables to their appropriate connectors on the system board.

Step 6. Screw in the six rear backplane system board mounting screws.

Figure 1-36 Install the Rear Panel Mounting Screws

Rear of Chassis
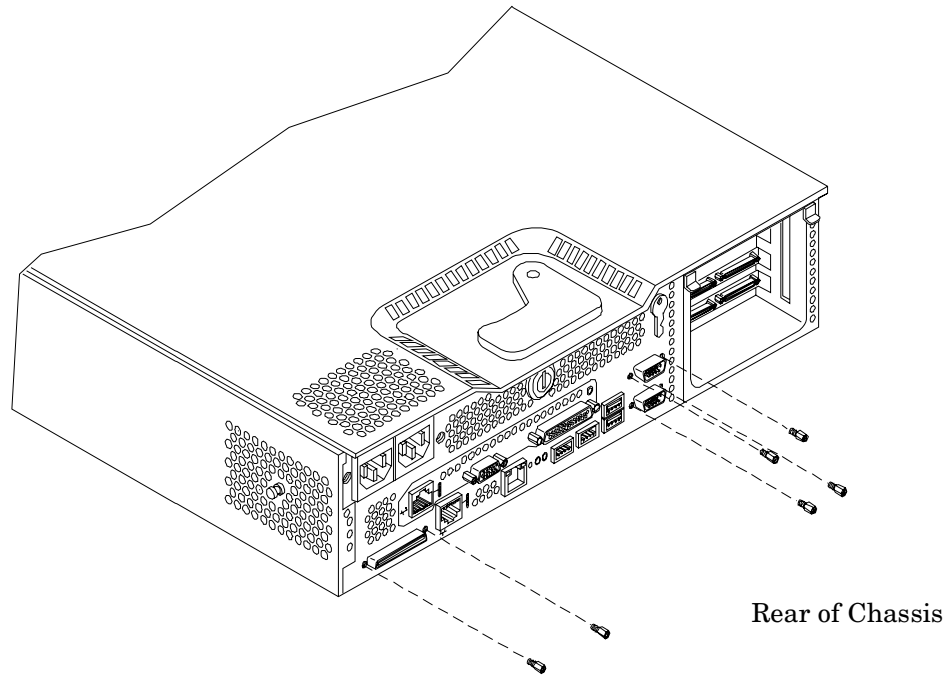
Upgrading the CPUs

Installing the New Processor Module

Step 1. Verify part number of the CPU (AB334A, AB335A or AB336A).

NOTE	Ensure that each processor has an identical part number when installing more than one processor. CPU types cannot be mixed within the same server.

Step 2. Ensure that socket covers are removed and that sockets are in the unlocked position. See "Removing Processor Modules" on page 31 for more detail.

Step 3. Use the four locator posts on the heatsink and the turbo fan power cable to properly align the fan and processor module on the system board. The four locator posts will fit in locator holes on the system board processor module mount. The turbo fan power cable must be positioned so that it is located on the side of the heatsink that faces the front of the system.

Figure 1-37 Aligning the Processor Module

Front of Chassis
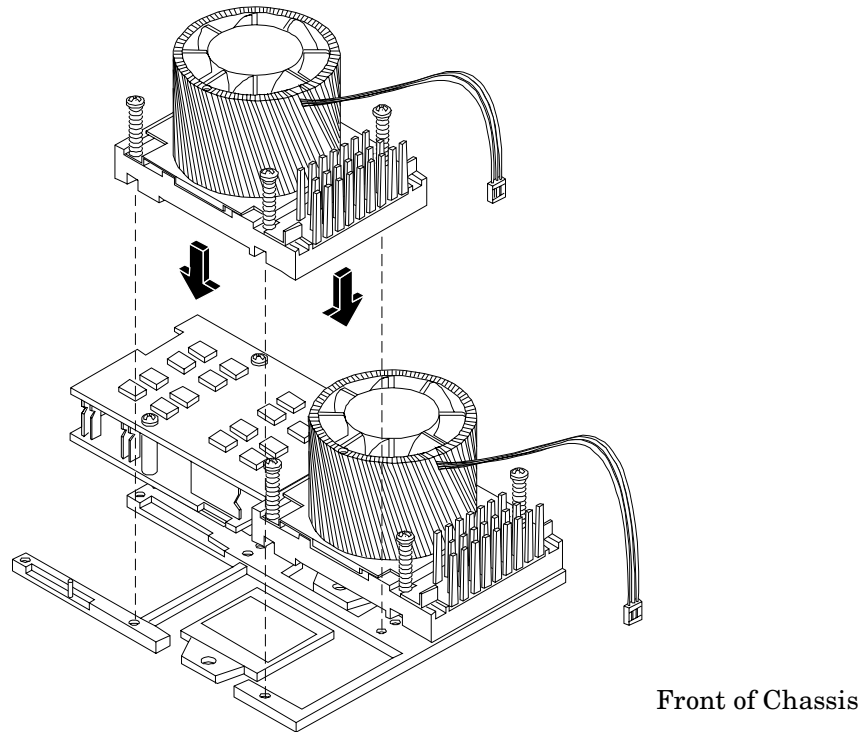
CAUTION	Do not press the processor module into the socket. When properly aligned, the processor pins will seat into the ZIF socket, no additional pressure is required.

Step 4. Use the special processor tool shipped with your processor module to lock the processor module in place on the system board. To do this, insert the special processor tool into the hole that runs down the side of the heatsink and rotate it clockwise 180 degrees.

Figure 1-38 Locking the Processor Module in Place

Unlocked

Locked

Front of Chassis
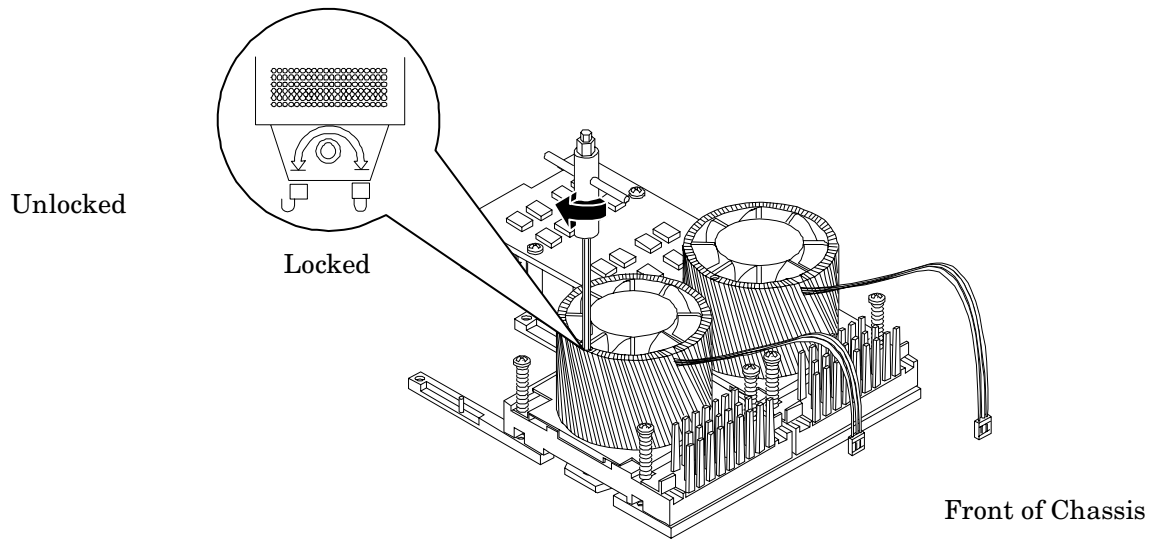
Step 5. Slide the sequencing retainer plate toward the rear of the system.

Figure 1-39 Slide the Sequencing Retainer Plate

Front of Chassis
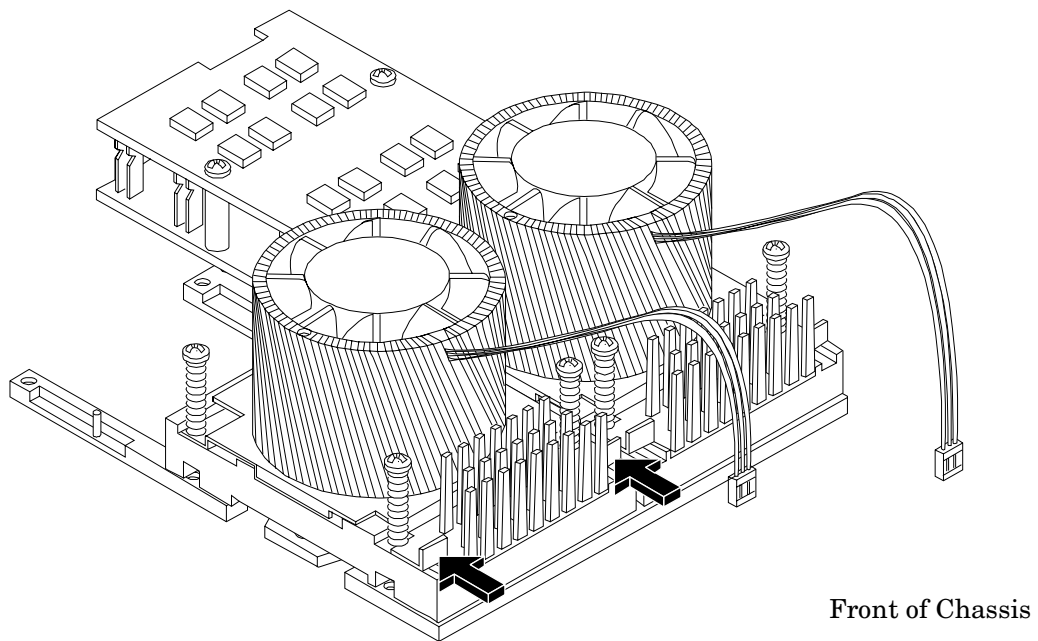
Step 6. Screw in the four heatsink captive screws.

Figure 1-40 Secure the Captive Screws

Torquing pattern

Front of Chassis
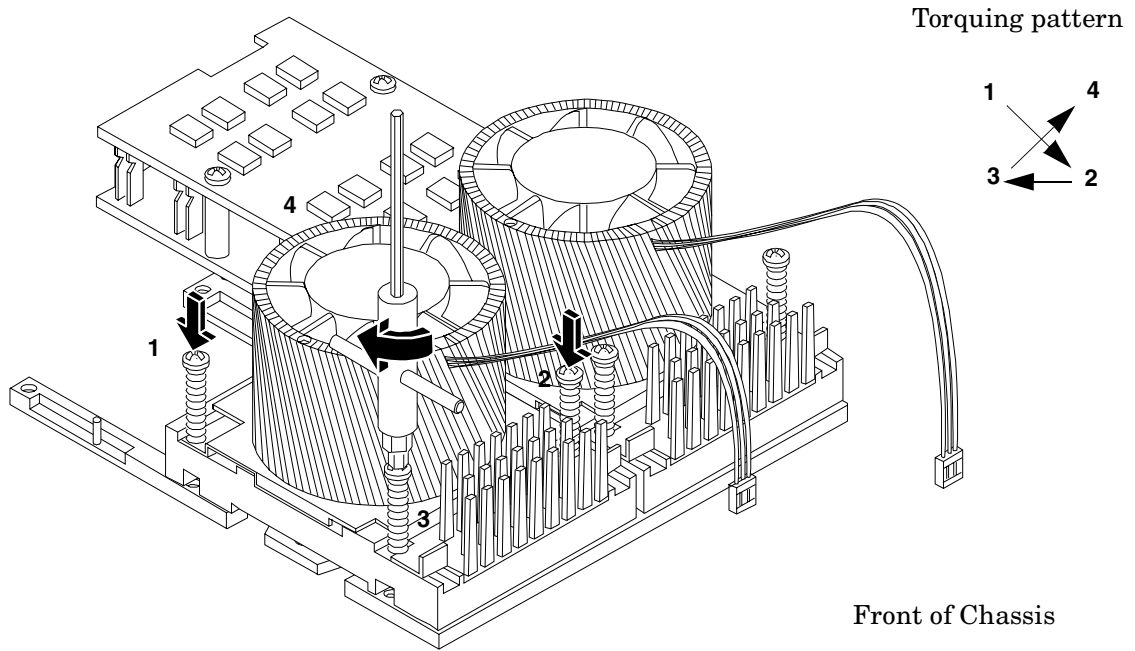
Step   7. Slide the power module on the system board metal mounting bracket so that the power module connector connects with its connector on the processor module.

Figure 1-41 Aligning the Processor Module Power Pod

Front of Chassis
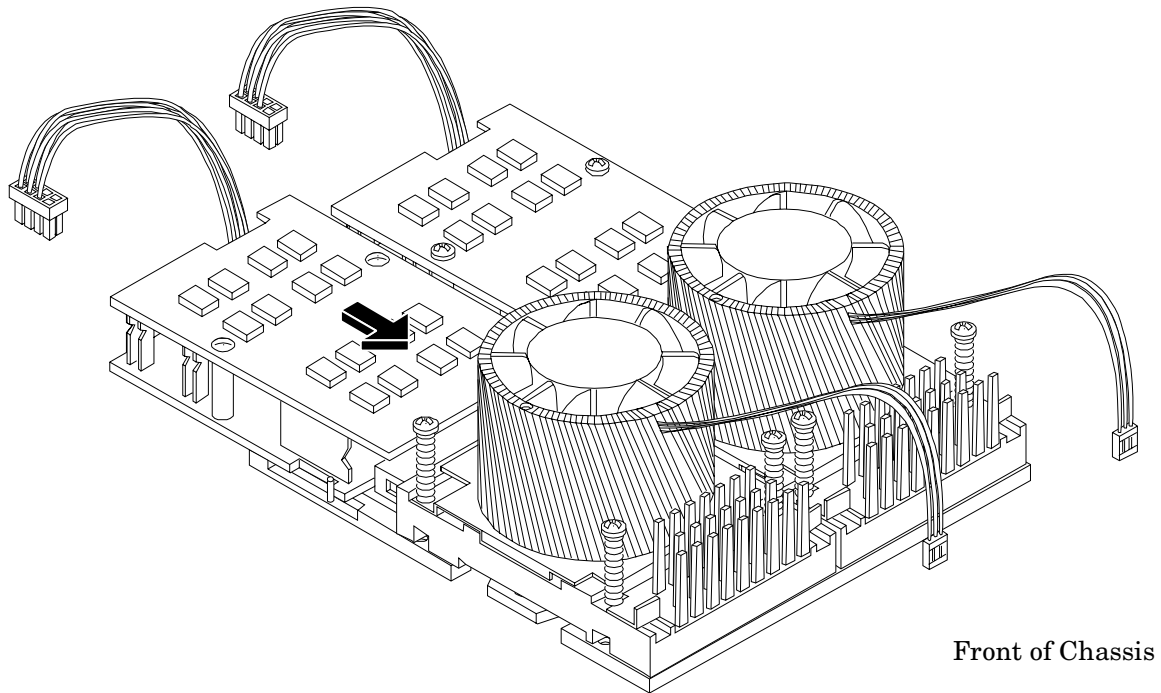
Step   8. Align the two mounting screw holes on the power module with their screw holes on the system board's metal mounting bracket. Screw in the power module mounting screws.

Figure 1-42 Install the Processor Module Power Pod Mounting Screws

Front of Chassis
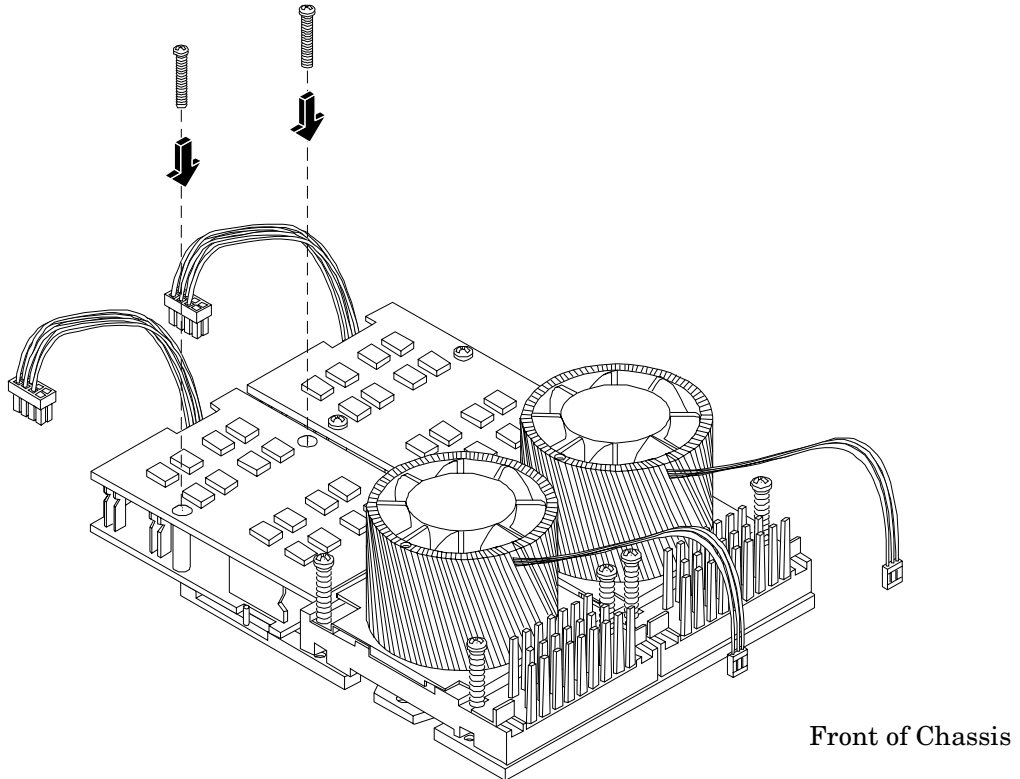
Step 9. Connect the processor module turbo fan power cable to the connector on the system board.

Figure 1-43 Connect the Turbo Fan Cable

Front of Chassis
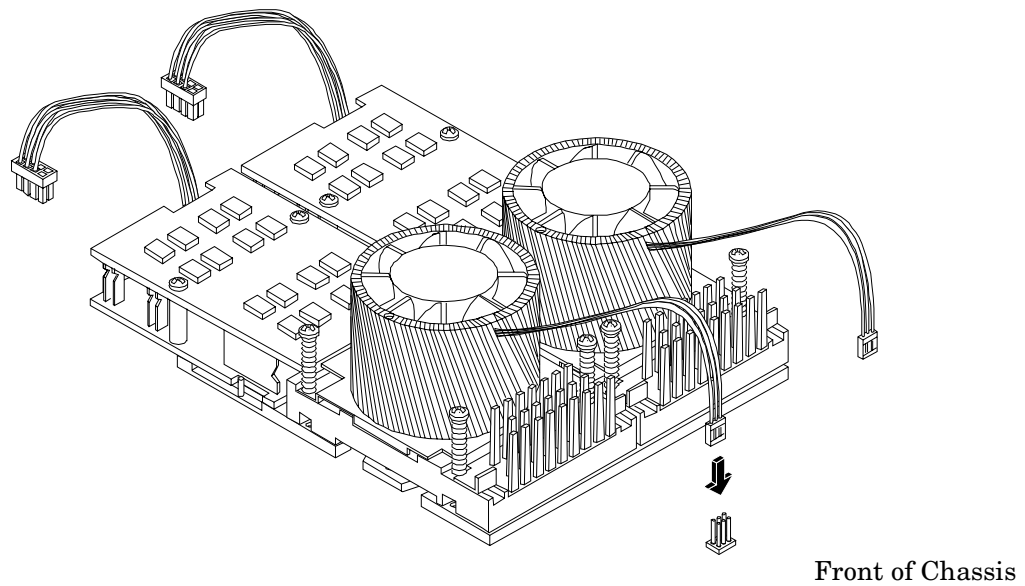
Step 10. Connect the power pod cable to the power connector on the system board.

Figure 1-44 Connecting the Power Pod Cable

Front of Chassis
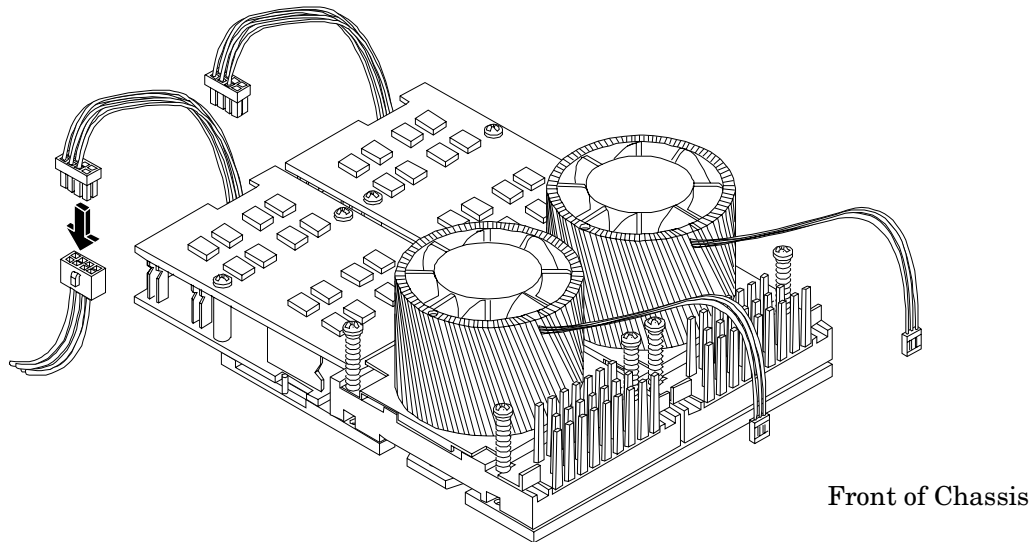
Reinstalling System Fans, PCI Card Cage, Airflow Guides, Memory, and the Management Processor

Reinstall the Management Processor

NOTE	Connect SCSI cables before replacing the Management Processor.

Step 1. Insert the management processor in the system.

Step 2. Grasp its edges and place it on the two management processor posts.

Step 3. Push the 10/100 management LAN, 15-pin VGA and 25-pin serial connectors through their openings on the back of the system

Step 4. Connect the management processor:

- Connect the management processor cable to its connector on the system board.

- Screw in the two mounting screws that connect the management processor to the internal chassis post.

- Screw in the two external mounting screws that are located on both sides of the 25-pin serial connector.

Step 5. Replace the power connectors in their slots on the back of the system and screw in the power connector mounting screws.

Figure 1-45 Reinstall the Power Connectors

Front of Chassis
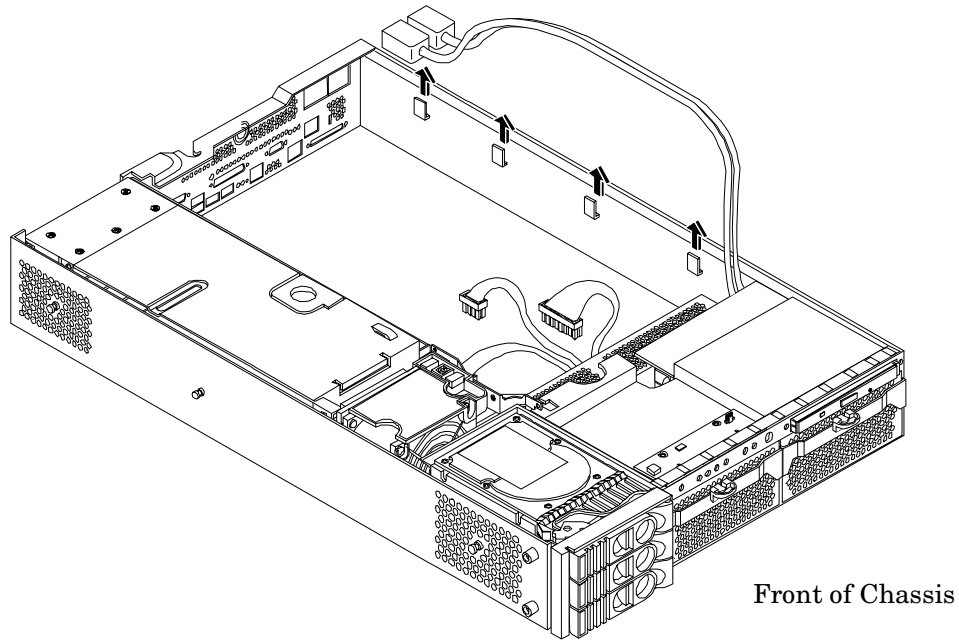
Reinstalling System Memory

Memory modules must be loaded in the correct order:

- In the HP Integrity rx2620 server, DIMMs must be installed in matched quads. Two matched memory card pairs of equal size (that is, four identical DIMMs) must be installed, one pair per memory cell, as listed below:

  — 0A, 0B and 1A, 1B must be matched pairs of equal size

  — 2A, 2B and 3A, 3B must be matched pairs of equal size

  — 4A, 4B and 5A, 5B must be matched pairs of equal size

NOTE	If upgrading to 4 GB DIMMs, the only configuration supported is to install 8 4 GB DIMMs in the first eight slots (0A, 0B, 1A, 1B, 2A, 2B, 3A, and 3B). the four remaining slots (4A, 4B, 5A and 5B must remain empty.
	The system firmware required for 4 GB DIMM operation is 3.17 or later.
	DIMMs match if they have the same HP part number. The DIMMs are 184-pin, industry-standard, DDR266, CL2, registered ECC modules. Industry standard means the DIMMs meet specifications detailed in the JDEC Standard No. 21-C, Module 4, titled "PC2100 and PC1600 DDR SDRAM Registered DIMM Design Specification." A complete and current list of acceptable DIMMs is provided on the parts website at: http://partsurfer.hp.com.

To reinstall the original DIMMs into the new system board, perform the following steps:

NOTE	Insert memory in the new system board in the same locations as they were in the old system board.

Step 1. Holding the memory module by its left and right edges, insert the module into the slot.

The memory modules are keyed and can only be inserted in one direction. When the module is correctly seated, the retainer clips will return to their fully upright position. Snap the clips firmly into place to ensure that the DIMMs are seated properly.

Step 2. Gently and evenly push on each side of the DIMM until it seats in the slot. Ensure the extraction levers are in the closed position.

Figure 1-46   Inserting DIMM into Slot
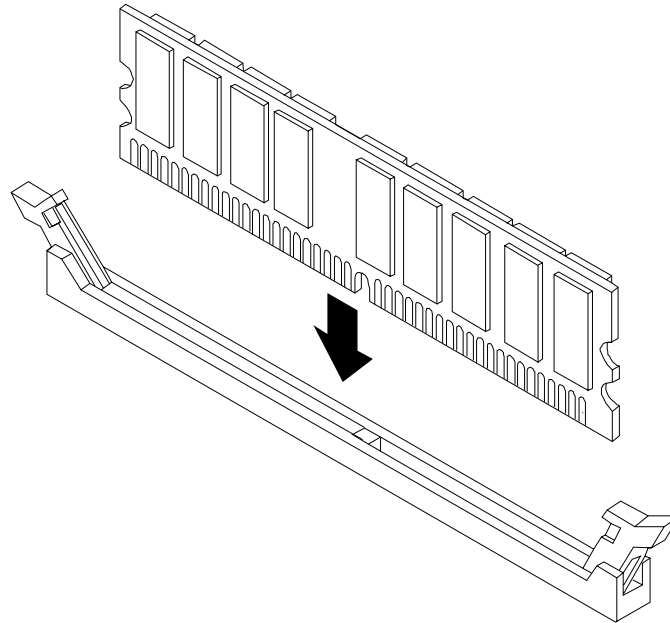
Reinstalling Air Flow Guides

Figure 1-47   Airflow Guides Locations

Processor Airflow Guide

Memory Airflow Guide

Front of Chassis
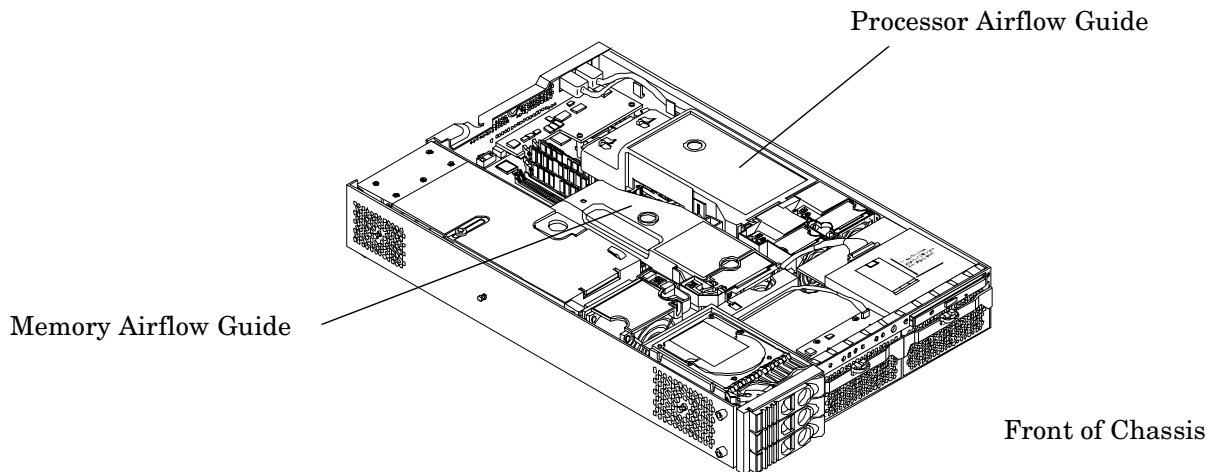
Reinstalling the Memory Airflow Guide

Step   1. Align the guides on both sides of the original airflow guide with the slots on the chassis.

Step   2. Insert the memory airflow guide in the slots.

Reinstalling the Processor Airflow Guide and Upgrading the CPU Fans (1A and 1B)

Step   1. Reinstall the front portion of the original airflow guide:

      a. Align the release latch of the front half of the airflow guide over the release latch post and snap
it in place.

> **b.** Connect power connector on the front portion of the guide to the connector on the system board.

Step 2. Reinstall the main portion of the original airflow guide:

> **a.** Hold the opening on top of the processor airflow guide.
>
> **b.** At the same time, grasp the back end of the airflow guide and insert the airflow guide into the system.
>
> **c.** Connect the power module cable and place the power and IDE cables in the cable clips.

Reinstalling PCI Card Cage

To reinstall the original PCI cage, perform the following action:

Step 1. Insert the PCI card cage into the system and engage the release lever.

Reinstalling System Fans 2 and 3

NOTE	System fans 1A and 1B must be upgraded. See "Upgrade CPU Fans (1A and 1B)".

Step 1. Grasp the fan module and insert it into its fan socket.

Step 2. Check for proper seating of the fan in its socket.

Upgrade CPU Fans (1A and 1B)

Step 1. Verify that fans 1A and 1B (AB331-04001) are those provided with the upgrade kit before installation.

Step 2. Grasp the fan module and insert it into its fan socket.

Step 3. Check for proper seating of the fan in its socket.

Step 4. Insert the two airflow guide retaining tabs into the two slots on the front half of the airflow guide.

Installing HP Integrity rx2620 Name Plate and Intel Itanium 2 Rack Label

To install the HP Integrity rx2620 server name plate and Intel Itanium 2 rack label, follow these steps:

Step 1. Locate the name plate release prongs on the back side of the system bezel.

Step 2. Exert outward pressure on the prongs until the name plate releases through the front of the bezel.

Step 3. Push on the new name plate through the front of the bezel until it snaps into place.

Step 4. If upgrading from rp34x0, affix Intel Itanium 2 label to outside of rack and adjacent to the server.

Apply UUID Label (rp34x0)

When upgrading from an rp34x0, apply the UUID label to the rear of the pull tab located in the slot between the power supply and disk drives.

NOTE	The UUID label is not used when upgrading from an rx2600 and should be discarded.

Replacing the Front Bezel and Top Metal Cover

Replacing the Front Bezel

To install the front bezel, perform the following step:

Step 1. Push the front bezel straight into the chassis until it snaps into place.

Figure 1-48 Installing the Front Bezel
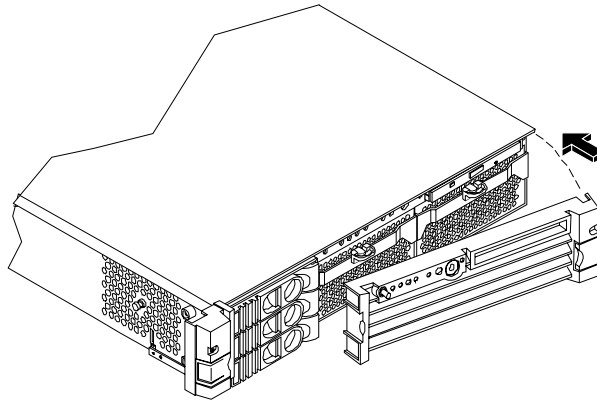
Replacing the Top Metal Cover

CAUTION	Secure any wires or cables in your system so they will not get cut or interfere with the replacement of the cover.

Step 1. Align the front edge of the top metal cover with the alignment mark on the optical drive bay.

Figure 1-49 Aligning the Top Metal Cover

To replace cover,
align front edge here
then slide forward

Front of Chassis
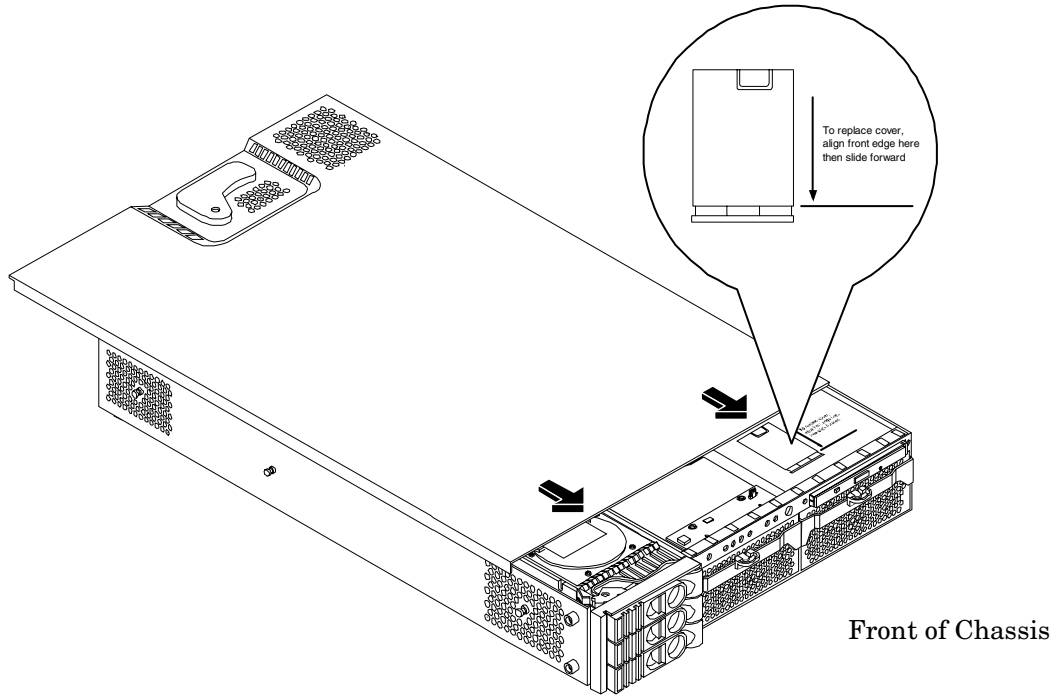
Step 2. Grasp the blue release lever and slide the top metal cover toward the front of the system until the lever snaps into place.

Figure 1-50 Closing the Top Metal Cover

Front of Chassis
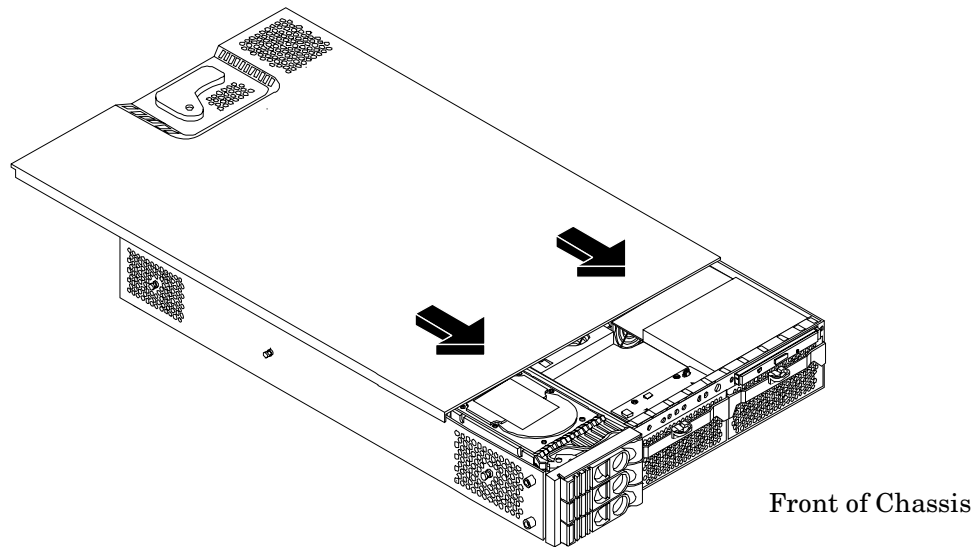
Step 3. Slide the system into the rack enclosure and reconnect the power cables.

System Validation and Reconfiguration Procedures After Hardware Upgrade from rx2600

The system board upgrade part is configured at the factory with default product, serial and UUID IDs. After replacing the system board, factory default ID values must be overwritten with actual system values. In rx2600 machines, the product, serial and UUID actual ID values are stored in both the system and display boards. Product, serial and UUID IDs can be automatically copied from the display board to overwrite the default factory ID values on the new system board.

Step 1. Power on the system.

    a. Reconnect AC power to rear panel connectors.

    b. Press the front panel power switch to power on the server.

Step 2. Restore the product, serial and UUID IDs.

    a. Answer **Yes** to the copy prompt displayed during system power on.

    b. Reboot the server.

Step 3. Boot the machine to EFI.

Step 4. Verify system board installation.

    a. Enter the `info sys` command. Verify that the newly installed system board is recognized by the system. Below is an example of the `info sys` command output following a successful upgrade:

NOTE   The product number is now rx2620 and the product, serial and UUID number values are populated.

```
SYSTEM INFORMATION
Date/Time:  Aug  3, 2004  15:34:26  (20:04:08:03:15:34:26)
Manufacturer:  hp
Product Name:  server rx2620
Product Number:  AB459A
Serial Number:  SGH4414201
UUID:  162D4BA1-4D67-11D8-881B-E20562B8C81F
System Bus Frequency:  199 MHz
```

Step 5. Verify CPU installation.

    a. Enter the `info cpu` command. Verify that all newly installed processors are recognized by the system. Below is an example of the `info cpu` command output following a successful upgrade:

NOTE   One processor is installed in the example below.

```
PROCESSOR MODULE INFORMATION
          # of                   L3      L4      Family/
  CPU    Logical               Cache   Cache   Model            Processor
 Module  CPUs     Speed        Size    Size    (hex.)   Rev    State
 ------  -------  --------     ------  ------  -------  ---    ------------
    0       1      1.3 GHz      3 MB    None    1F/02    A1     Active
```

Step 6. Check the system event log for erroneous system events and run system diagnostics as necessary.

Step 7. Boot the operating system.

System Validation and Reconfiguration Procedures After Hardware Upgrade from rp34x0

The system board upgrade part is configured at the factory with default product, serial and UUID IDs. After replacing the system board, factory default ID values must be overwritten with actual system values. In rp34x0 machines, the product, serial and UUID actual IDs must be entered manually.

Step 1. Power on the system.

    a. Reconnect AC power to rear panel connectors.

    b. Press the front panel power switch to power on the server.

Step 2. Restore product, serial and UUID IDs.

    a. Type **y** when prompted to change the system IDs.

```
Do you want to set the system IDs (can be set at the shell using: sysset)?
(y/[n])
```

    b. Slide the pull tab out of its location in the slot between the power supply and disk drives.

    c. Enter UUID, product and serial ID values located on the pull tab label.

```
Please enter UUID (. to abort)
UUID: 162D4BA1-4D67-11D8-881B-E20562B8C81F

Please enter product number (. to abort)
Product Number: AB459A

Please enter serial number (. to abort)
Serial Number: SGH4414201
```

    d. Type **y** when prompted to set the system IDs to listed values.

        NOTE   Ensure system ID values listed on the screen output match values on the pull tab.

```
The system IDs will be set to the following values:
UUID: 162D4BA1-4D67-11D8-881B-E20562B8C81F
Product Number: AB459A
Serial Number: SGH4414201
Set the system IDs to the above values?
(y/n)
```

    e. Verify successful system ID restoration.

```
New system ID values were set successfully.
2 0 0x0002F2 0x0000000000000000 Set system IDs to valid values
0 0 0x0002B9 0x0000000000000013 EFI POST code
```

Step 3. Boot the machine to EFI.

Step 4. Verify system board installation.

    a. Enter the `info sys` command. Verify that the newly installed system board is recognized by the system. Below is an example of the `info sys` command output following a successful upgrade:

NOTE	The product number is now rx2620 and the product, serial and UUID number values are populated.

```
SYSTEM INFORMATION

Date/Time:  Aug  3, 2004  15:34:26  (20:04:08:03:15:34:26)
Manufacturer:  hp
Product Name:  server rx2620
Product Number:  AB459A
Serial Number:  SGH4414201
UUID:  162D4BA1-4D67-11D8-881B-E20562B8C81F
System Bus Frequency:  199 MHz
```

Step 5. Verify CPU installation.

    a. Enter the `info cpu` command. Verify that all newly installed processors are recognized by the system. Below is an example of the `info cpu` command output following a successful upgrade:

NOTE	One processor is installed in the example below.

```
PROCESSOR MODULE INFORMATION

          # of                 L3     L4     Family/
  CPU    Logical              Cache  Cache   Model          Processor
 Module   CPUs      Speed     Size   Size    (hex.)   Rev   State
 ------  -------   --------   ------ ------  -------   ---   ------------
   0       1       1.3 GHz    3 MB    None    1F/02    A1    Active
```

Step 6. Check the system event log for erroneous system events and run system diagnostics as necessary.

Step 7. Reboot the server.

Step 8. Install the operating system using appropriate operating system documentation.

2 RAID - Smart Array 6402 or 6404 Controller for Internal RAID Installation

Smart Array 6402 RAID or 6404 RAID Cards

This section provides information and instructions for installing the HP A9890A PCI-X 2-Channel RAID SA SCSI Controller (Smart Array 6402) or the HP A9891A PCI-X 4-Channel RAID SA SCSI Controller (Smart Array 6404).

Before installing either Smart Array card, ensure the following hardware and software prerequisites are met:

- Check the *RAID-01 HP Smart Array Controller Driver Release Notes* available at http://www.docs.hp.com in the Networking & Communications section for known problems or other information needed for installation.

- Confirm that the Smart Array 6402 or 6404 controller and software are supported on the HP Integrity server and I/O slot chosen. Refer to the *Smart Array Controller Support Matrix* located at http://www.docs.hp.com in the Networking & Communications section for more information.

- Check the HP Integrity server's documentation to determine if additional tools are required for component installation at http://www.docs.hp.com.

- Smart Array 6402 or 6404 controller software media is available. It is included on CD or on the Web through http://www.software.hp.com.

- Confirm that HP-UX super-user privileges are available; they are necessary to complete the installation.

- Confirm that the `/usr/bin`, `/usr/sbin`, and `/sbin` directories are in your PATH by logging in as root and using the `echo $PATH` command.

CAUTION   Smart Array cards contain electronic components that can easily be damaged by small amounts of electricity. To avoid damage, follow these guidelines:

- Store controllers in their anti-static plastic bags until installation.

- Work in a static-free area.

- Handle controllers by the edges only. Do not touch electronic components or electrical traces.

- Use a grounding wrist strap.

- Use a suitable ground—any exposed metal surface on the computer chassis.

Internal and External RAID

You can use RAID cards for internal and external connections:

- Internal RAID refers to connecting embedded or internal disks to the RAID card

- External RAID refers to connecting external devices to the RAID card

SCSI Cabling Kit and Cabling Guide

In addition to the Smart Array 6402 and 6404 RAID cards, you must also have the Internal Smart Array Cable kit (HP P/N A9827A).

- Cable A7231-63024 is used for the single channel or simplex RAID card

- Cable A7231-63025 is used for the dual channel or duplex RAID card

Before installing the RAID card, refer to the *Internal Cabling Guide for HP Smart Array Controllers* HP P/N 5971-4280 available at http://www.docs.hp.com.

PCI Slots

Before inserting a RAID card, be certain of which PCI slots are available for RAID, and if the slot can be used for internal or external RAID.

The following table lists the PCI slots and information about the RAID card that can be inserted into each slot.

Table 2-1   PCI Slots

PCI Slot #	Description
1	Cannot be used with internal or external RAID.
2	Used only for external RAID 6402 or 6404.
3	Only slot that can be used for internal RAID 6402 or 6404. Can be used for external RAID also.
4	Cannot be used with internal or external RAID.

IMPORTANT Do not use both the internal and external connectors on one port simultaneously. The card will not function if both connectors on one port are used.

Installing RAID for Simplex Configuration

The RAID card comes pre-configured. You do not have to set any jumpers or connectors.

WARNING **Ensure that the system is powered down and all power sources have been disconnected from the server prior to working with the server.**

Voltages are present at various locations within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position.

Failure to observe this warning could result in personal injury or damage to equipment.

Step 1. Back up data before installing the RAID card.

Step 2. Shut down the system.

Step 3. Power off the system, and unplug the power cord.

Step 4. Remove the PCI card cage (refer to "Removing and Replacing PCI Cards" in the *HP rx2620 Maintenance Guide*).

Step 5. Disconnect the SCSI cable(s) from the internal SCSI backplane.

Step 6. Install the Install the Smart Array 6402 or 6404 card.

Figure 2-1 Smart Array 6402 RAID Card (SA 6404 RAID Card not shown)
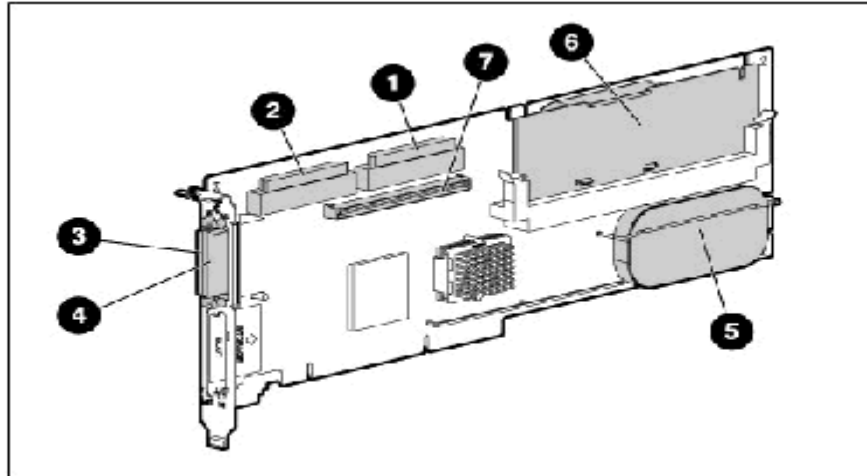
The following table lists the RAID card components.

Table 2-2   RAID Card Components

Item ID	Description
1	Internal SCSI connector, port A1
2	Internal SCSI connector, port A2
3	External SCSI connector, port A1
4	External SCSI connector, port A2
5	Controller battery
6	Battery-backed cache module
7	Connector for expansion board

Step 7. Slide the RAID card edge-connector into the slot until it is fully seated.

Step 8. Route the new SCSI cable(s) from the internal disks to the Smart Array card and connect the cables.

    a. For simplex mode, connect SCSI cable A7231-63024 to connector A1 on the RAID card. Do not connect any other SCSI cables.

    b. Leave connector A-2 available for external connections.

Step 9. Replace the PCI card cage and top cover and power up the system.

Step 10. Configure logical drive and install operating system. (See "Setting up a Smart Array RAID Card As a Boot Device" on page 65 for detailed instructions.)

Installing Smart Array RAID for Duplex Configuration

The RAID card comes pre-configured. You do not have to set any jumpers or connectors.

Step 1. Back up data before installing the RAID card.

Step 2. Shut down the system.

Step 3. Power off the system, and unplug the power cord.

Step 4. Remove the PCI card cage (refer to "Removing and Replacing PCI Cards" in the *HP rx2620 Maintenance Guide.*

Step 5. Disconnect the SCSI cable(s) from the internal SCSI backplane.

Step 6. Install the Smart Array RAID card and slide the RAID card edge-connector into the slot until it is fully seated.

Step 7. Route the SCSI cable(s) from the internal disks to the Smart Array cards and reconnect the cables.

    a. For duplex mode, connect SCSI cable A7231-63025 to connector A2 on the RAID card; and connect SCSI cable A7231-63024 to connector A1 on the RAID card.

Step 8. Replace PCI card cage and top cover and power up the system.

Step 9. Configure logical drive and install operating system. (See "Setting up a Smart Array RAID Card As a Boot Device" on page 65 for detailed instructions.)

CAUTION   Do not operate the server for long periods without the cover installed. Operating the server without the cover results in improper airflow and improper cooling that can lead to thermal damage.

WARNING   **To reduce the risk of personal injury or damage to the equipment, consult the safety information and user documentation provided with your server before attempting installation.**

Setting up a Smart Array RAID Card As a Boot Device

The Smart Array RAID card can be set up as a boot device.

NOTE	For PA-RISC systems, use Ignite/UX and `saconfig` to create the logical drives. For Integrity systems, use the Option ROM Configuration for Arrays (ORCA) to create the logical drives.

Offline Configuration of HP-UX 11i v1 or HP-UX 11i v2 Using Ignite-UX

To set up a Smart Array 6402 Controller as a boot device, you must install HP-UX 11i v1 or HP-UX 11i v2 on one of the controller's logical drives. Follow this procedure:

Step 1. Start Ignite-UX from the HP-UX 11i v1 or HP-UX 11i v2 Core OS Install and Recovery Media. The Ignite-UX `Welcome` screen displays:

```
Welcome to Ignite-UX!
  Use the <tab> key to navigate between fields, and the arrow keys
  within fields.  Use the <return/enter> key to select an item.
  Use the <return/enter> or <space-bar> to pop-up a choices list.  If the
  menus are not clear, select the "Help" item for more information.



  Hardware Summary:        System Model: 9000/800/A500-5X
  +-------------------+--------------+------------------+ [ Scan Again  ]
  | Disks: 3  (204.6GB) | Floppies: 0  | LAN cards:   1   |
  | CD/DVDs:        0   | Tapes:    0  | Memory:    4096MB |
  | Graphics Ports: 0   | IO Buses: 7  | CPUs:        1   |  [ H/W Details ]
  +-------------------+--------------+------------------+
                       [    Install HP-UX      ]
                       [  Run a Recovery Shell  ]
                       [    Advanced Options    ]

        [  Reboot  ]                          [  Help  ]
```

Step 2. Select Run a Recovery Shell. The Recovery Shell screen displays:

```
NOTE:    Creating the second RAM disc and mounting on /dev ...
      * Generating device file for the second ramdisc...
      * Loading mkfs to make a file system...
   version 4 layout
   15625 sectors, 15625 blocks of size 1024, log size 1024 blocks
   unlimited inodes, largefiles not supported
   15625 data blocks, 14529 free data blocks
   1 allocation units of 32768 blocks, 32768 data blocks
   last allocation unit has 15625 data blocks
      * Loading mount to mount/dev/ram1 file system...
      * Mounting /dev/ram1 file system succeeded!
      * Copying /dev.old files back to /dev succeeds!
      * Loading insf to create disk device files...
      * Creating disk device files...
      * Loading in a shell...
NOTE:    Pushing a shell, you will have to use "reboot" to reboot the system when done.  Use
   the "loadfile" command to bring in more commands as you need them.
   #
```

Step 3. At the recovery shell prompt, enter:

loadfile -l INSTCMDS /opt/raidsa/bin/ciss_insf

```
# loadfile -l INSTCMDS /opt/raidsa/bin/ciss_insf
```

Step 4. Verify that the device file for the Smart Array 6402 Card, or the Smart Array 6404 Card has been created. At the next prompt, enter:

/opt/raidsa/bin/ciss_insf

Step 5.

| NOTE | The following example is for the Smart Array 6402 Card. The Smart Array 6404 Card has more devices that what is shown for the 6402 card. |

```
# /opt/raidsa/bin/ciss_insf

Installing special file for Smart Array 6402

/dev/ciss3 installed
```

Step 6. At the prompt enter:

loadfile -l INSTCMDS /opt/raidsa/bin/saconfig

```
# loadfile -l INSTCMDS /opt/raidsa/bin/saconfig
```

Step 7. Configure the array(s) and logical drive(s) following the instructions for the **saconfig** configuration utility. You must enter the entire path /opt/raidsa/bin/saconfig /dev/cissX for saconfig to run.

Step 8. Once you configure the logical drive(s) and array(s), exit the recovery shell by entering **reboot** at the prompt. The system reboots and you are returned to the Boot Console Handler (BCH) prompt.

Step 9. At the BCH prompt, start Ignite-UX from the HP-UX 11i v1 or HP-UX 11i v2 Core OS Install and Recovery Media. The Ignite-UX Welcome screen displays (see **Step 1**).
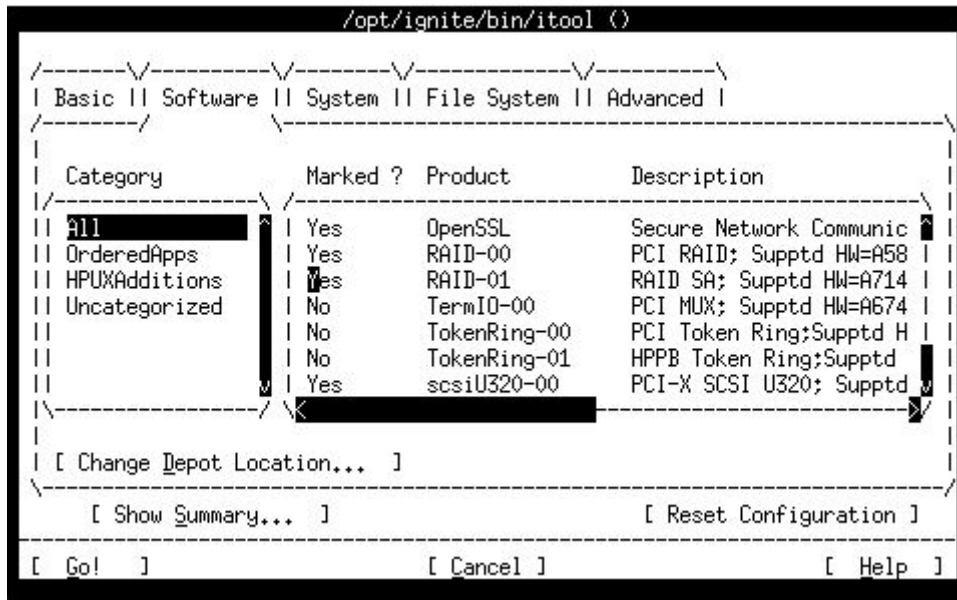
Step 10. Choose Install HP-UX.

Step 11. Choose the Advanced installation option.

The installation starts, and the Ignite-UX graphical interface (GUI) launches.

Step 12. Under the Basic tab, select the configuration to use HP-UX system.

Step 13. Select the Smart Array 6402, or Smart Array 6404 logical drive on which you want to install the HP-UX operating system.

Step 14. Verify that the Software tab (next to the Basic tab referenced in the previous step) contains the following entry:

```
                        /opt/ignite/bin/itool ()

/--------\/----------\/--------\/-------------\/----------\
| Basic || Software || System || File System || Advanced |
/--------/          \------------------------------------------\
|
|  Category           Marked ?  Product          Description
|/-----------------\ /-------------------------------------------\ |
|| All            ^ | Yes      OpenSSL          Secure Network Communic ^ |
|| OrderedApps      | Yes      RAID-00          PCI RAID; Supptd HW=A58  | |
|| HPUXAdditions    | Yes      RAID-01          RAID SA; Supptd HW=A714  | |
|| Uncategorized    | No       TermIO-00        PCI MUX; Supptd HW=A674  | |
||                  | No       TokenRing-00     PCI Token Ring;Supptd H  | |
||                  | No       TokenRing-01     HPPB Token Ring;Supptd   | |
||                v | Yes      scsiU320-00      PCI-X SCSI U320; Supptd v |
|\-----------------/ \<------------------------------------------>/ |
|
| [ Change Depot Location... ]
\------------------------------------------------------------------/
      [ Show Summary... ]                  [ Reset Configuration ]
----------------------------------------------------------------------
[ Go!  ]                      [ Cancel ]                    [ Help  ]
```

Step 15. Complete the installation.

Step 16. Once the installation is complete, you can boot from the Smart Array 6402 logical drive.

Configuring the Server for RAID

To complete the installation and set up RAID for your server's internal hot swap drives, follow the instructions in the *HP A9890A Smart Array 6402 Controller User Guide*: or the *HP A9891A Smart Array 6404 Controller User Guide* on http://docs.hp.com/

- Install and use operating system-specific HP Smart Array 6402 and HP Smart Array 6404 utilities and software that help you manage your RAID.

- Configure the HP Smart Array 6402 and the HP Smart Array 6404 for an external RAID storage system.

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