hp Integrity rx5670

Hardware Installation Guide

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Related Documents. The *HP Server Documentation CD-ROM* has been provided with your server. It contains a complete documentation set for the server, including localized versions of key documents. Included on the CD-ROM are the *Site Preparation* and *Operations and Maintenance* guides, which contain in-depth troubleshooting, installation, and repair information.

In addition, the latest versions of all these documents, and any product updates to these documents, are posted under the appropriate server, at:

http://docs.hp.com

Contents

1 Server Overview and Unpacking

Server Overview

The hp Integrity rx5670 is a 4-way symmetric multiprocessing (SMP), rack-mount server based on the Itanium processor family architecture. The hp Integrity rx5670 accommodates up to 48 DIMMs and internal peripherals including disks and DVD ROM/Tape. Its high availability features include hot swap fans and power supplies, and hot plug internal disk drives. The supported operating systems include HP-UX, Windows, and Linux.

Figure 1-1 hp Integrity rx5670

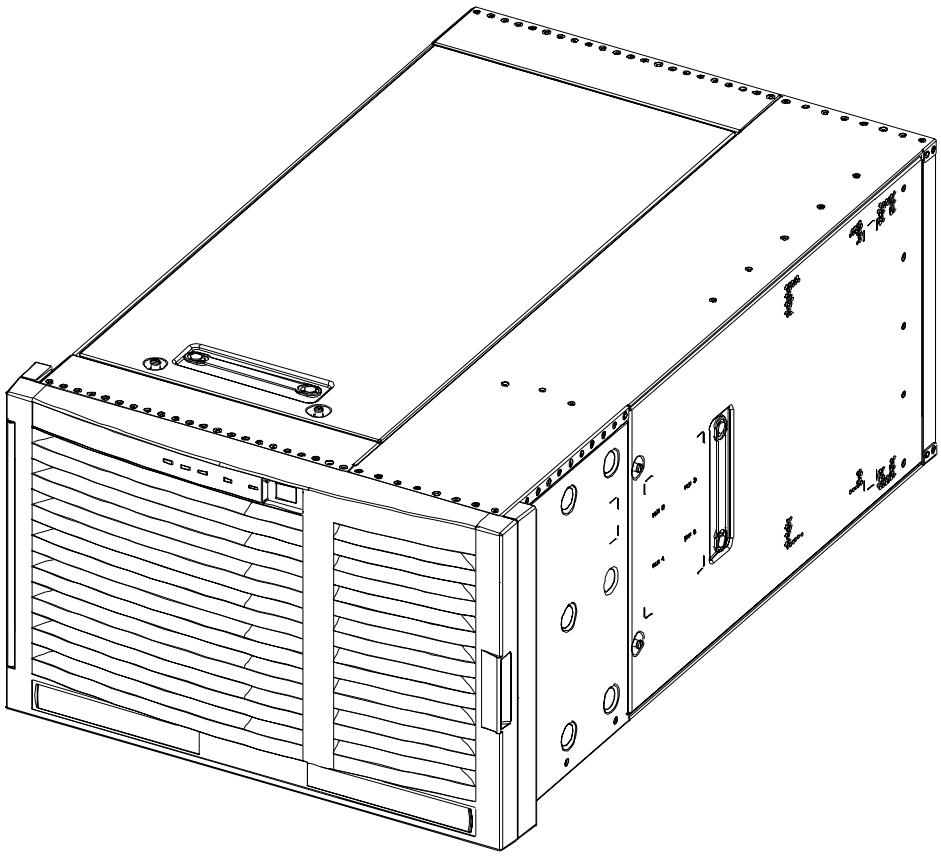

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Figure 1-2 hp Integrity rx5670 (front view with bezel removed)

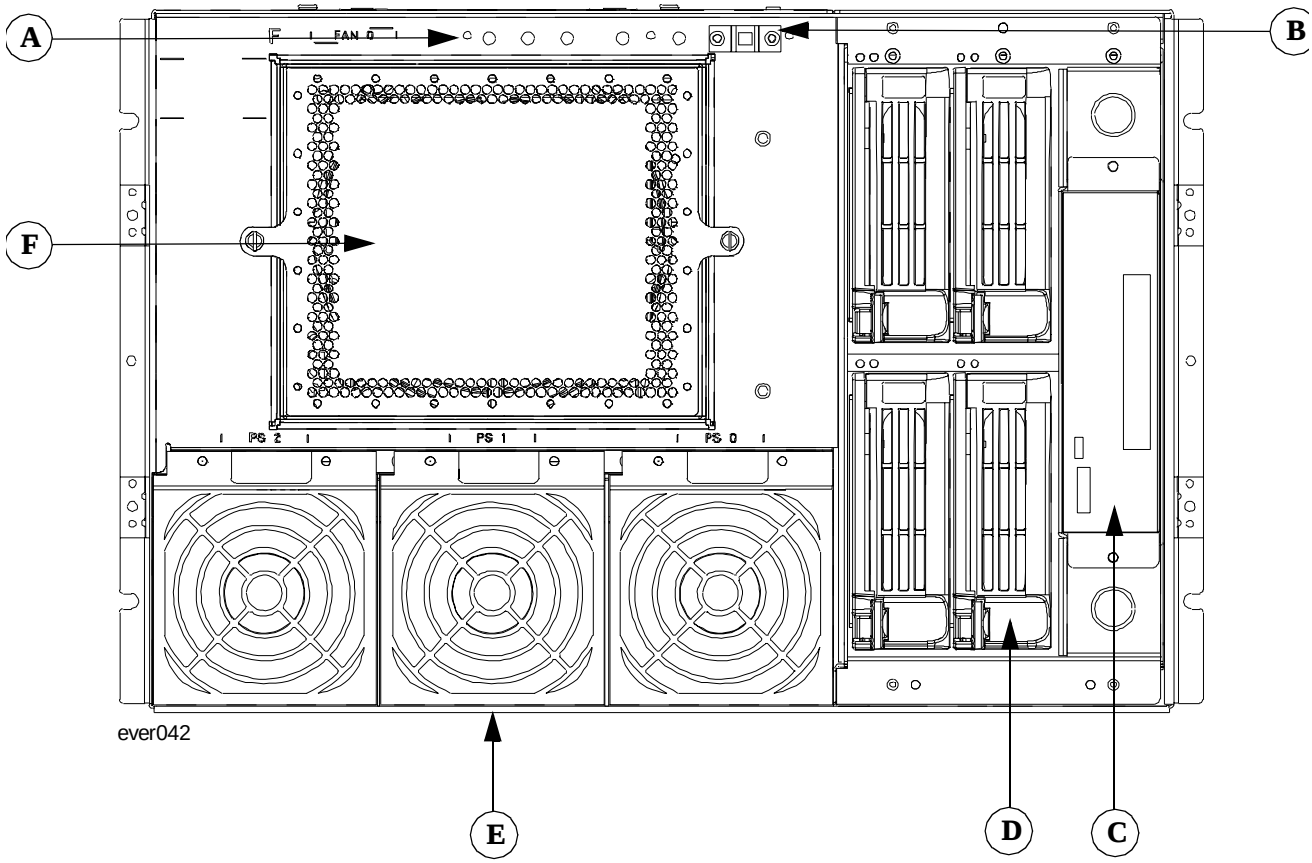

Table 1-1 Important Items - Front

Identifier	Component
A	Front panel LEDs
B	Power switch
C	Removable media drive
D	Hot plug disk drives
E	Hot swap power supplies
F	Front hot swap chassis fan cover

Figure 1-3 hp Integrity rx5670 (rear view)

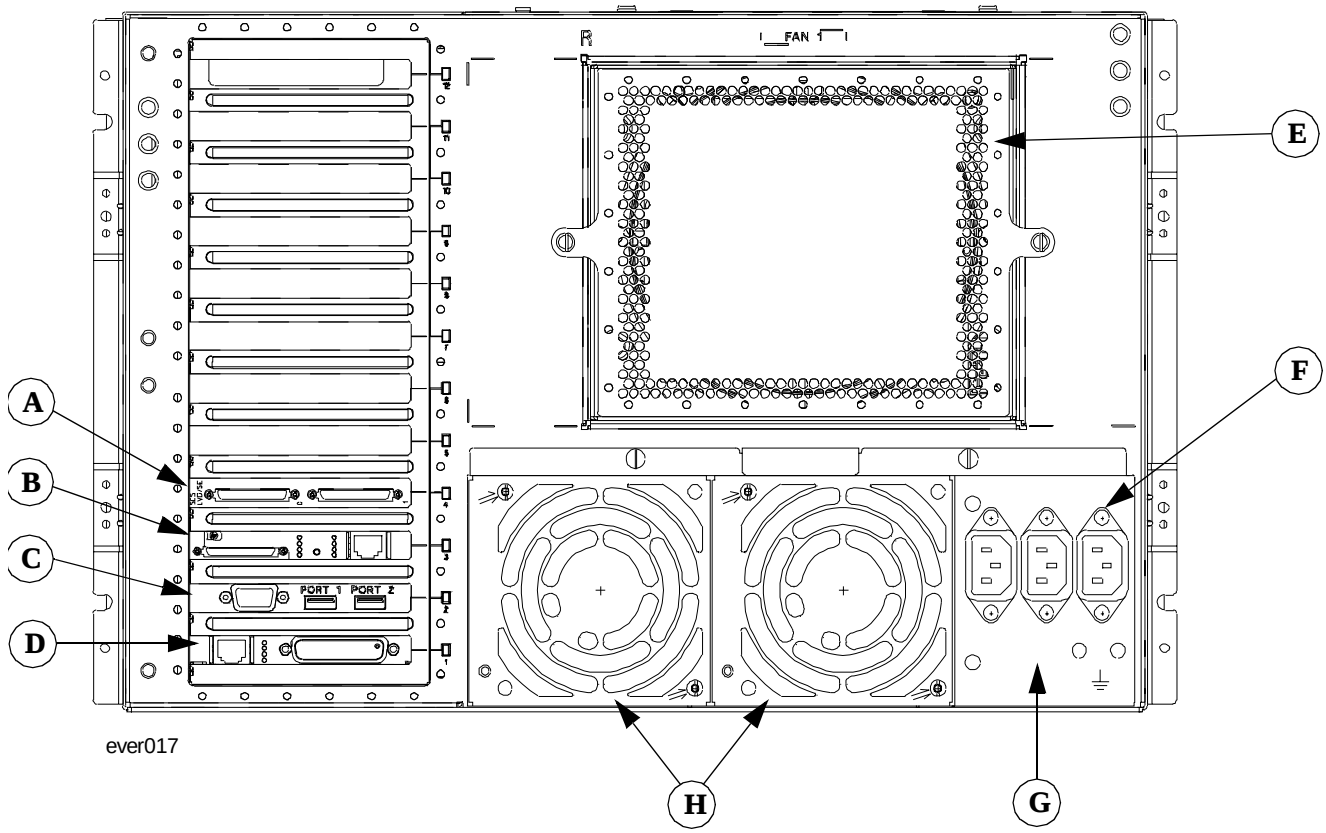

Table 1-2 Important Items - Rear

Identifier	Component
A	NetRaid PCI card (optional, supported with Windows and Linux)
B	LAN/SCSI PCI card (required with all operating systems)
C	VGA/USB PCI card (required with Windows, optional for HP-UX and Linux)
D	MP/SCSI PCI card (required with all operating systems)
E	Rear hot swap chassis fan cover
F	Power receptacles
G	Power converter
H	Power converter fan covers

Figure 1-4 hp Integrity rx5670 Top Service Bay

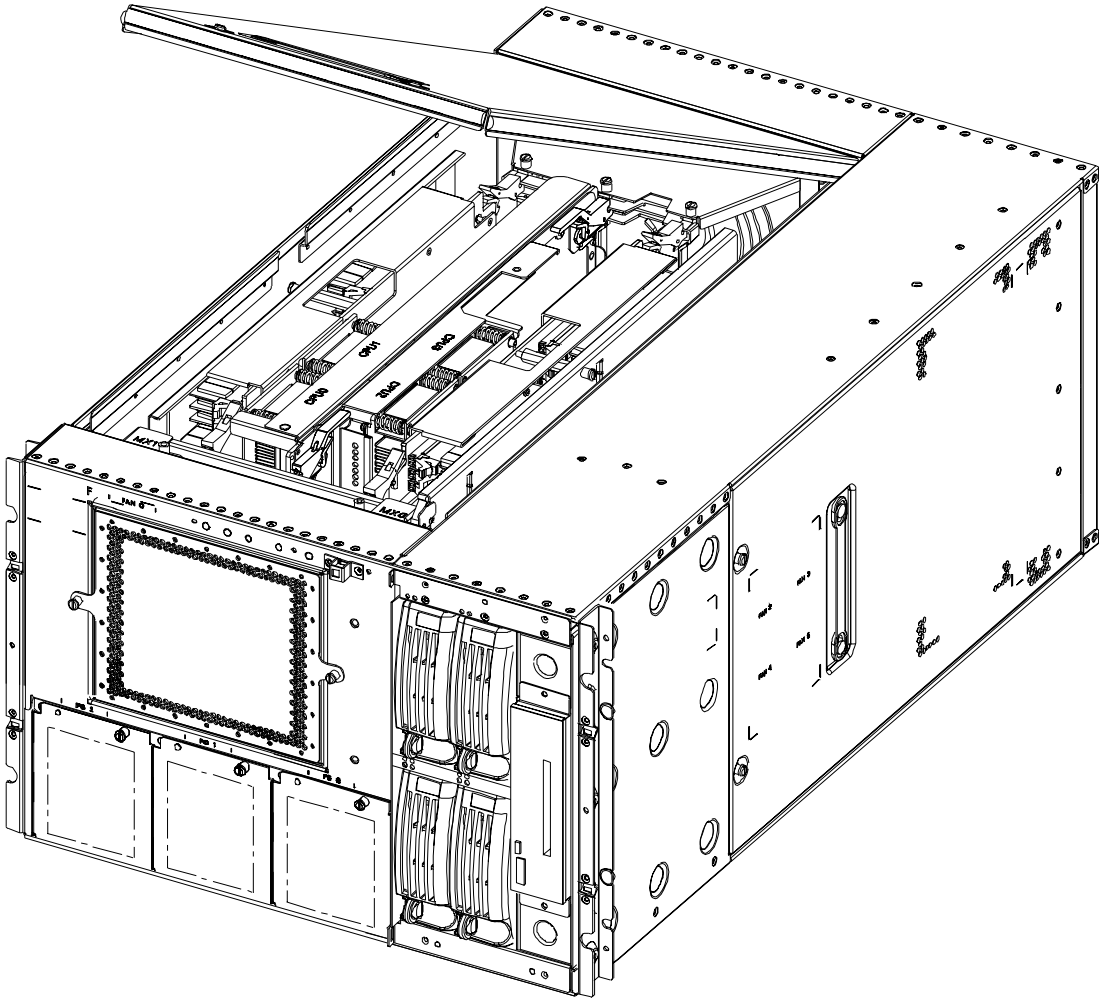

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Figure 1-5 hp Integrity rx5670 Top Service Bay Components

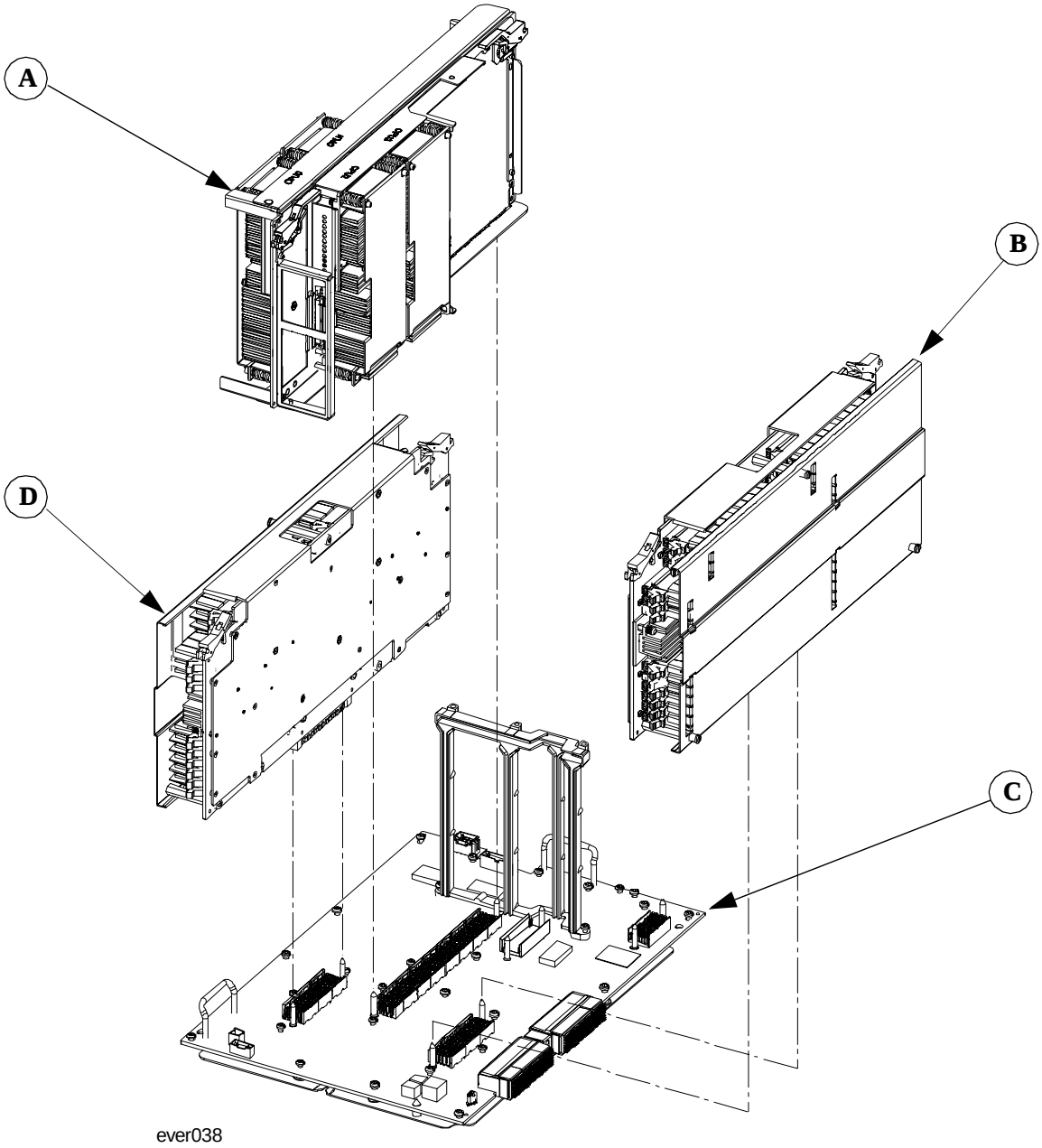

Table 1-3 Top Service Bay Components

Identifier	Component
A	Processor extender board
B	Memory extender board MX0 (required)
C	System baseboard
D	Memory extender board MX1 (optional)

Figure 1-6 hp Integrity rx5670 Side Service Bay

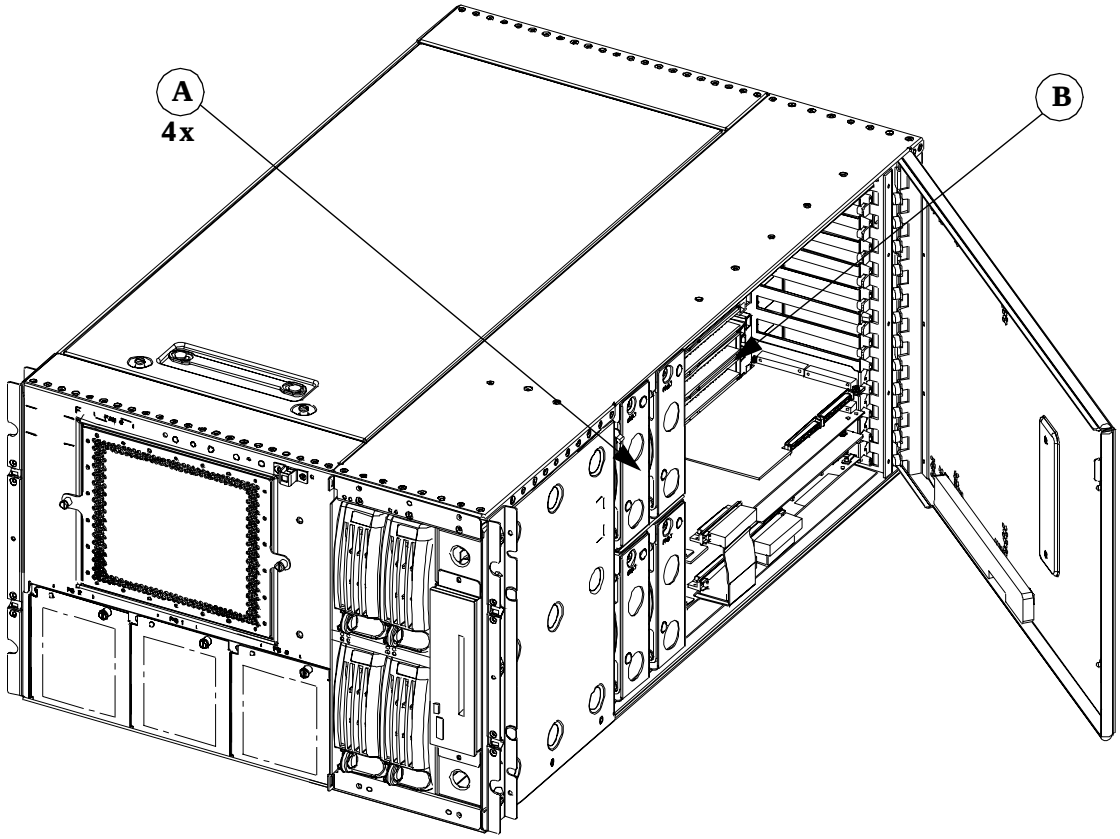

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Table 1-4 Side Service Bay Components

Identifier	Component
A	Hot swap card cage fans
B	PCI backplane

Unpacking the Server

Hewlett-Packard shipping containers protect their contents under normal shipping conditions. After the equipment arrives, carefully inspect each carton for signs of shipping damage. A tilt indicator is installed on each carton shipped. The beads in the indicator will roll to the upper position if the container has been tilted to an angle that could cause equipment damage. The tilt indicator itself will have two windows and each window under normal conditions will show four beads present. If a carton has been mishandled, accidentally dropped, or knocked against something, the tilt indicator will indicate missing beads. If damage is found, document the damage with photographs and contact the transport carrier immediately.

Examine the server cabinet for visible shipping damage. After unpacking the cabinet, check for damage that may have been obscured by the shipping container. If damage is found after visual inspection, document the damage with photographs and contact the transport carrier immediately.

If the equipment has any damage, a damage claim form must be obtained by the customer from the shipping representative. The customer should complete the form and return it to the shipping representative.

NOTE The server may come already racked or ready for rack installation.

Unpacking a Racked Server

This section contains information pertaining to unpacking the hp Integrity rx5670 cabinet.

WARNING **Wear protective glasses while cutting the polystrap bands around the shipping container. These bands are under tension. When cut, they can spring back and cause serious eye injury.**

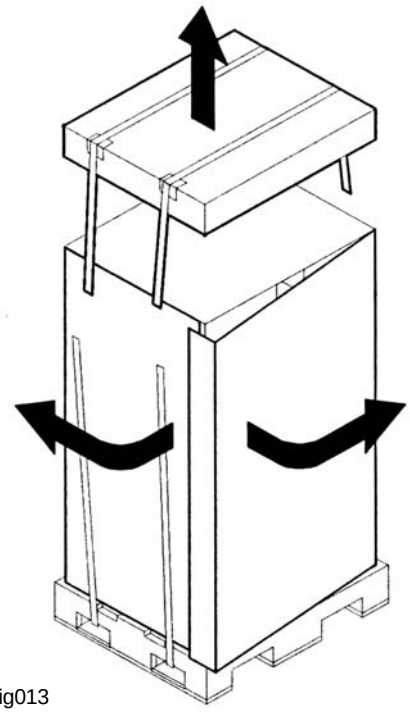
NOTE Position the pallet to allow for enough space to roll the cabinet off the pallet before starting.

To remove the hp Integrity rx5670 cabinet, perform the following steps:

1. Cut the polystrap bands around the shipping container.

2. Lift the cardboard top cap from the shipping box.

Figure 1-7 Removing the Polystraps and Cardboard



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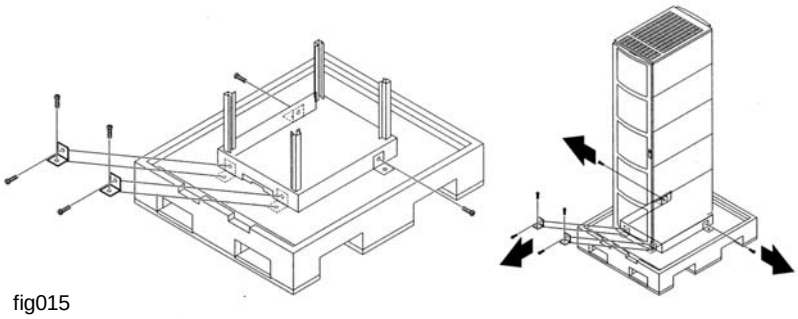
3. Remove the corrugated wrap from the pallet.
4. Remove the packing materials.

CAUTION The plastic wrapping material should be cut off rather than pulled off. Pulling the plastic covering off represents an ESD hazard.

5. Remove the bolts holding down the ramps and remove the ramps.
6. Remove the six bolts from the base attaching the rack to the pallet.

Figure 1-8 Preparing to Roll Off the Pallet



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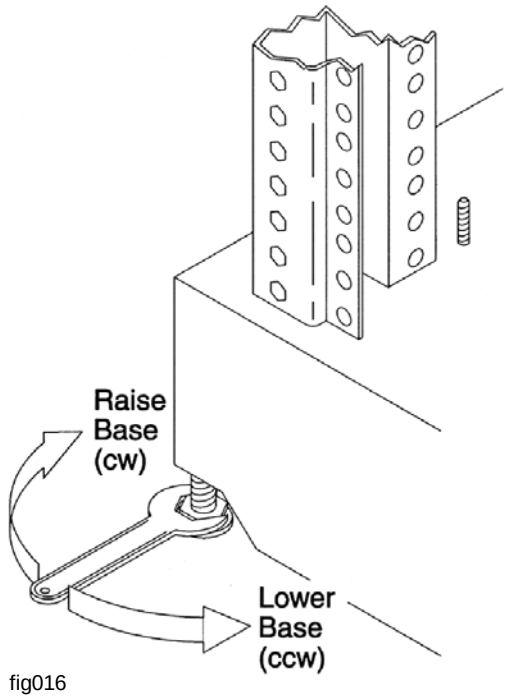
WARNING **Use caution when rolling the cabinet off the ramp. Make sure the leveling feet on the rack are raised before you roll the rack down the ramp and any time you roll the rack on the casters. A single server in the cabinet weighs approximately 425 pounds. It is strongly recommended that two people roll the cabinet off the pallet.**

Securing the Cabinet

Once in position, secure and stabilize the cabinet using the leveling feet at the corners of the base and install the anti-tip mechanisms on the bottom front and rear of the rack.

Figure 1-9 Securing the Cabinet



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Unpacking a Non-Racked Server

NOTE HP recommends the use of a lifter, such as a RonI Company model 17000 SP 400 lifting device, when moving a non-racked system.

Unloading with a Lifter

To unload the server from the pallet using a lifter, perform the following steps:

WARNING **Use caution when using a lifter. An hp Integrity rx5670 may weigh up to 175 pounds. Because of the weight of the server, it must be centered on the lifter forks before raising it off the pallet to avoid injury.**

1. Follow the instructions on the outside of the server packaging to remove the banding and carton top from the server pallet.
2. Remove all cartons from the pallet, leaving only the server.
3. Lower the cardboard from the side on which the lifter will be inserted and slide the server as close as possible to the edge of the pallet.
4. Break off any foam packaging which could prevent the lifter from being fully inserted under the server. Do not remove the foam packaging from the corners of the system. This foam is required to elevate the system and allow the forks of the lifter to be placed under the server.
5. Insert the lifter forks under the server.
6. Carefully roll the lift forward until it is fully positioned against the side of the server.
7. Slowly raise the server off the pallet until it clears the pallet cushions.
8. Carefully roll the lifter and server away from the pallet. Do not raise the server any higher than necessary when moving it over to the rack.

Installing the Server into a Rack

HP Rack

Any hp Integrity rx5670 that is to be installed into a rack is shipped with equipment slides. With every set of slides comes an installation guide: *hp Integrity rx5670 rack installation guide*. Follow the steps in this installation guide to determine where and how to place the server into the rack.

Non-HP Rack

There is a guide for evaluating the installation of HP equipment in non-HP racks. This document should be utilized when there is a need to evaluate and qualify whether any HP equipment can be installed, maintained, and serviced in a non-HP rack. The guide is located on the Web at:

http://www.hp.com/racksolutions

Once there, select “mounting information” from the menu on the left side, then select the guide titled *Mounting in Non-HP Racks*.

2 Installing Additional Components

Installing Power Supplies and Disk Drives

This section provides information about installing hot swap power supplies and hot plug disk drives. Hot swap power supplies and internal hot plug disk drives are located behind the front bezel.

CAUTION A hot plug device may require interaction with the operating system before the device can be safely installed into the server. Verify that the operating system supports installing disk drives while the operating system is running. If the operating system does not support this feature, shut down the operating system before attempting this procedure. Failure to observe this caution will result in system failure.

NOTE A hot swap device does not require interaction with the operating system before the device is removed from or installed into the server.

The AC power to the server does not have to be off to install a hot swap power supply.

Opening the front bezel

The front bezel is hinged on the left (facing the front of the server). The server does not have to be turned off to open or to completely remove the front bezel.

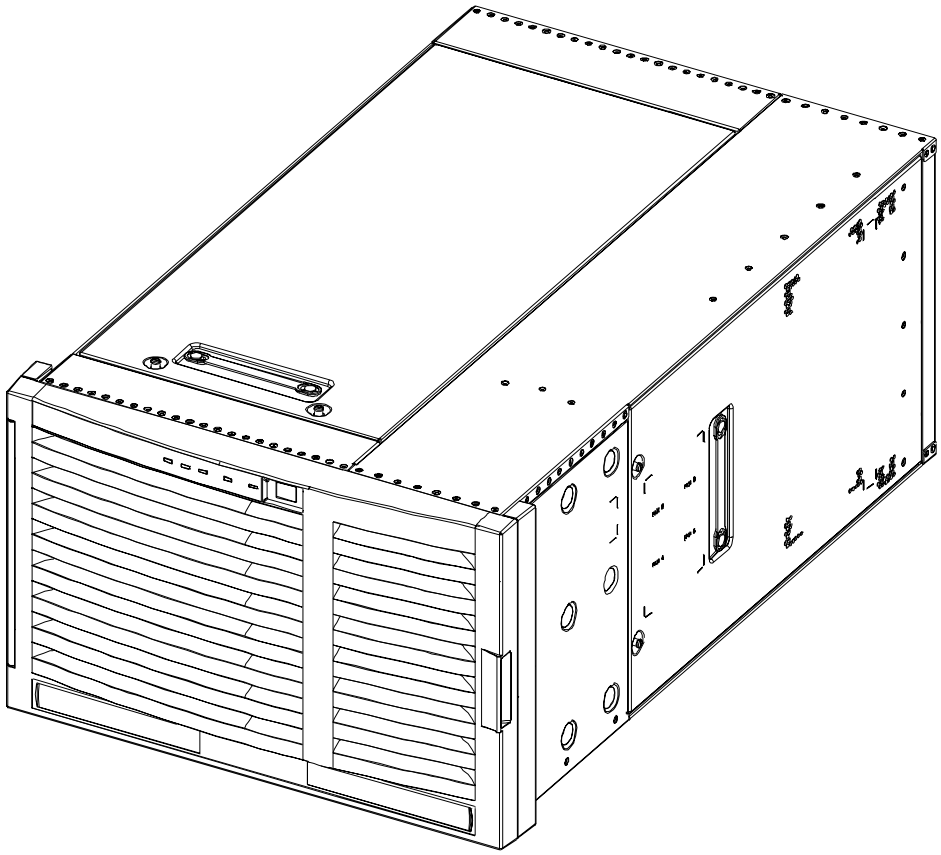
Opening the front bezel provides access to the following components:

- Hot plug disks (up to four)
- Removable media (DVD ROM drive, etc.)
- Hot swap chassis fan cover
- Hot swap chassis fans (front and rear)
- Hot swap power supplies (up to three)

To open the front bezel, perform the following step:

1. Grasp the handle located at the right edge of the front bezel and pull out. The front bezel will swing away from the chassis.

Figure 2-1 hp Integrity rx5670 (front view)



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Installing Hot Swap Power Supplies

Power Supply Load Order

There is no specific load order requirement for hot swap power supplies. However, the supported configuration of an hp Integrity rx5670 requires a minimum of two supplies be installed. A third, optional hot swap power supply may be installed to provide N+1 capability.

The right side hot swap power supply is identified as P0, the center hot swap power supply is identified as P1, and the left hot swap power supply is identified as P2. Each hot swap power supply requires a separate power cord be installed in the appropriate power cord receptacle located at the rear of the chassis.

Installing a Hot Swap Power Supply

To install a hot swap power supply, perform the following steps:

WARNING Be careful when installing a hot swap power supply. It is heavier than it appears.

CAUTION Install the hot swap power supply before attaching the new power cord at the rear of the system if the system is powered down. Failure to observe this caution will result in damage to the server.

Figure 2-2 Hot Swap Power Supply Installation

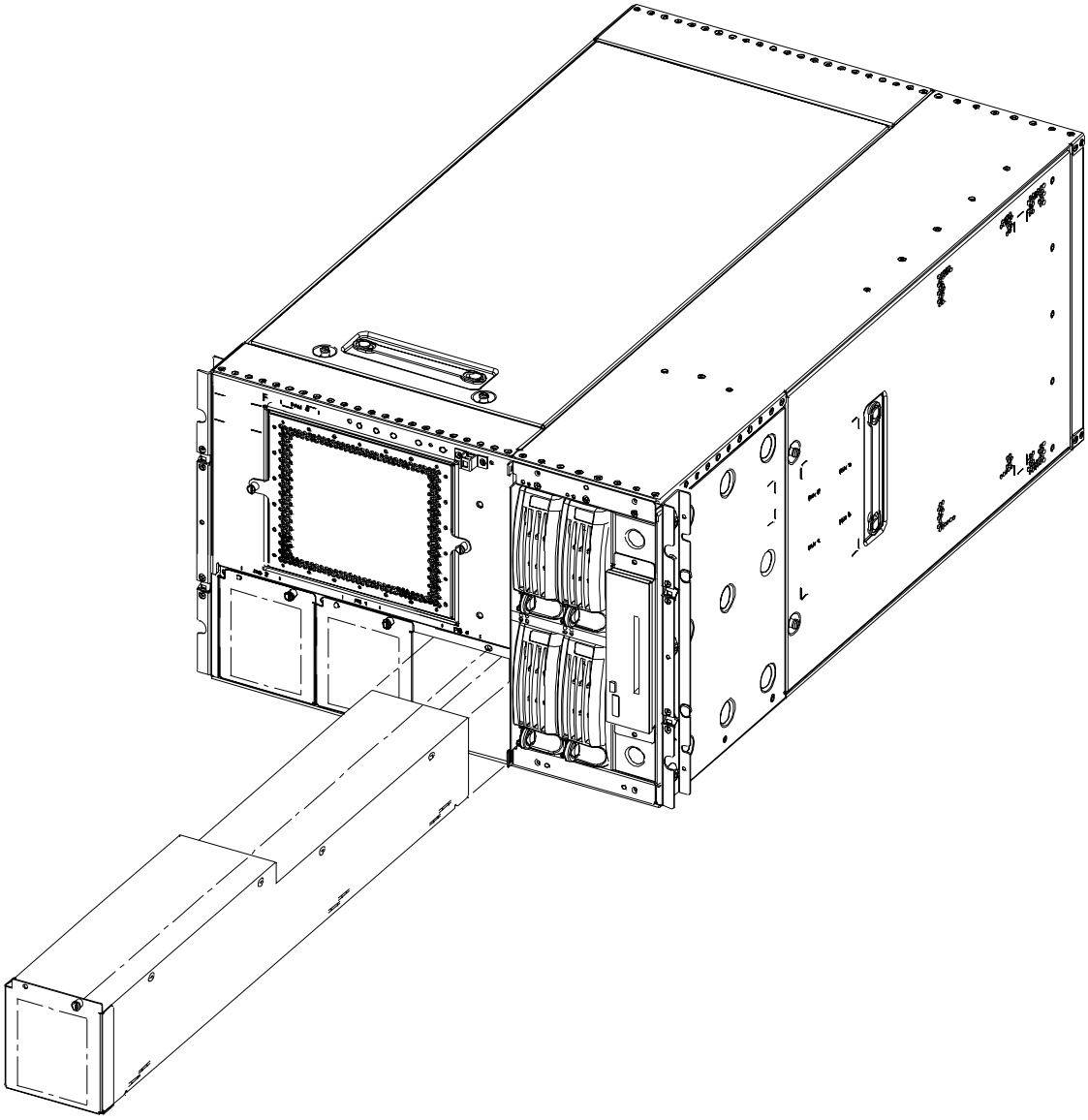

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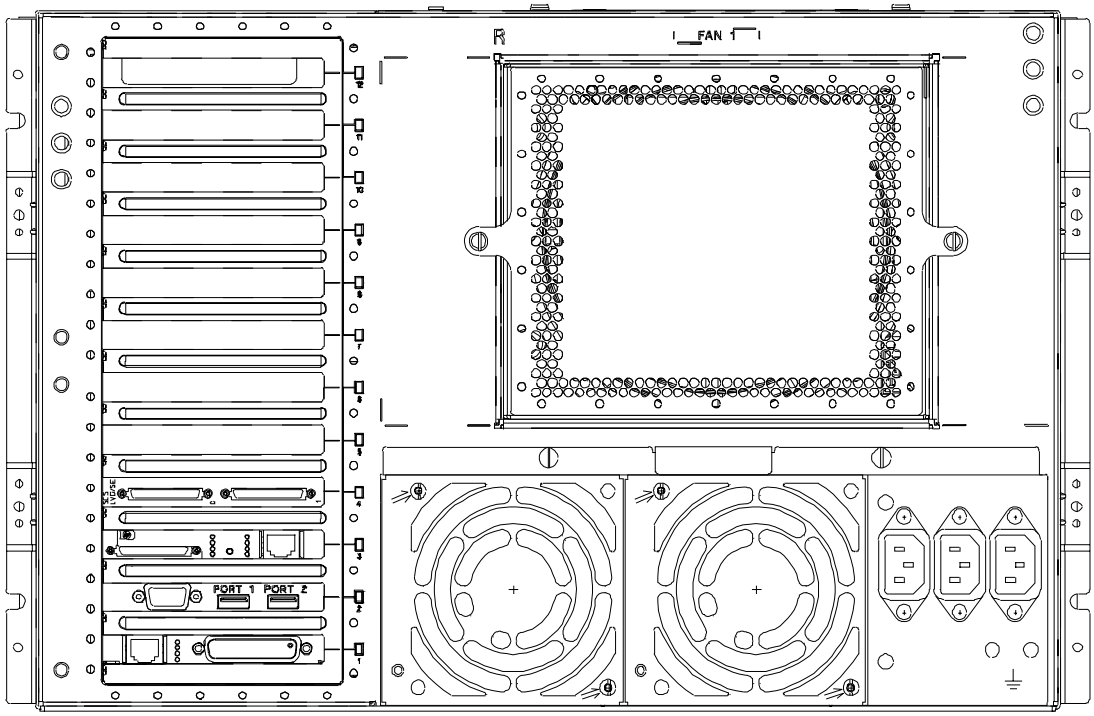
Figure 2-3 Power Cord Receptacles at Rear of Chassis



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1. Grasp the handle in one hand and support the hot swap power supply with the other.
2. Slide the hot swap power supply into the server. If the server is powered on, the hot swap power supply LED should illuminate immediately.
3. Tighten the captive T-15 screw located to the right of the handle near the top of the hot swap power supply.

Installing Hot Plug Disk Drives

Hot Plug Disk Drive Installation Locations

The internal disks drives, known as hot plug disk drives, are located in the disk media housing, found at the front of the chassis. Within the disk media housing are slots that accommodate up to four hot plug disk drives. The disks drives must be installed in addressing sequence. (If no drive is installed as logical drive 0, the server will not access logical drives 1, 2, and 3.) Hot plug disk drive locations are listed in Table 2-1, in the logical addressing sequence.

Table 2-1 Hot Plug Disk Drive Installation Locations

Disk	Slot
First disk (A)	Lower left
Second disk (B)	Lower right
Third disk (C)	Upper left
Fourth disk (D)	Upper right

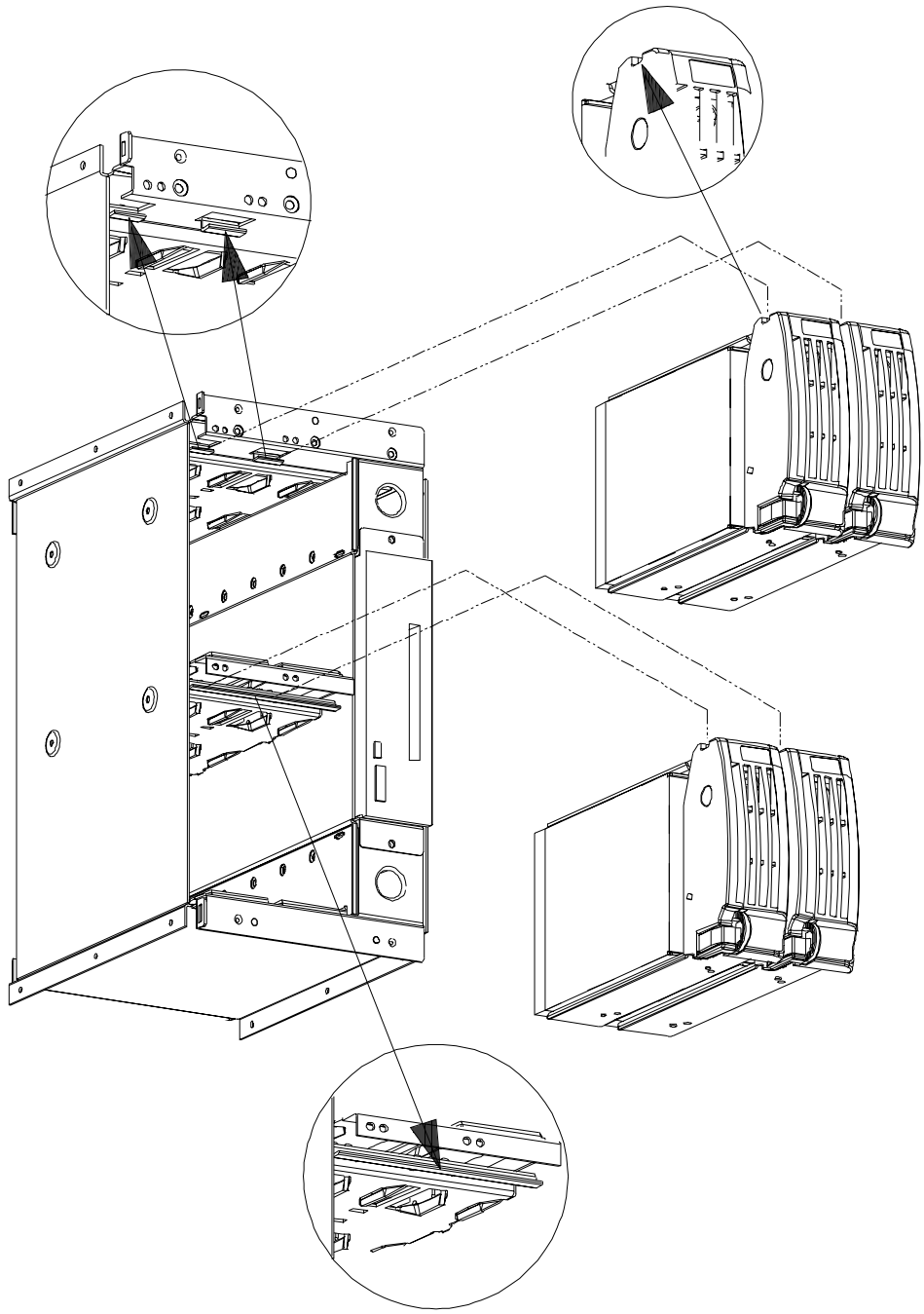
Installing a Hot Plug Disk Drive

To install a hot plug disk drive, perform the following steps:

1. Ensure that the hot plug disk drive latch is in the open/unlocked position.
2. Gently slide the hot plug disk drive into the chassis until it locks into place.

NOTE When the disk drive is properly seated, the notch located at the top of the latch will lock onto the lip located at the top of the disk drive slot in the disk media housing.

Figure 2-4 Disk Drive Installation



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Installing Processors and Memory

This section provides information about installing processors and memory. Processors and memory are located under the top cover.

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.

CAUTION Do not operate the server without the top cover in place. Operation of the server without the top cover in place will result in server failure. Operation of the server without the top cover in place will make the server susceptible to EMI problems.

Observe all ESD safety precautions before attempting this procedure. Failure to follow ESD safety precautions could result in damage to the server.

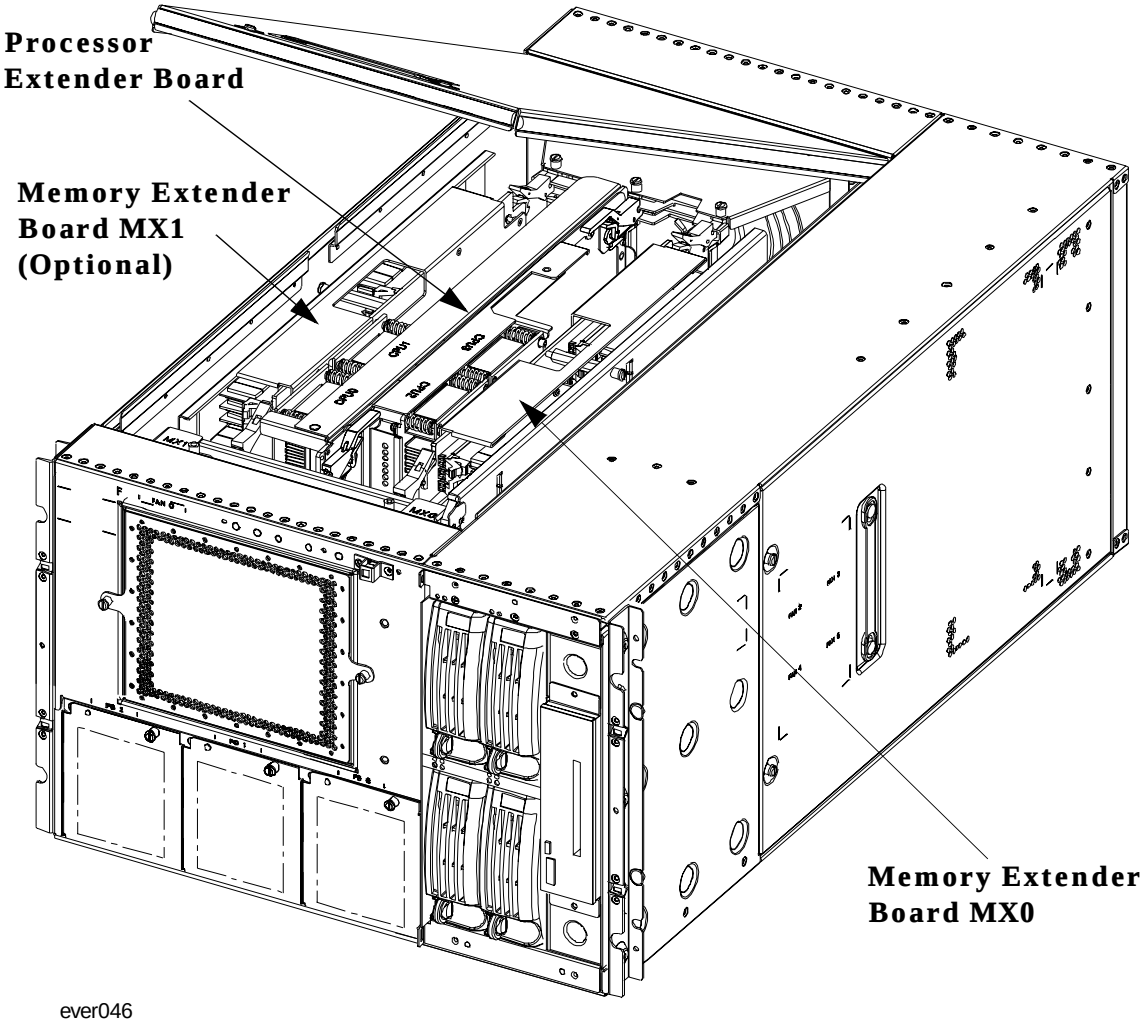
Removing the Top Cover

To remove the top cover, perform the following steps:

1. Loosen the captive T-15 screws that hold the top cover in place.

2. Grasp the strap handle, raise the cover slightly, and pull the cover toward the front of the server to free the cover tabs from the slots in the rear of the chassis.

Figure 2-5 Top Cover Removal



Installing Processors

CAUTION Ensure that the cache size is identical for all processors. Failure to observe this caution will result in system failure.

Ensure that all processors are rated for use at the same speed. Failure to observe this caution will result in performance degradation.

Processor Installation Locations

Processors are housed on the processor extender board located under the top cover in the top service bay. The processor extender board can hold one, two, three, or four processors. If fewer than four processors are installed to be installed, the lower logical address locations must be used. (Example: if only two processors are to be installed, they must be installed as CPU0 and CPU1.) Processor installation locations are listed in Table 2-2.

Table 2-2 Processor Installation Locations

Processor	Label on Extender Board	Extender Board Socket	Position (in Chassis)
First	CPU0	Front (right)	Left front
Second	CPU1	Mid-right	Left rear
Third	CPU2	Mid-left	Right front
Fourth	CPU3	Rear (left)	Right rear

CAUTION Do not modify the settings of the DIP switches located on the processor extender board. These switches are for factory use. Failure to observe this caution will result in system failure.

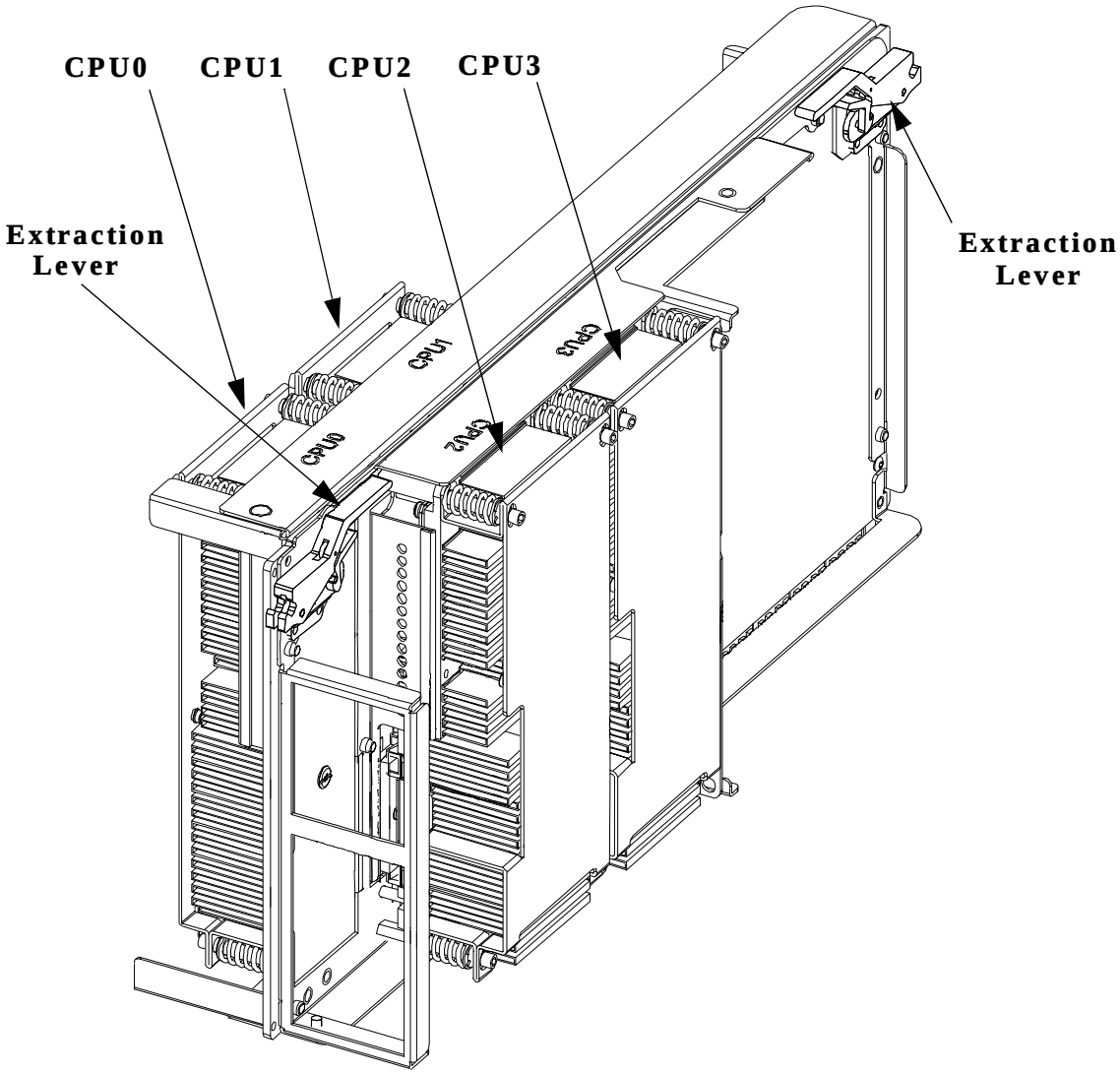
Removing the Processor Extender Board

To remove the processor extender board, perform the following steps:

1. Press the latch on the extraction levers located on each side of the processor extender board. (See Figure 2-6.)

2. Pull up on the extraction levers to free the processor extender board from the socket located on the system baseboard.

Figure 2-6 Processor Extender Board



Installing the Processor

CAUTION Processor connector pins are easily bent during installation. Use care to prevent damage when installing CPU modules on the processor extender board. Ensure that all processor pins enter the extender board connector evenly and simultaneously. Failure to heed this warning can result in processor failure.

NOTE Experience has taught that, when installing two (or four) processors, it is better to install the processor which is toward the rear of the extender board before installing a processor at the front of the extender board. This means: install processor CPU1 before installing processor CPU0. Similarly, install processor CPU3 before installing processor CPU2.

To install a processor, perform the following steps:

1. Locate the installation position and connector socket on the extender board. Ensure that the socket is clean and that holes are not blocked.
2. Ensure that the cam on the processor socket (Figure 2-7, item 7) is in the unlocked, fully counterclockwise position. Use a 2.5 mm hex driver to unlock the cam.
3. Remove the retention cover (Figure 2-7, item 4) from the CPU module.
4. Carefully lower the CPU module into position, using the mounting screw holes (Figure 2-7, item 2) to align the CPU module with the extender board socket.
5. Carefully position the CPU module above the processor socket using the alignment guide pins (Figure 2-7, item 6) to align the processor connector with the extender board socket.
6. Using the alignment tabs on the processor socket, and corresponding notches on the processor connector, lower the connector pins into the socket (see Figure 2-8 for location of tabs and notches). Ensure that the socket and connector are flush against each other before proceeding.
7. Insert the 2.5 mm hex driver through the opening in the CPU module frame (Figure 2-7, item 5), and rotate the cam on the processor socket (Figure 2-7, item 7) 180 degrees clockwise using a 2.5 mm hex driver.
8. Connect the processor power cable (Figure 2-7, item 1).
9. Place the processor retention cover (Figure 2-7, item 4) over the processor.
10. Tighten the captive T-15 screws (Figure 2-7, item 3) to secure the processor retention cover.

NOTE When installing the processor retention cover, the screws should be tightened in sequence as shown in Figure 2-7. Each screw should be turned 2-3 times until all screws are bottomed out.

Figure 2-7 Processor Installation

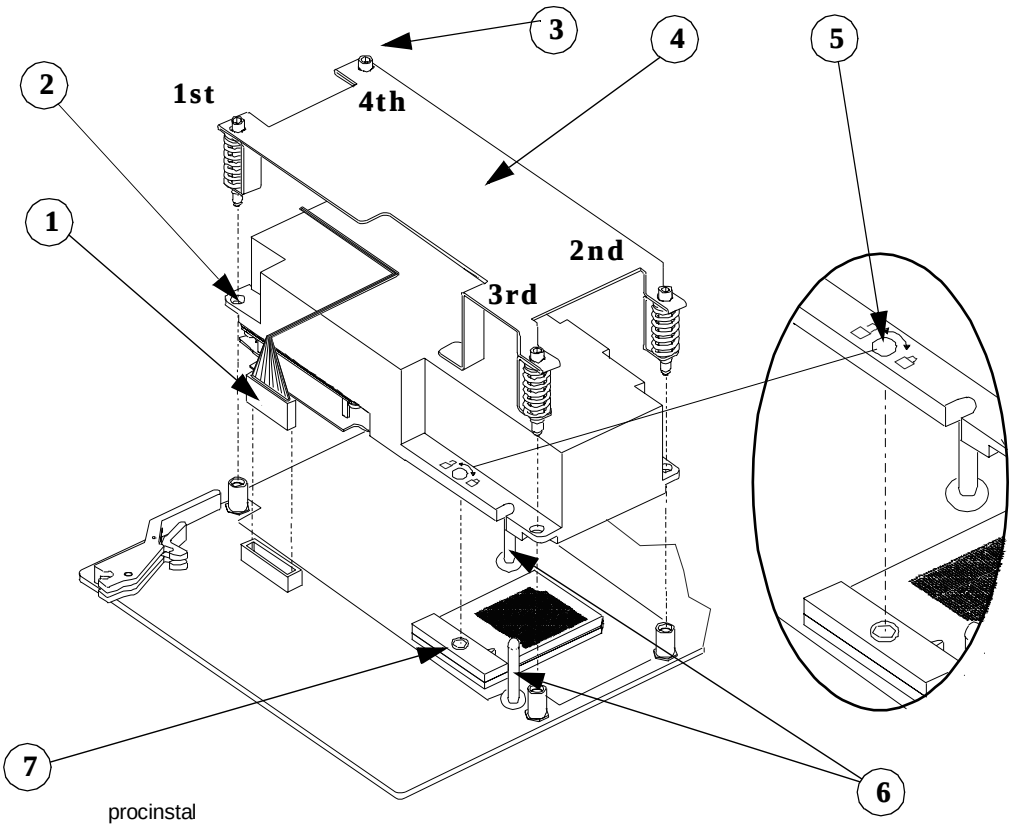


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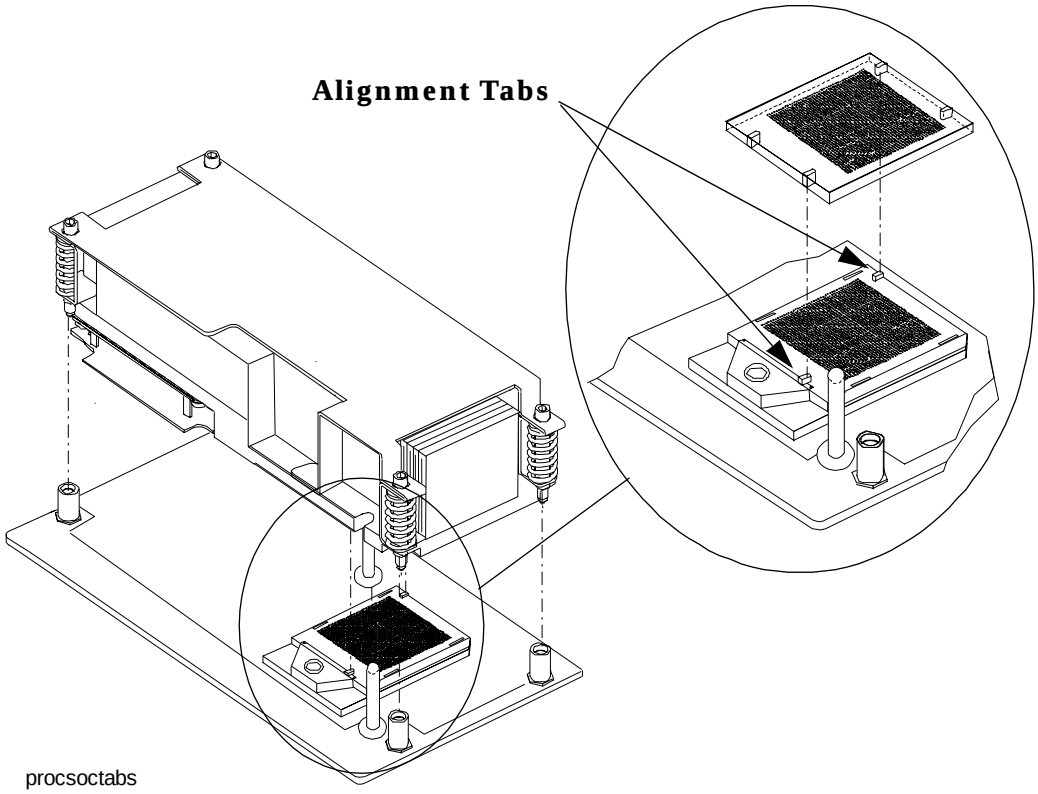
Figure 2-8 Processor Connector Alignment Tabs



Replacing the Processor Extender Board

To replace the processor extender board, perform the following steps:

1. Ensure the extraction levers (see Figure 2-6) are positioned in the outward, unlocked position.
2. Align the processor extender board with the front and rear card guides. The end of the board which is closer to the CPU module(s) should be toward the front of the server chassis.
3. Slide the processor extender board down until it begins to seat in the socket located on the system baseboard.
4. Push the extraction levers inward to the locked position to fully seat the processor extender board.

Installing Memory

Memory Load Order

DIMMs are installed on memory extender boards located in the top service bay. If only one memory extender board is installed, it must be located in slot 0. (See Figure 2-5.) A maximum of two memory extender boards may be installed per system. Each memory extender board can hold up to 24 DIMMs. DIMMs of different size can be installed on a memory extender board, but they must be grouped by size.

By replacing the DIMMs in your server, or installing additional DIMMS, you can increase the amount of memory in your server. Several different DIMM sets are available. The DIMMs are listed in your *hp Integrity rx5670 Operation and Maintenance Guide*, and at http://www.hp.com (search for keyword rx5670).

Memory must be installed in groups of four identical DIMMs. For a minimally loaded system, DIMMs will be loaded in slots 0A, 0B, 0C, and 0D. This collection of slots is referred to as Rank 0. The next set of DIMMs loaded are installed into slots 1A, 1B 1C, and 1D. The process of loading additional DIMMs continues in a similar manner through the last set of DIMMs, which is installed in slots 5A, 5B, 5C, and 5D.

Memory Performance Considerations

For best memory performance, install a second memory extender board and distribute DIMM installation between them. Install DIMMs in Rank 0 of memory extender board MX0, then install DIMMs in Rank 0 of memory extender board MX1. Memory performance increases as the difference in memory installed between memory board extenders is decreased. Optimal memory performance is obtained when the differential is 0. In addition, memory performance will also be increased by loading the highest capacity DIMMs in the lower ranks.

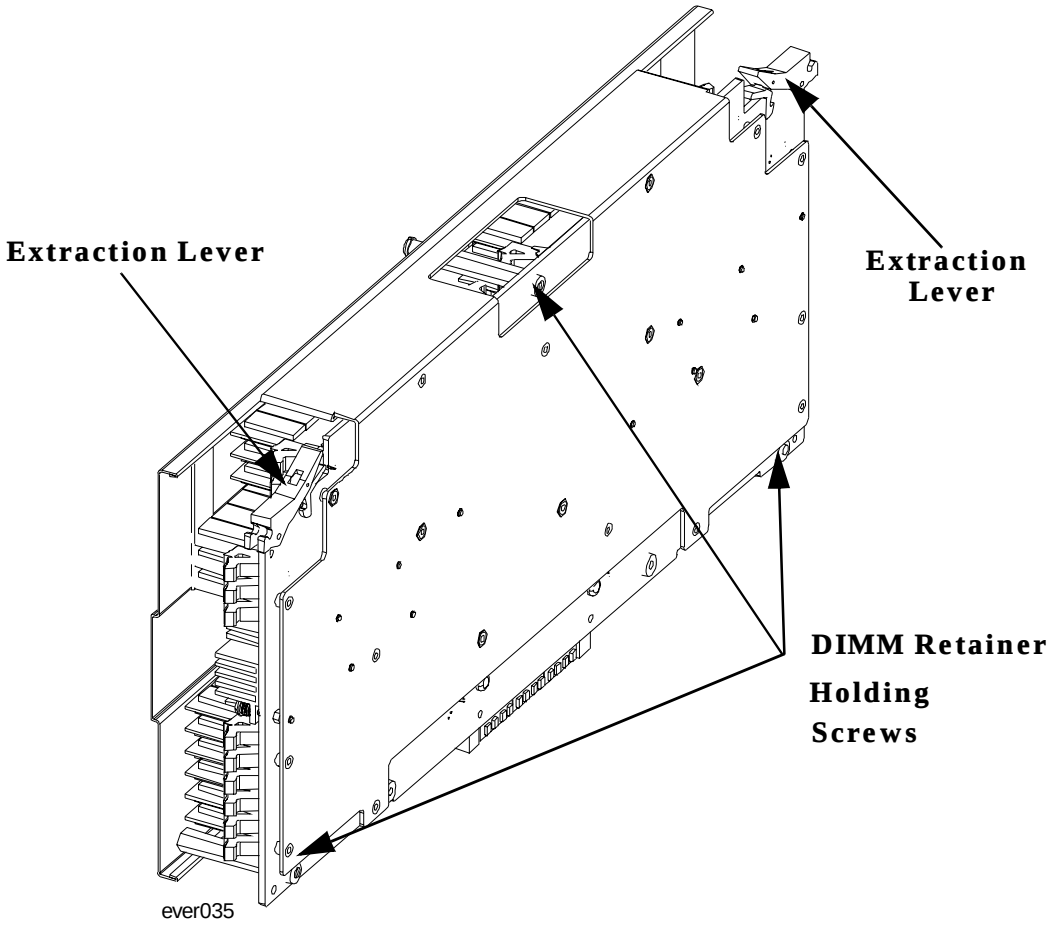
Removing a Memory Extender Board

To remove a memory extender board, perform the following steps:

1. Press the latch on the extraction levers located on each side of the memory extender board.
2. Pull up on the extraction levers to free the memory extender board from the socket located on the system baseboard.

3. Lift the memory extender board from the server chassis.

Figure 2-9 Memory Extender Board



Installing Memory

To install memory, perform the following steps:

1. Loosen the captive T-15 screws that secure the DIMM retainer to the memory extender board. (See Figure 2-9.)
2. Remove the DIMM retainer from the memory extender board.
3. Insert the memory DIMMs as shown in Figure 2-10. (Rank and socket are also identified on the memory extender board.)
4. Push gently and evenly on the memory DIMM until it seats in the socket.

NOTE Ensure that the extraction levers are in the closed position.

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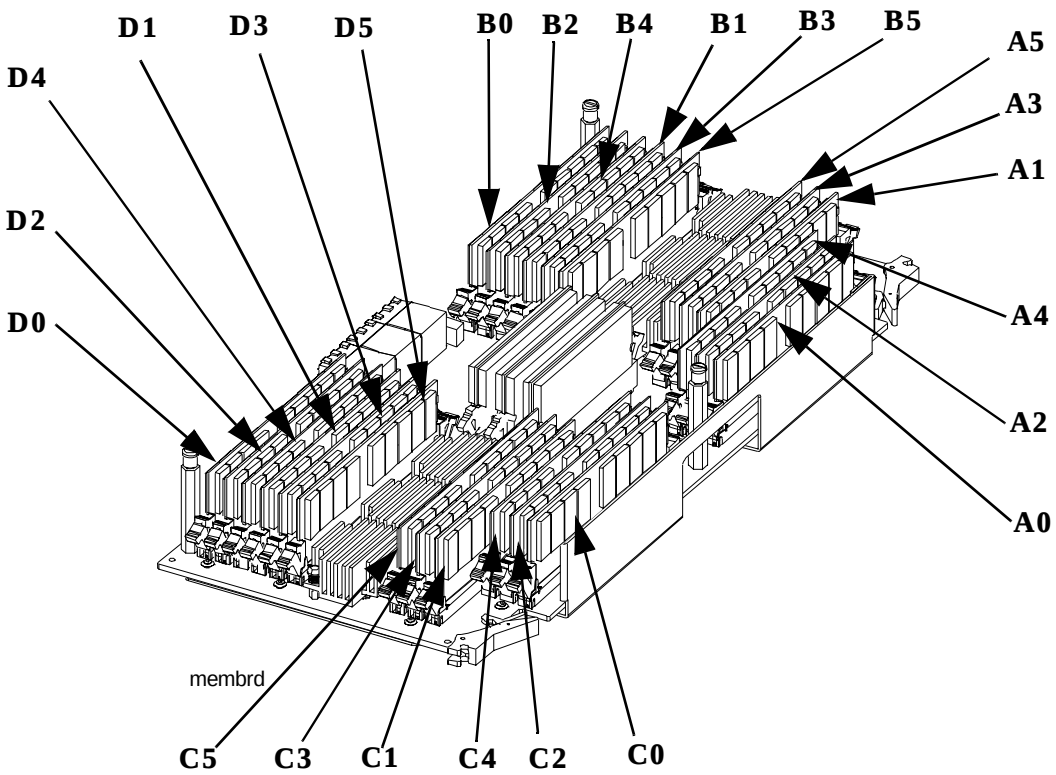
5. Repeat steps 3 and 4 until all memory DIMMs are seated in their sockets.
6. Align the DIMM retainer on the memory extender board.

7. Tighten the captive T-15 screws to secure the DIMM retainer to the memory extender board.

Figure 2-10 Memory DIMM Location



Installing a Memory Extender Board

CAUTION Ensure that a memory extender board is installed in slot MX0 (right slot). If the system is configured with only one memory extender board a memory filler panel must be installed in slot MX1 (left slot). Failure to observe this caution will result in system failure.

To install a memory extender board, perform the following steps:

1. Remove the filler panel located in slot MX1 if you are installing a second memory extender board.
2. Ensure the memory extender board extraction levers are positioned in the outward, unlocked position.
3. Align the memory extender board with the front and rear card guides.
4. Slide the memory extender board down until it begins to seat in the socket located on the system baseboard.
5. Push the extraction levers inward to the locked position in order to fully seat the memory extender board.

Replacing the Top Cover

To replace the top cover, perform the following steps:

1. Align the tabs at the rear of the top cover with the corresponding slots in the chassis and fully seat the tabs into the slots.

2. Seat the top cover in the top of the service bay and tighten the captive T-15 screws that hold the top cover in place.

Installing PCI Cards

This section provides information about installing PCI cards. PCI cards are located in the side service bay.

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 procedure.

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

CAUTION Observe all ESD safety precautions before attempting this procedure. Failure to follow ESD safety precautions could result in damage to the server.

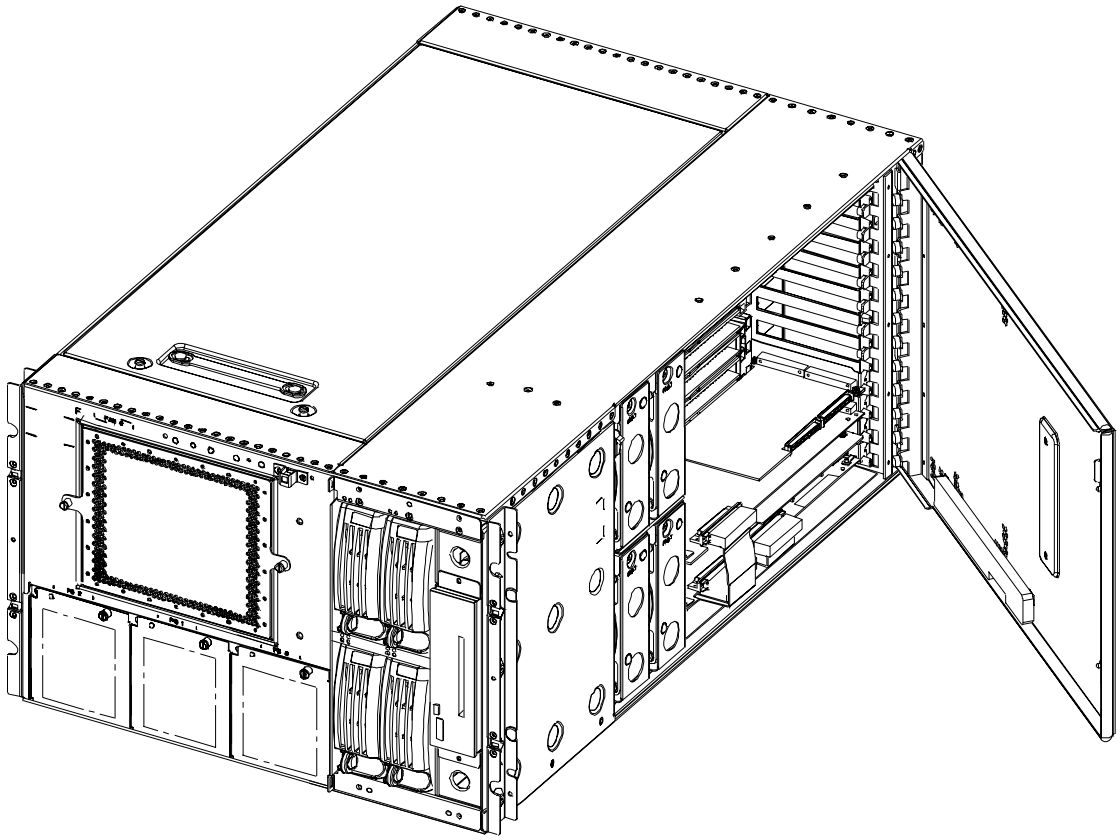
Removing the Side Cover

To remove the side cover, perform the following steps:

1. Loosen the captive T-15 screws that hold the side cover in place.
2. Grasp the strap handle, pull the side cover slightly away from the server, and pull the cover toward the front of the server to free the cover tabs from the slots in the rear of the chassis.

The following graphic shows the side cover.

Figure 2-11 Side Cover Removal



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PCI Card Load Order

PCI slots are numbered 1 through 12, starting from the bottom of the PCI backplane. PCI slots 1 and 3 are dedicated for use by the servers core I/O cards. The core I/O functions are shared between two cards; an MP/SCSI card which must be located in slot 1, and a LAN/SCSI card which must be located in slot 3.

If the VGA/USB card is installed, it must reside in PCI slot 2. If the VGA/USB card is not installed, slot 2 may be used for other supported PCI cards.

A RAID card is available for use with Microsoft Windows and Linux. If the RAID card is installed, it must reside in PCI slot 4. If the RAID card is not installed, slot 4 may be used for other supported PCI cards.

PCI Card Performance Considerations

Slot 2, which shares a 33 MHz bus with slot 1, is the lowest performance slot available in the system and is recommended for use with 33 MHz PCI cards.

A common 66 MHz bus is shared between slots 4 and 5, slots 6 and 7, and slots 8 and 9. To maximize PCI bus bandwidth, populate only one slot on each bus and leave the second slot empty. For example, install cards in slots 4, 6, and 8, but leave slots 5, 7, and 9 empty.

Slots 10, 11, and 12 are the highest performance slots in the system. Each of these slots provide an individual bus with a 500 MB/second peak data rate at 133 MHz.

Installing a PCI Card

The server may contain up to 12 PCI cards. PCI cards are located in the side service bay.

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 installing a PCI card.

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

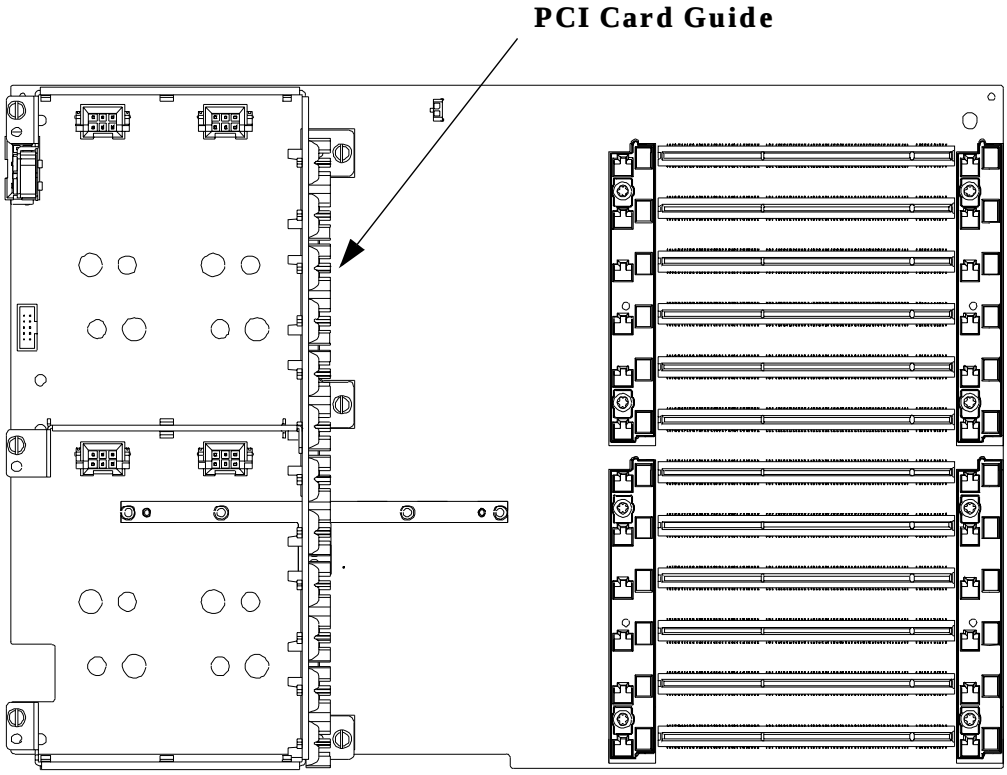
CAUTION Observe all ESD safety precautions before attempting this procedure. Failure to follow ESD safety precautions could result in damage to the server.

To install a PCI card, perform the following steps:

1. Remove the appropriate PCI slot cover from the rear of the chassis.

2. Locate the PCI card guide, as shown in Figure 2-12, on the outside of the side fan housing. Orient the PCI card into its guide slot and push it into the server until the PCI card is seated in the PCI backplane card connector.

Figure 2-12 Front PCI Card Guide Location



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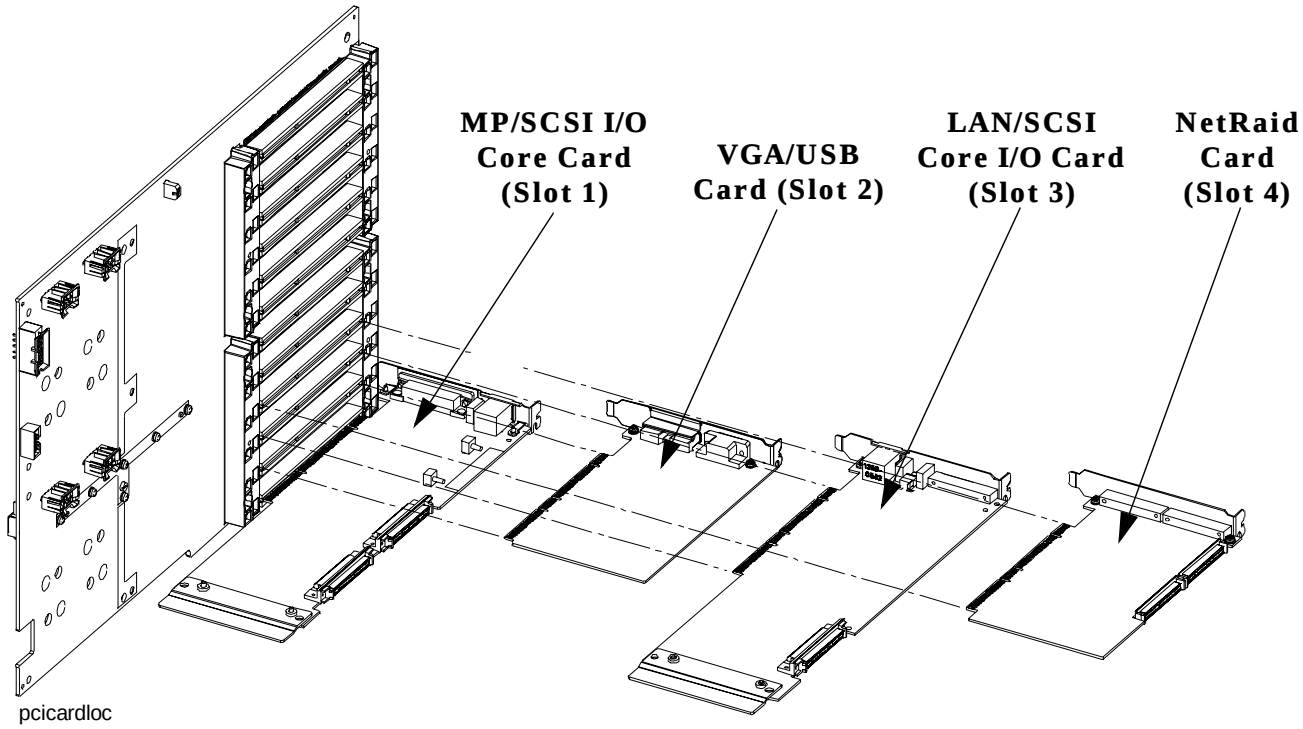
3. Connect all external cables to the PCI card at the rear PCI bulkhead.

4. Connect all internal cables to the PCI card in the side service bay.

Figure 2-13 PCI Cards Location



Replacing the Side Cover

To replace the side cover, perform the following steps:

1. Grasp the strap handle and insert the tabbed end of the side cover into the server chassis slots at the rear of the side service bay.
2. Push the side cover into the side service bay opening and fasten the captive T-15 screws that hold the side cover in place.

3 Troubleshooting

Introduction

This chapter presents troubleshooting information. Basic tips for start-up problems are presented, unit status indicators are described, and general information is provided. In addition, problems that are associated with I/O functions and paths are included here.

The server was tested prior to shipping and should be in perfect working order. Failures encountered during installation may be due to damage that occurred in transit. Reseating connectors may clear problems that result from rough handling. If you are installing components or assemblies, compatibility problems or incorrect installations may be the cause of problems. If you are installing components or assemblies, check that items are correctly installed and that all connectors are fully engaged. If the unit will not power on, check the power source before proceeding.

Troubleshooting is based on observation of status indicators and error messages, and by checking system event logs. Status indicators can be observed on the front and rear of the server, and by removing the front bezel, top cover, and right-side panel. Error messages are displayed on local and remote consoles. System history (console, event, and history logs) are available through the management processor, and can be accessed through the console. Additional information about troubleshooting can be found in the hp Integrity rx5670 Operation and Maintenance Guide.

Error Messages

Most server failures will result in error messages that are displayed on the active console(s). These error messages are complete in themselves; they identify the failure and the most likely cause of the failure. If replacement of the identified part or assembly does not fix the problem, you can assume that a related part or assembly is at fault. (If replacing an I/O card does not fix a problem, replacing the corresponding driver, receiver, or interconnecting cable will usually fix the problem.)

Instructions for connecting a console are provided in Chapter 4 Cable Connections under Management Processor.

Management Processor

The management processor (MP) records all system events. If the server malfunctions, and the cause is not obvious after inspecting status indicators and error messages, check the console, system, and event logs through the management processor. The information presented in MP logs, such as event patterns and failure-related I/O paths, will help you determine the appropriate course of action.

Using the management processor is described in Chapter 4 Cable Connections under Management Processor. Additional information about the management processor can be found in the hp Integrity rx5670 Operation and Maintenance Guide.

Beep Codes

While beep codes have been utilized on many HP servers, beep/buzzer codes are not used by hp Integrity rx5670.

Common Installation Problems

This section contains general procedures to help you locate installation problems.

To troubleshoot an installation problem, perform the following checks in the order given:

1. Check all cable and power connections, including those in the rack, etc.
2. Verify all cables and boards are securely plugged into the appropriate connectors or slots.
3. Remove optional components (disk drives and PCI cards) one at a time, checking their affect on the server.
4. Unplug the power cord, wait 20 seconds, plug the power cord in again, and restart the server.

The Server Does Not Power On—Power Supply Malfunction

Remove the front bezel and check power supply LEDs (on fans across the front-bottom of the unit). Power supply fan LEDs that are illuminated indicate that the associated power supplies are good. (If the fan indicator is not lit, the power supply or fan is malfunctioning.) Other fan indicators are normally off.

Use these steps to check for power related problems:

1. Ensure that at least two hot swap power supplies are installed, connected to a power source, and the server power switch is set to on.
2. Check that each hot plug power supply is properly seated.

The Server Does Not Power On—Power Supplies OK

Remove the front bezel and check power supply LEDs (on fans across the front-bottom of the unit). Power supply fan LEDs that are illuminated indicate that the associated power supplies are good. Power converter fan LEDs (on fans at the rear-bottom of the unit) are illuminated to indicate that the fan or power converter is not functioning. (If the fan indicator is lit, the power converter or fan is malfunctioning.) Server fan LEDs that are illuminated indicate a fan malfunction.

Use these steps to check for power related problems:

1. Ensure that at least two hot swap power supplies are installed and connected to a power source.
2. Remove assemblies and inspect chassis and assemblies for debris or damage.

The Server Powers On But Then Shuts Down with a Fault Light

Remove the front bezel and check power supply LEDS (on fans across the bottom of the unit). Power supply fan LEDs that are illuminated indicate that the supplies are good. Power converter fan LEDs (on fans at the rear-bottom of the unit) are illuminated to indicate that the power converters are not functioning. (If the indicator is lit, the power converter or fan is malfunctioning.)

Use these steps to check for power related problems:

1. Check that a conductive item has not been dropped or left inside the server chassis.
2. Check the connections on all boards.
3. Check cables for bent pins.
4. Make sure that the four bus bar screws are tightened down completely on the baseboard.

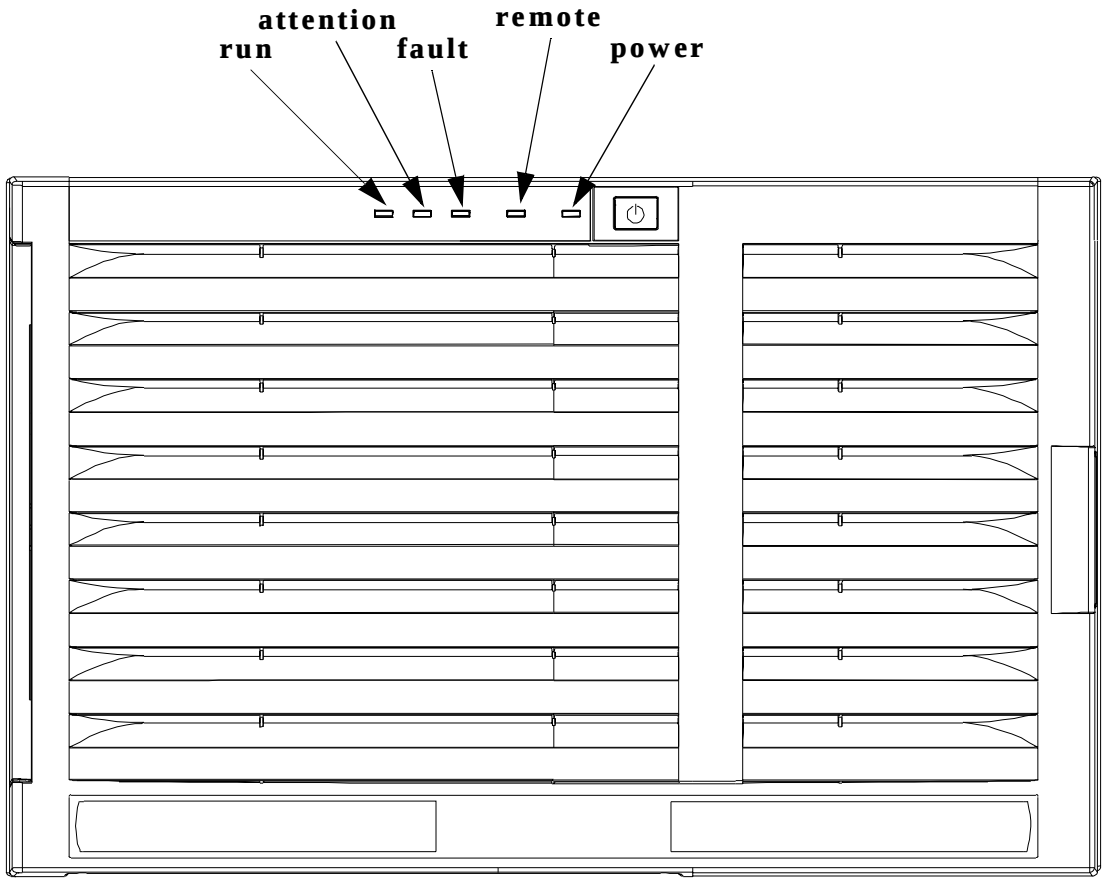
hp Integrity rx5670 LED Indicators

The hp Integrity rx5670 includes LED indicators that show the health of the server. Front panel indicators show server status at a glance. LEDs within the server provide additional information.

Front Panel LEDs

The hp Integrity rx5670 has several LEDs located on the front panel that indicate the status of the unit. The LEDs are observable through openings in the bezel.

Figure 3-1 Front Panel LED Indicators



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The power LED should be lit while the server is operating. The remote LED will be on when remote access to the MP/SCSI card is enabled. Table 3-1 describes the power, run, attention, and fault LED states, and provides information to help interpret the display to determine server status.

Table 3-1 Front Panel Status LED Definitions

Power (Green)	Run (Green)	Attention (Yellow)	Fault (Red)	Definition
off	x	x	x	Power is off. Check switches and cables
flashing				Power is available, but not on. Press (on) front panel power switch
on	x	x	x	Power is on
on	on	x	x	OS is running
on	flashing	x	x	System is running (non-OS code)
on	x	flashing	x	Non-critical operator intervention needed
on	x	x	on or flashing	Fault condition
on	off	off	off	Standby or total system failure. If failure and more than 1 CPU module is installed, suspect system board. If failure and only 1 CPU module is installed, suspect CPU module or system board.
on	on	off	off	System normal operation. OS running. If the expected OS prompt is not displayed, check console logs.
on	flashing	off	off	System running (non-OS code). Check console and SL logs for additional data.
on	off	off	on	Can't boot. Boot or system failure. Check console and SL logs for additional information. If failure and more than 1 CPU module is installed, suspect system board. If failure and only 1 CPU module is installed, suspect CPU module or system board.
on	flashing	off	on	Boot failed. System running (non-OS code). Check console log for additional information.
on	off	off	flashing	Unexpected reboot attempted. Check console logs.
on	on	off	flashing	Unexpected reboot/system recovered. Check console logs.
on	flashing	off	flashing	Unexpected reboot/system recovering.
on	off	flashing	off	OS not running. Non-critical operator intervention needed. Check console logs.

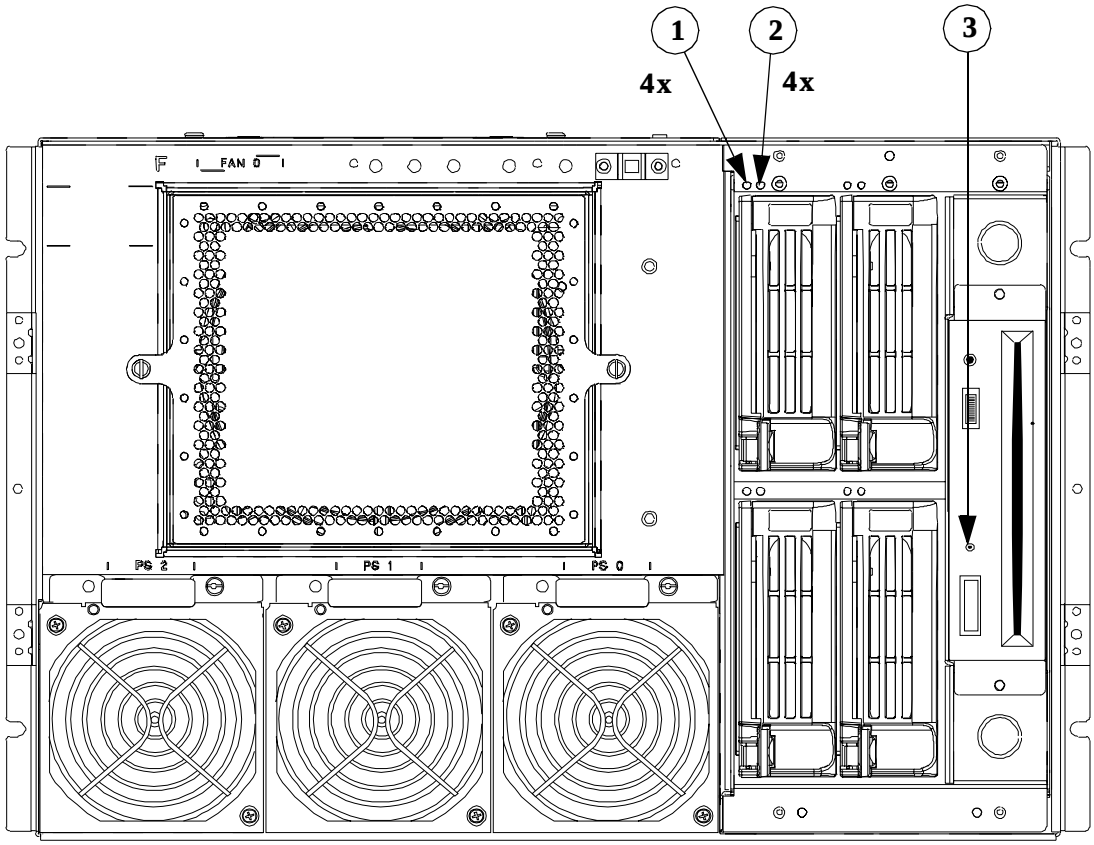
Table 3-1 Front Panel Status LED Definitions (Continued)

Power (Green)	Run (Green)	Attention (Yellow)	Fault (Red)	Definition
on	on	flashing	off	OS is running. Non-critical operator intervention needed. Check console logs.
on	flashing	flashing	off	OS coming up (non OS code). Non-critical operator intervention needed. Check console logs.
on	off	flashing	on	Fault condition, can't boot. Other non-critical operator intervention needed. Check console logs.
on	flashing	flashing	on	Unexpected reboot, OS recovering (non OS code). Other non-critical operator intervention needed. Check console logs.
on	off	flashing	flashing	Unexpected reboot attempted. Non-critical operator intervention needed. Check console logs.
on	on	flashing	flashing	OS is running. Unexpected reboot. Other non-critical operator intervention needed. Check console logs.
on	flashing	flashing	flashing	OS coming up (non-OS code). Unexpected reboot. Non-critical operator intervention needed. Check console logs.

Disk Drives and Removable Media LEDs

The status LEDs of the disk drives and of the removable media show when the devices are in use and operating status. The disk drive LEDs are located behind the units, but are observable through light pipes.

Figure 3-2 Disk Drive and Removable Media LED Indicators



medialeds

Table 3-2 describes the status LEDs of the disk drives and removable media and provides information to help interpret the display to determine server status. Up to four disk drives and one removable disk unit (DVD, DSS, CD, etc.) may be installed.

Table 3-2 Disk Drive and Removable Media LED Definitions

Figure Reference	Name	Definition
Figure 3-2, item 1	Disk activity	Normal off—Off indicates no activity. On (green) indicates active disk access.
Figure 3-2, item 2	Disk attention	Normal off—Off indicates no problem. On (amber) indicates fault condition.
Figure 3-2, item	C D busy	Normal off—Off indicates no activity. On (green) indicates active disk access.

PCI Card/Backplane and I/O Status LEDs

I/O and card status is shown by LEDs on the PCI I/O cards and on the PCI backplane. LEDs associated with the I/O connectors are shown in following figures. Many of these LEDs are located on the PCI backplane, but are observed on the card separators and near the connectors via light pipes. Figure 3-3 shows the location of indicators on the PCI backplane and on PCI card (seen from rear of server). Table 3-3 describes the PCI backplane and PCI card status LEDs.

Figure 3-3 PCI Backplane and PCI I/O Card Status LED Indicators

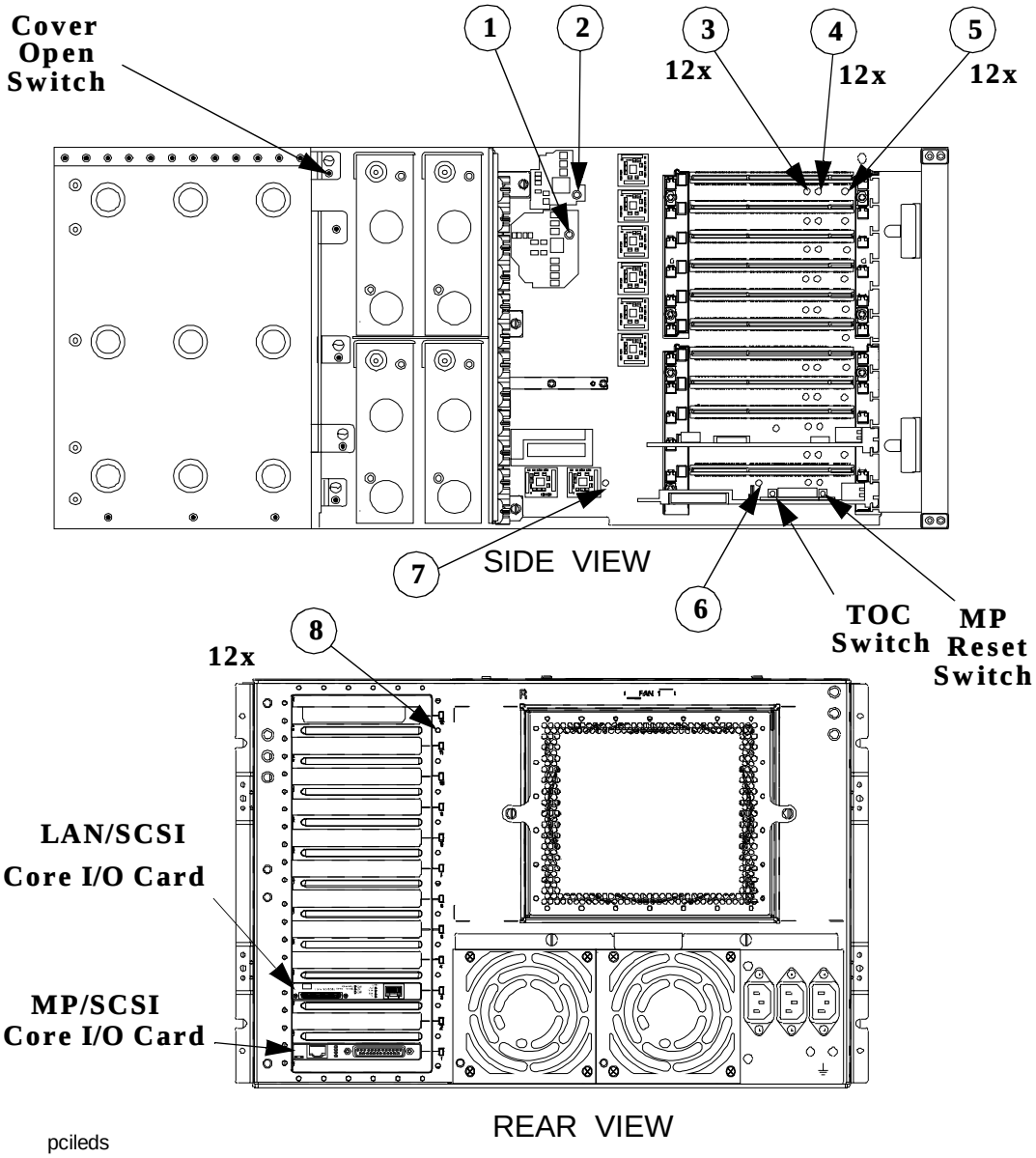


Table 3-3 PCI Card/Backplane and I/O Status LED Definitions

Figure Reference	Name	Definition
Figure 3-3, item 1	DS11205	Lit (green) when the 3.3 V power rail in the PCI backplane is within specifications. The 3.3 V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on PCI backplane board.
Figure 3-3, item 2	DS11206	Lit (green) when the 5 V power rail for the removable media is within specifications. The 5 V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on PCI backplane.
Figure 3-3, item 3 and item 4	DC power	DC power to above slot is within specifications. (Green light from these 2 LEDs is piped to the front of the card separator.) If either LEDs is lit, I/O card power is OK. If one LED is out the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on PCI backplane. If both LEDs are out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning power circuit on related PCI I/O card, or malfunctioning power circuit on PCI backplane.
Figure 3-3, item 5	Attention	A power problem has been detected and is associated with the related PCI I/O card. (Amber light from item 5 LED is piped to the front of the card separator.) If this LED is lit, the slot has been selected/enabled. When flashing, a fault has been detected. First check for error messages and perform the recommended action. If the problem persists, the most likely problems (in order of likelihood) are: malfunctioning power circuit on related PCI I/O card, or malfunctioning power circuit on PCI backplane.
Figure 3-3, item 6	2 LEDs on MP/SCSI I/O card	See items 1 and 2 in Figure 3-5 and Table 3-5.
Figure 3-3, item 7	DS11207	Lit (green) when the 3.3 V power rail in the PCI backplane is within specifications. The 3.3 V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on PCI backplane board.
Figure 3-3, item 8	Attention	A power problem has been detected and is associated with the related PCI I/O card. (Amber light from item LED is piped to the back of the server.) If this LED is lit, the most likely problems (in order of likelihood) are: malfunctioning power circuit on related PCI I/O card, or malfunctioning power circuit on PCI backplane.

Figure 3-4 shows the location of indicators on the LAN/SCSI Core I/O PCI card. Table 3-4 describes the I/O status LEDs of the LAN/SCSI Core I/O PCI card.

Figure 3-4 LAN/SCSI Core I/O Card Status LED Indicators

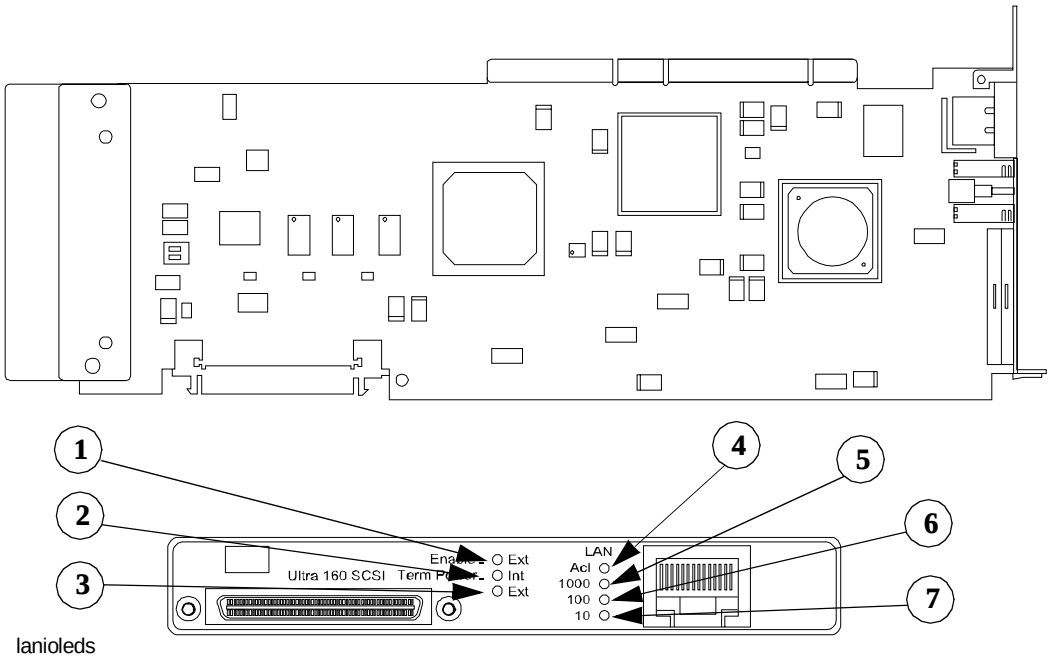


Table 3-4 LAN/SCSI Core I/O Card LED Definitions

Figure Reference	Name	Definition
Figure 3-4, item 1	Enable - ext	Lit when SCSI termination is enabled. This should always be lit when system power is on.
Figure 3-4, item 2	Ultra 160 SCSI term power - int	Lit when internal SCSI channel termination power is on. This should always be lit when system power is on.
Figure 3-4, item 3	Ultra 160 SCSI term power - ext	Lit when external SCSI channel termination power is on. This should always be lit when system power is on.
Figure 3-4, item 4	LAN acl	Lit (green) when there is activity on the LAN interface.
Figure 3-4, item 5	LAN - 1000	Lit (green) when the 1000 Base T interface is active.
Figure 3-4, item 6	LAN - 100	Lit (green) when the 100 Base T interface is active.
Figure 3-4, item 7	LAN - 10	Lit (green) when the 10 Base T interface is active.

Figure 3-5 shows the location of indicators on the MP/SCSI Core I/O PCI card. Table 3-5 describes the I/O status LEDs of the MP/SCSI Core I/O PCI card.

Figure 3-5 MP/SCSI Core I/O Card LED Indicators

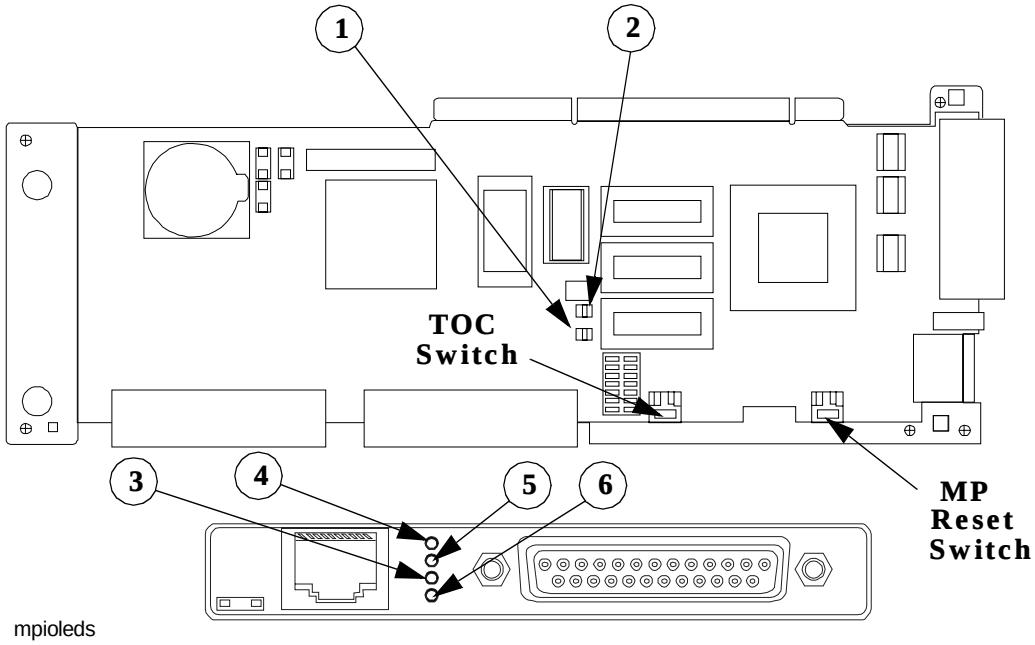


Table 3-5 MP/SCSI Core I/O Card LED Definitions

Figure Reference	Name	Definition
Figure 3-5, item 1	ROM error (DS2)	Lit (green) when an error has been detected in the management processor ROM.
Figure 3-5, item 2	Heartbeat (DS3)	Lit (amber) when the management processor is operating.
Figure 3-5, item 3	SLFTST / failure	Lit (green) when a self test is executing. Flashes when an error has been detected.
Figure 3-5, item 4	10 link / activity	Lit (green) when 10 Base T interface is active.
Figure 3-5, item 5	Power ON	Lit (green) when 10 Base T interface is active.
Figure 3-5, item 6	100 link / activity	Lit (green) when 100 Base T interface is active.

System Board LEDs

System board LEDs show the status of power and clock functions within the server. One LED (DS1) is located under the processor extender board and cannot be observed during operation.

Figure 3-6 System Board Status LED Indicators

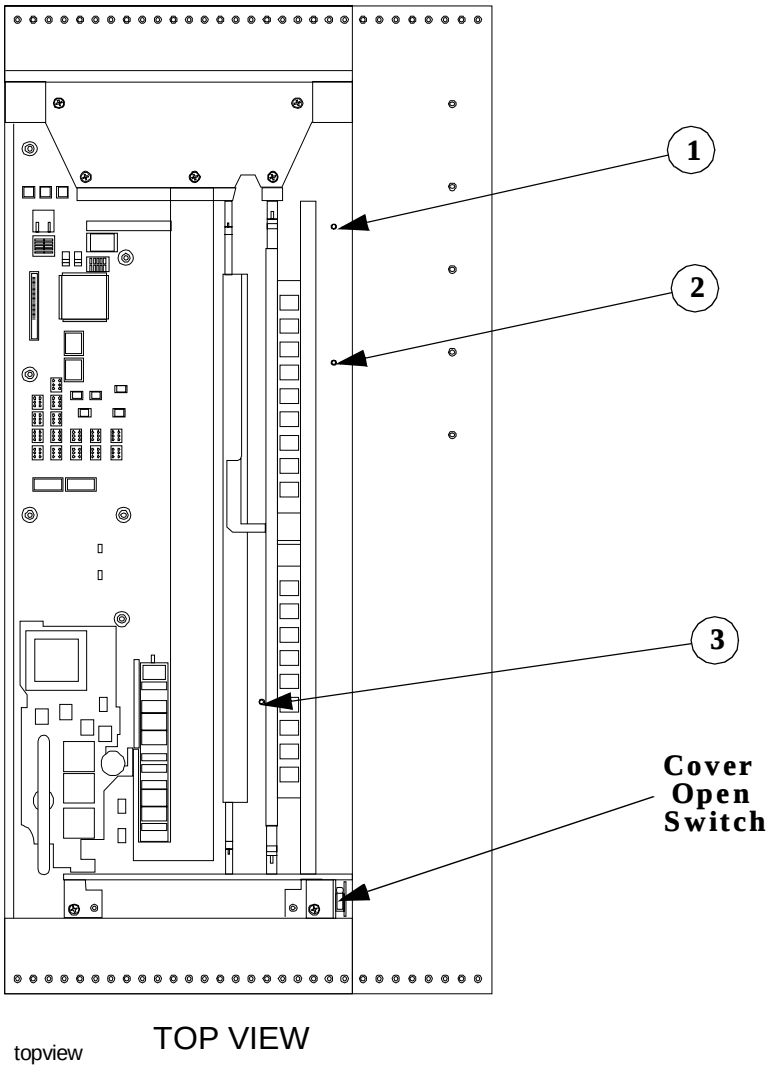


Table 3-6 describes the status LEDs on the system board. Open the top cover to view these LEDs. One LED (DS1) is located under the processor extender board and cannot be observed during operation.

Table 3-6 System Board LED Definitions

Figure Reference	Name	Definition
Figure 3-6, item 1	DS4	Lit (green) when BMC HEARTBEAT signal is present. If the heartbeat signal is missing (or out of tolerance), it will be reported by firmware and an error message will announce the problem.
Figure 3-6, item 2	DS3	Lit (green) when the 3VP3 power rail in the system board is within specifications. The 3V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, malfunctioning LED circuit on system board, or malfunctioning CPU module.
Figure 3-6, item 3	DS2	Lit (green) when the -12V power rail in the system board is within specifications. The -12V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, malfunctioning LED circuit on system board, or malfunctioning CPU module.
DS1 (not shown - this LED is beneath the processor extender board)	DS1	Lit (green) when the 12V PCI power rail in the system board is within specifications. The 12V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, malfunctioning LED circuit on system board, or malfunctioning CPU module.

Processor Extender Board LEDs

The processor extender board LEDs show the status of power rails on the processor extender board.

Figure 3-7 Processor Extender Board Status LED Indicators

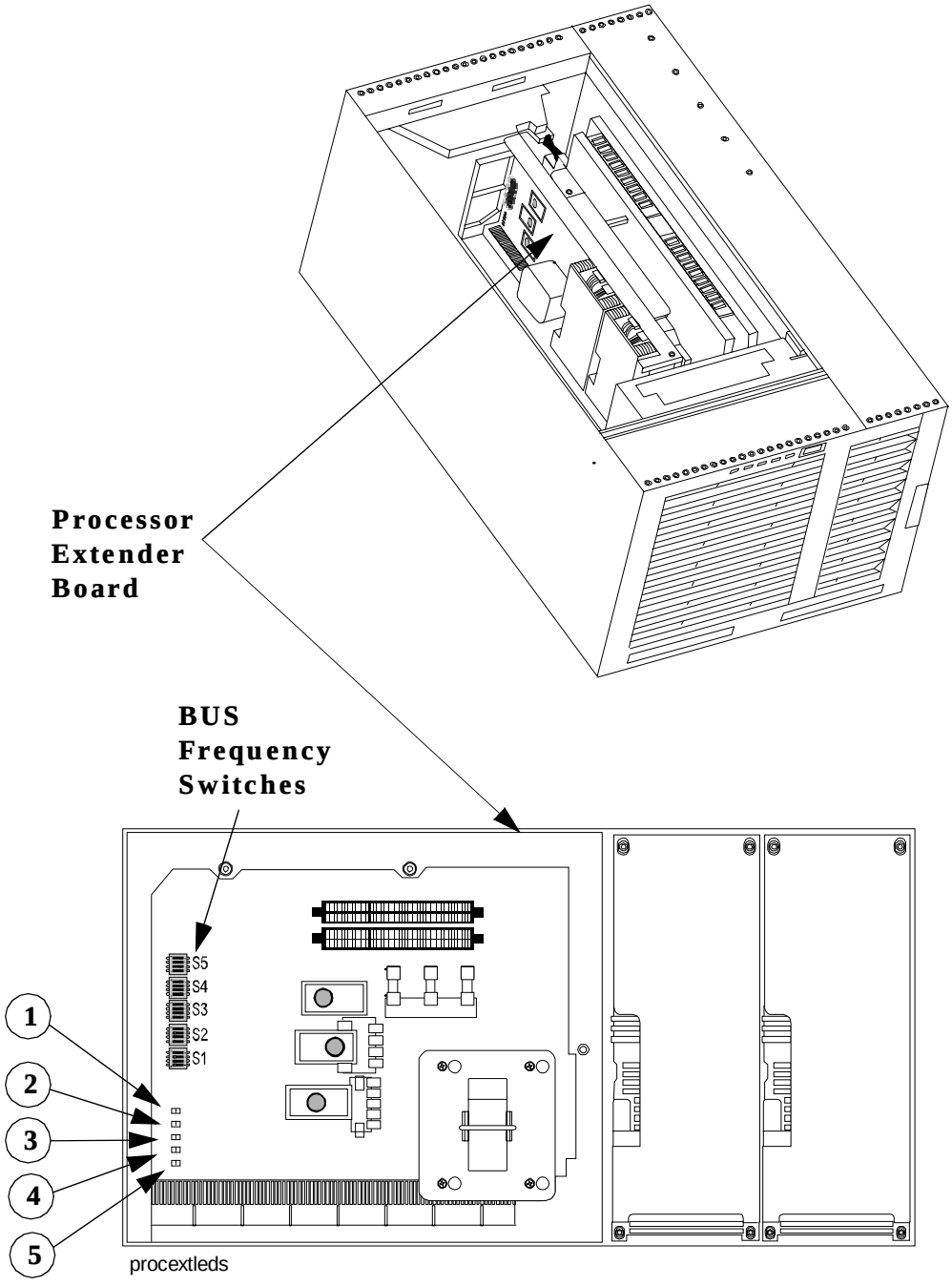


Table 3-7 describes the status LEDs on the processor extender board. Open the top cover to view these LEDs.

Table 3-7 Processor Extender Board LED Definitions

Figure Reference	Name	Definition
Figure 3-7, item 1	DS5	Lit (green) when the 1.75V power rail in the processor extender board is within specifications. (The 1.75V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down.) If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on processor extender board, malfunctioning CPU module.
Figure 3-7, item 2	DS4	Lit (green) when the 1.5V power rail for the chipset is within specifications. The 1.5V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on processor extender board, malfunctioning CPU module.
Figure 3-7, item 3	DS3	Lit (green) when the 1.2V power rail in the processor extender board is within specifications. The 1.2V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on processor extender board, malfunctioning CPU module.
Figure 3-7, item 4	DS2	Lit (green) when the 1.5V power rail for ropes is within specifications. The 1.5V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, malfunctioning LED circuit on processor extender board, or malfunctioning CPU module.
Figure 3-7, item 5	DS1	Lit (green) when the 2.5V power rail for memory is within specifications. The 2.5V source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down. If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, or malfunctioning LED circuit on processor extender board, malfunctioning CPU module.

Memory Extender Board LEDs

Memory extender board LEDs show the status of DC power.

Figure 3-8 Memory Extender Board Status LED Indicators

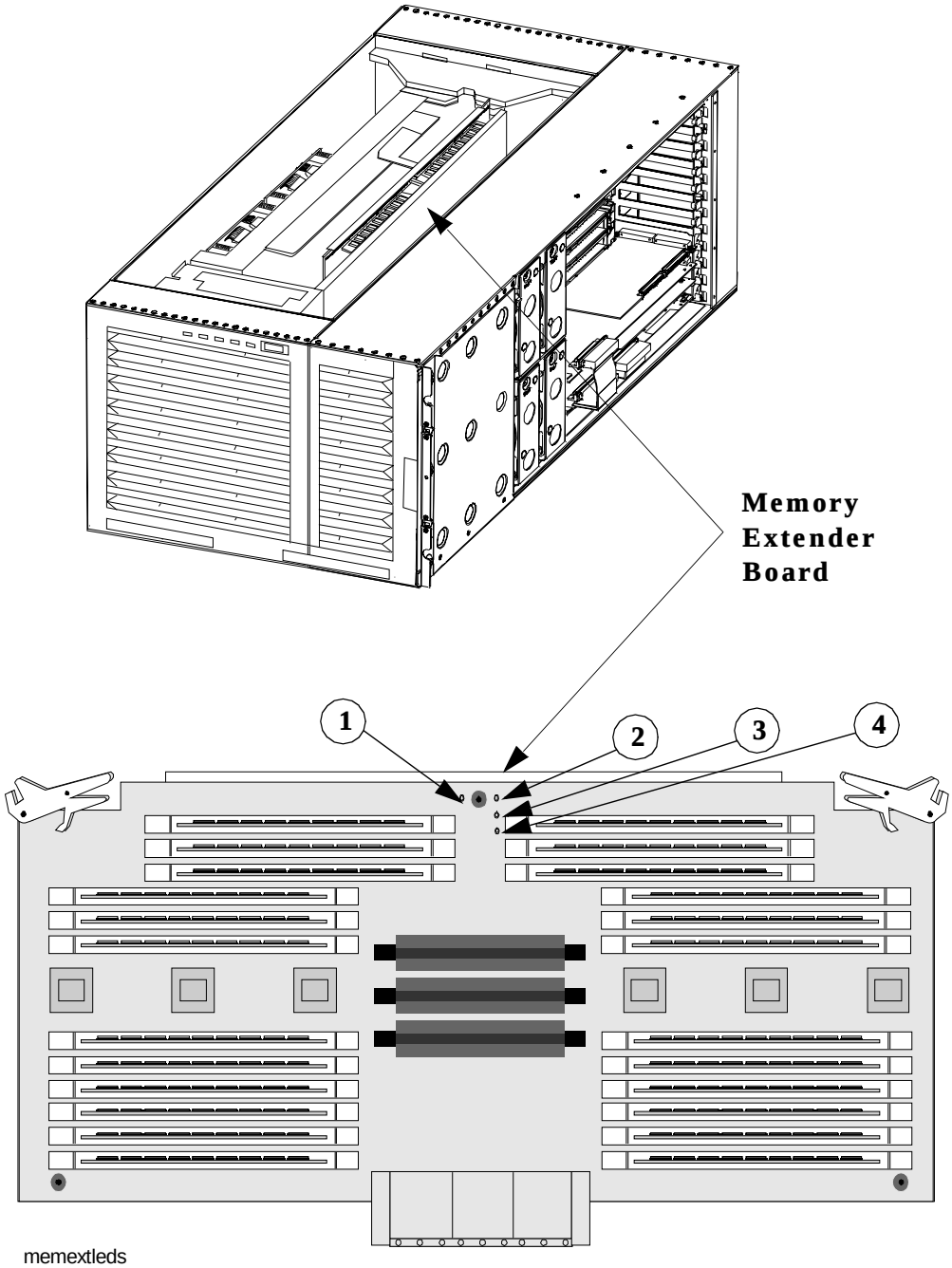


Table 3-8 describes the status LEDs on the memory extender board. Open the top cover to view these LEDs.

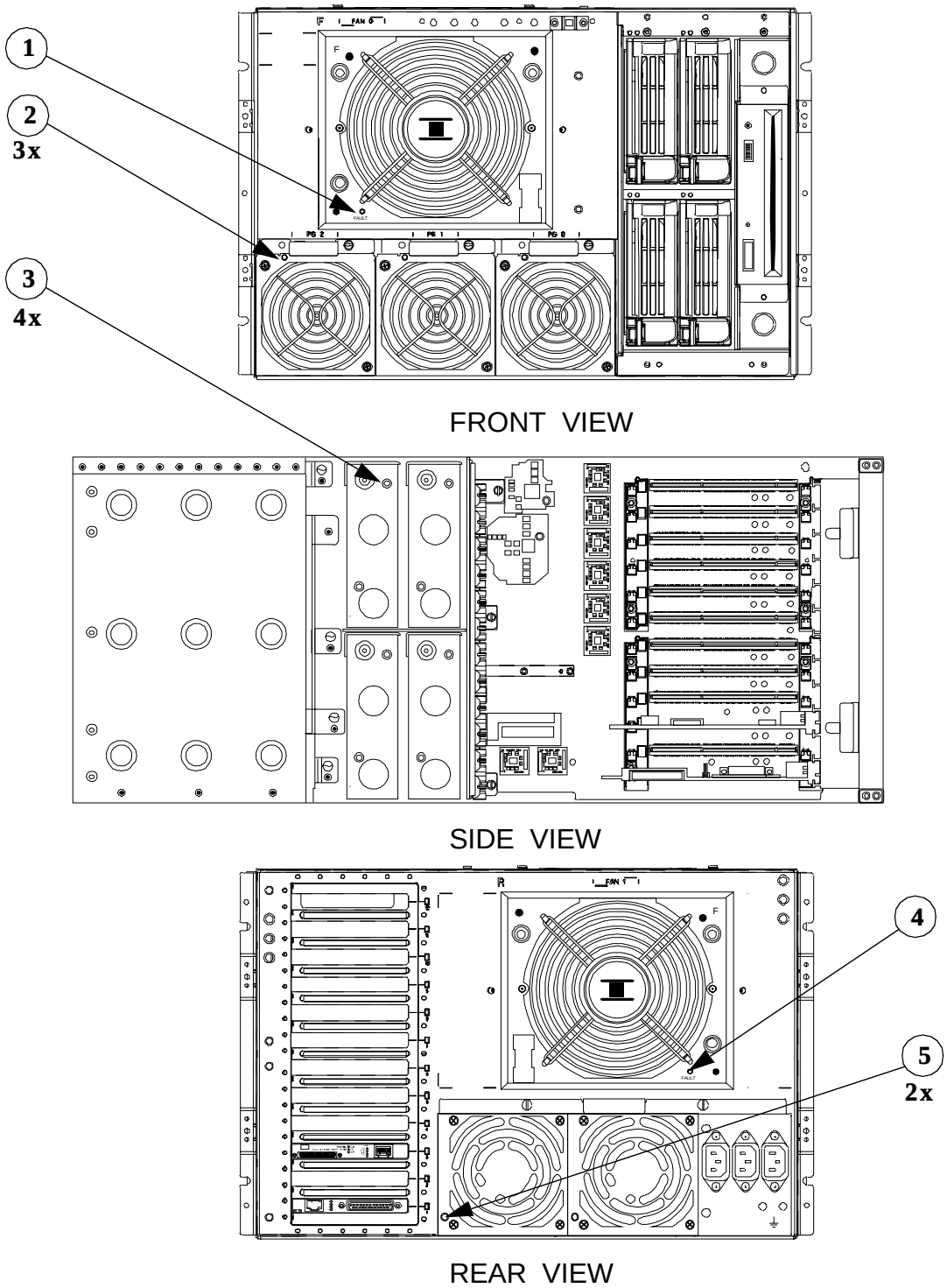
Table 3-8 Memory Extender Board LED Definitions

Figure Reference	Name	Definition
Figure 3-8, item 1	1.5V and 2.5V power ok (DS1)	Lit (green) when the 1.5V and 2.5V power rails in the memory extender board are within specifications. (The DC source is monitored by firmware. If a power problem exists, it will be reported by firmware and server power will shut down.) If this LED is out (while others are lit), the most likely problems (in order of likelihood) are: malfunctioning LED, malfunctioning LED circuit on memory extender board.
Figure 3-8, item 2	Power module 1 OK (DS2)	Lit (green) when power module 1 is operating within specifications. (Memory errors will be detected and reported in error messages.) If this LED is out (while others are lit) and no errors have been reported, the most likely problems (in order of likelihood) are: the associated power module, malfunctioning LED, malfunctioning LED circuit on memory extender board.
Figure 3-8, item 3	Power module 2 OK (DS3)	Lit (green) when the power module 2 is operating within specifications. (Memory errors will be detected and reported in error messages.) If this LED is out (while others are lit) and no errors have been reported, the most likely problems (in order of likelihood) are: the associated power module, malfunctioning LED, malfunctioning LED circuit on memory extender board.
Figure 3-8, item 4	Power module 3 OK (DS4)	Lit (green) when power module 3 is operating within specifications. (Memory errors will be detected and reported in error messages.) If this LED is out (while others are lit) and no errors have been reported, the most likely problems (in order of likelihood) are: the associated power module, malfunctioning LED, malfunctioning LED circuit on memory extender board.

Power Supply and Fan LEDs

Power supply LEDs are located on the front of the server, and fan LEDs are located on front, side, and rear of the server. These LEDs show the status of the power supplies and fans within the server.

Figure 3-9 Power Supply and Fan Status LED Indicators



psfanleds

Table 3-9 describes the status LEDs on the system board. Open the top cover to view these LEDs,

Table 3-9 Power Supply and Fan Status LED Definitions

Indicator	Name	Definition
Figure 3-9, item 1	Front fan LED	Normally off. Lit (amber) when fan speed is lower than required. Fan errors are reported to the system.
Figure 3-9, item 2	Power supply fan LED	Normally on (green). Off and power supply is disabled when fan or power supply fails. Power supply status is reported to the system.
Figure 3-9, item 3	Side fan LEDs	Normally off. Lit (amber) when fail speed is lower than required. Fan errors are reported to the system.
Figure 3-9, item 4	Rear fan LED	Normally off. Lit (amber) when fan speed is lower than required. Fan errors are reported to the system.
Figure 3-9, item 5	Rear power supply fan LEDs	Normally off. Lit (amber) when fan speed is lower than required and when the server power converter is malfunctioning. Fan errors are reported to the system.

Disk and I/O Path Logging

Some failures result in I/O path logging, to indicate the source of the error. The paths which produced these errors may be included in the associated error messages, or logged by the management processor. Console logs and event logs are accessible from the management processor, through the MP Main Menu. The error messages will be displayed on the active console(s). Figure 3-10 illustrates these paths and associates the paths with the various PCI slots and disk drives of the server. Table 3-10 lists the disk drives and the I/O path associated with them. Table 3-11 lists the PCI slots and identifies the path associated with each PCI slot/card.

Figure 3-10 I/O and Disk Drive Paths

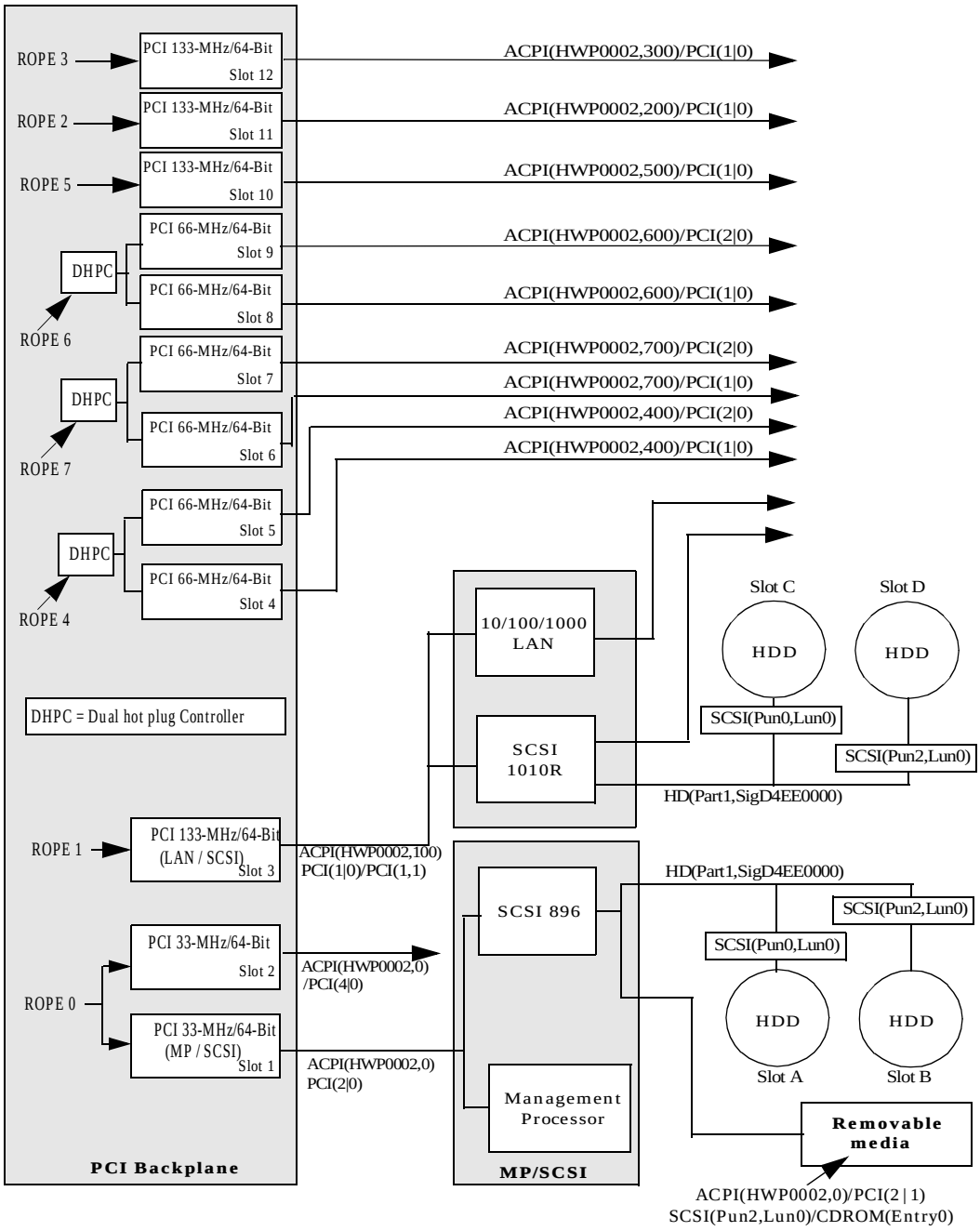


Table 3-10 Disk and Removable Media I/O Paths

Slot	Path
Disk Drives	
Slot A	ACPI(HWP0002,0)/PCI(2|0)/SCSI(Pun0,Lun0)/HD(Part1,SigD4EE0000)
Slot B	ACPI(HWP0002,0)/PCI(2|0)/SSI(Pun2,Lun0)/HD(Part1,SigD4EE0000)
Slot C	ACPI(HWP0002,100)/PCI(1|0)/PCI(1|1)/SCSI(Pun0,Lun0)/HD(Part1,SigD4EE0000)
Slot D	ACPI(HWP0002,100)/PCI(1|0)/PCI(1|1)/SCSI(Pun2,Lun0)/HD(Part1,SigD4EE0000)
Removable Media	
Slot	ACPI(HWP0002,0)/PCI(2|1)/SCSI(Pun2,Lun0)/CDROM(Entry0)

Table 3-11 PCI Slot/Card I/O Paths

I/O Slot	Path
Slot 1 (MP/SCSI card)	ACPI(HWP0002,0)/PCI(1|1)
	ACPI(HWP0002,0)/PCI(1|0)
	ACPI(HWP0002,0)/PCI(2|0)
	ACPI(HWP0002,0)/PCI(2|1)
Slot 2[a]	ACPI(HWP0002,0)/PCI(4|0)
Slot 3 (LAN/SCSI card)	ACPI(HWP0002,100)/PCI(1|0)
Slot 4	ACPI(HWP0002,400)/PCI(1|0)
Slot 5	ACPI(HWP0002,400)/PCI(2|0)
Slot 6	ACPI(HWP0002,700)/PCI(1|0)
Slot 7	ACPI(HWP0002,700)/PCI(2|0)
Slot 8	ACPI(HWP0002,600)/PCI(1|0)
Slot 9	ACPI(HWP0002,600)/PCI(2|0)
Slot 10	ACPI(HWP0002,500)/PCI(1|0)
Slot 11	ACPI(HWP0002,200)/PCI(1|0)
Slot 12	ACPI(HWP0002,300)/PCI(1|0)

a. If you are using the Windows operating system, there will be a USB/VGA card in Slot 2.

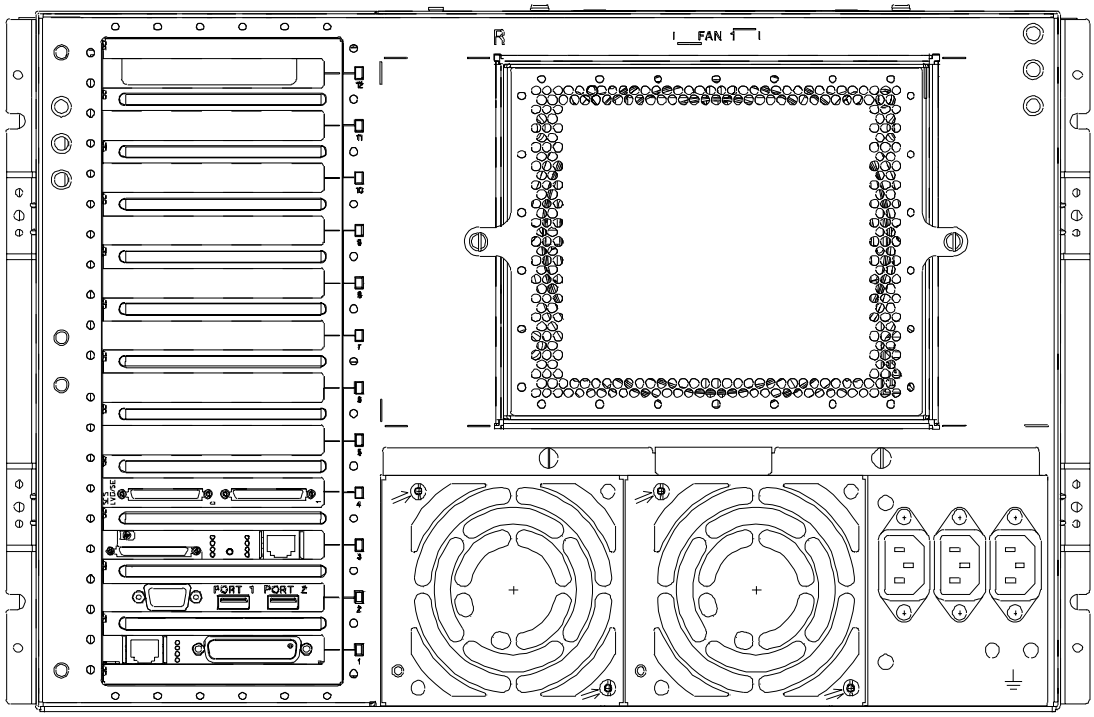
4 Cable Connections

AC Input Power

The hp Integrity rx5670 comes with two power supplies installed: each with one AC input connector. The input for each connector is rated for 100 to 240 VAC at 13 Amps. As a minimum, both power supplies must be connected to an AC power source. A third power supply may be installed to provide N+1 capability.

WARNING **Voltage is 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.**

Figure 4-1 hp Integrity rx5670 (rear view)



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Core I/O Connections

Each hp Integrity rx5670 contains one core I/O board set, consisting of an MP/SCSI board and a LAN/SCSI board. The MP/SCSI board is located in PCI slot 1. The LAN/SCSI board is located in PCI slot 3.

MP/SCSI Connections

The MP/SCSI board is required to access the console, access all but two of the internal peripherals, and utilize other features of the system.

Connections to the MP/SCSI board include the following:

- DB25 connector via the M cable (part number A6144-63001)

  This RS232 connector provides connections for a local console, external modem, and a UPS. The server end of the M cable terminates in a DB25 connector. The opposite side of the cable terminates in 3 DB9 connectors labeled CONSOLE, REMOTE, and UPS.

- 10/100 Base-T LAN RJ45 connector (for LAN access to the management processor)

  This LAN connection is available whenever the system is connected to a power source, even if the server main power switch is in the off position.

- Internal Ultra SCSI (wide) channel for two internal mass storage devices.
- Internal Ultra SCSI (narrow) channel for connection to internal removable media device.

LAN/SCSI Connections

The LAN/SCSI board provides the basic external I/O connectivity for the system.

Connections to the LAN/SCSI board include the following:

- Internal Ultra SCSI (wide) channel for two internal mass storage devices
- External LVD Ultra 160 SCSI channel connected to a 68-pin VHDCI connector
- 10/100/1000 Base-T LAN RJ45 connector (for LAN access to the system)

Management Processor

The **management processor** is an independent support system for the server. It provides a way for you to connect to a server and perform administrative or monitoring tasks for the server hardware.

The management processor controls power, reset, and transfer of control (TOC) capabilities, provides console access, displays and records system events, and can display detailed information about the various internal subsystems. The management processor also provides a virtual front panel which can be used to monitor the system status and see the state of front panel LEDs. All MP functions are available via the MP LAN, local RS-232 and remote RS-232 ports.

The management processor is available whenever the system is connected to a power source, even if the server main power switch is in the off position.

Access to the management processor can be restricted by user accounts. User accounts are password protected and provide a specific level of access to the server and management processor commands.

Multiple users can interact with the management processor. From the MP MAIN MENU users can select any of the following options: enter management processor command mode, enter console, view event logs, view console history, display virtual front panel, enter console session, or connect to another management processor. Multiple users can select different options from the MP MAIN MENU at the same time. However, management processor command mode and console mode are mirrored. The MP allows only one user at a time to have write access to the shared console.

Accessing the Management Processor

You can connect to the management processor using the following methods:

- The **local RS-232C port** using a local terminal
- The **remote RS-232C port** using external modem (dial-up) access, if remote modem access is configured
- The **management processor LAN port** using web console or telnet if login access through the management processor LAN is enabled

---

NOTE The M cable (part number A6144-63001) must be connected to the DB25 connector located on the MP/SCSI board to allow a local terminal connection. The MP/SCSI board is located in PCI Slot 1.

If a local terminal is not available, the management processor may be configured using a network connection. Details for configuring the management processor via a network are found in the section titled “Network Access to the Management Processor”.

Local Terminal Access to the Management Processor Communication with the management processor is established by connecting a terminal to the Local RS-232 port on the MP/SCSI Core I/O board.

A terminal session may be established using a standalone terminal, or using terminal emulation software such as Reflection 1 running on a PC.

During installation, communicating with the management processor enables such tasks as:

- Verifying that the components are present and installed correctly
- Setting the LAN IP addresses

Setting Terminal Parameters After powering on the terminal, ensure the communications settings are as follows:

- 8/none (parity)
- 9600 baud
- None (Receive)
- None (Transmit)

If the terminal is a PC using Reflection 1, check or change these communications settings using the following procedure:

1. From the Reflection 1 Main screen, pull down the **Connection** menu and select **Connection Setup**.
2. Select **Serial Port**.
3. Select **Com1**.
4. Check the settings and change, if required.

   Go to **More Settings** to set Xon/Xoff. Click **OK** to close the More Settings window.

5. Click **OK** to close the Connection Setup window.
6. Pull down the **Setup** menu and select **Terminal** (under the **Emulation** tab).
7. Select a supported terminal type.

   The preferred type is **VT100**+.
8. Click **Apply**.

   This option is not highlighted if the terminal type you want is already selected.
9. Click **OK**.

Network Access to the Management Processor

By connecting the management processor LAN port to an active network, another host on the same subnet can set the management processor IP address via the ping command. After the IP address has been set, a telnet session can be established to configure additional parameters.

To configure the management processor LAN IP address, perform the following steps:

1. Determine the MAC address of the management processor LAN interface by viewing the label located at the rear of the server.

NOTE If this label is missing, another label can be found at the front of the MP/SCSI card. You might need to remove the MP/SCSI board to view this label.

For instructions on removing/replacing the MP/SCSI board, refer to the *hp Integrity rx5670 Operation and Maintenance Guide*.

---

2. Connect a LAN cable on your local subnet to the LAN port found on the MP/SCSI board.
3. Add an ARP table entry to another host located on your local subnet. This ARP table entry will map the MAC address of the MP/SCSI LAN interface to the IP address chosen for that interface.

NOTE Adding an entry to the ARP table is typically done using the ARP command with the appropriate option. For example, arp -s is used with Windows. Consult your operating system documentation for more information.

---

4. Use the ping command from the host that has the new ARP table entry. The destination address is the IP address that is mapped to the MAC address of the management processor. The management processor LAN port should now be configured with the appropriate IP address.
5. Use the telnet command to connect to the management processor from a host on the local subnet.

Interacting with the Management Processor

To interact with the management processor, perform the following steps:

NOTE On initial system installation, the MP has two default user accounts. They are:
1. Administrator level user; login = Admin, password = Admin (both are case sensitive)
2. Operator level user; login = Oper, password = Oper (both are case sensitive).
For security reasons, it is recommended that the UC command be used during the initial logon session (enter CM at the MP prompt, and enter UC at the MP:CM> prompt) to modify default passwords or to delete and create user accounts.

---

1. Log in using your management processor user account name and password.

NOTE The management processor will start with the MP MAIN MENU displayed. In the following steps it is assumed that this was the starting condition. If you are not at the MP MAIN MENU, use CTRL-B to return to the MP MAIN MENU.

---

2. Use the management processor menus and commands as needed. Main menu commands are shown in Figure 4-2. Commands not displayed in the MP MAIN MENU can be accessed in command mode by first using the CM command at the MP prompt. A list of available commands is presented in Table 4-1 and can be displayed by using the management processor help function (enter **HE** followed by **LI** at the MP> prompt). You can return to the MP MAIN MENU by typing **Ctrl B**.

Figure 4-2 The MP MAIN MENU

```
MP MAIN MENU:
     CO: Console
    VFP: Virtual Front Panel
     CM: Command Menu
     CL: Console Logs
     SL: Show Event Logs
    CSP: Connect to Service Processor
     SE: Create OS Session
     HE: Main Menu Help
      X: Exit Connection
```

3. Log out using the X command (enter **X** at the MP> prompt) after returning to the MP MAIN MENU.

Configuring Management Processor LAN Information

LAN information includes the management processor network name, the management processor IP address, the management processor subnet mask, the management processor gateway address, and the web console port number.

To set the management processor LAN IP address:

1. At the MP MAIN MENU prompt (MP>), enter **CM** to select command mode.
2. At the command mode prompt (MP:CM>), enter **LC** (for LAN configuration).

The screen displays the default values and asks if you want to modify them. It is good practice to write down the information, as it may be required for future troubleshooting.

Figure 4-3 The LC Command Screen

```
MP:CM> lc -ip 127.0.0.1 -host uninitialiized -mask 255.255.255.0 -gate
127.0.0.1 -web 2003

New LAN Configuration (* modified value) :
   * IP Address                 : 127.0.0.1
   * MP Host Name               : uninitialized
   * Subnet Mask                : 255.255.255.0
   * Gateway Address            : 127.0.0.1
      Link State                : Auto Negotiate
   * Web Console Port Number    : 2023

   Confirm? (Y/ {N} ) : y

   -> LAN configuration has been updated
   -> Reset the MP (XD command option 'R' ) for confirmation to take effect.

   MP Host Name : uninitialized
   MP:CM> xd -reset

   -> MP reset requested

   Confirm? (Y/ {N} ) : y

   MP is now being reset
```

NOTE The value in the "IP address" field is set at the factory. The customer must provide the actual management processor LAN IP address.

3. The current lc data is displayed. When prompted to enter a parameter name, A to modify All, or Q to Quit, enter **A** to select all parameters.
4. The current IP address is displayed. When prompted to enter a new value or Q, enter the new IP address.
5. The current host name is displayed. When prompted to enter a new value or Q, enter the new management processor network name.

   This is the host name for the management processor LAN, The name can be up to 64 characters in length, and can include dashes, underlines, periods and spaces.
6. The current subnet mask name is displayed. When prompted to enter a new value or Q, enter the new subnet mask name.
7. The current gateway address is displayed. When prompted to enter a new value or Q, enter new the gateway address.
8. The current web console port number is displayed. When prompted to enter a new value or Q, just hit **enter**. The message "-> Current Web Console Port Number has been retained" will be displayed.

9. The current link state information is displayed. When prompted to enter a new value or Q, just hit **enter**. The message "-> Current Link State has been retained" will be displayed.
10. A new lc listing is displayed, including the values entered in the preceding steps. Verify that the desired values have been accepted. When prompted to enter a parameter for revision, Y to confirm, or Q to Quit, enter **Y** to confirm all parameters.
11. Observe the following display:
    -> LAN Configuration has been updated
    -> Reset MP (XD command option 'R') for configuration to take effect.

    MP Host Name: name (the name entered in step 5)
    MP:CM>
12. Enter **XD -reset** to reset the MP.
13. After the MP resets, log into the MP again. Then enter the MP command mode (enter **CM** at the MP: prompt).
14. At the MP:CM> prompt, enter **LS** to confirm the new LAN settings.
15. Enter **SA** to enable/disable web console and telnet access after the MP has been reset.

Management Processor Commands

Table 4-1 Management Processor Commands and Descriptions

Command	Description
BP	Reset BMC passwords
CA	Configure asynch/serial ports
CG	Certificate generator
CL	View console log
CM	Select command mode
CTRL-B	Return to MP main menu
CO	Select console mode
CSP	Connect to service processor
DATE	Date display
DC	Default configuration
DF	Display FRU information
DI	Disconnect remote or LAN console
FW	Upgrade MP firmware
HE	Display help for menu or command
ID	System information
IT	Inactivity timeout settings
LC	LAN configuration

Table 4-1 Management Processor Commands and Descriptions (Continued)

Command	Description
LOC	Locator LED and display configuration.
LS	LAN status
MR	Modem reset
MS	Modem status
PC	Remote power control
PG	Paging parameter setup
PS	Power management module status
RB	Reset BMC
RS	Reset system through RST signal
SA	Set access
SE	Enter OS session
SL	Show event Logs
SO	Security options
SS	System processor status
SYSREV	Current system firmware revisions
TC	Reset via transfer of control (TOC)
TE	Tell- send a message to other users
UC	User configuration
VFP	Virtual front panel
WHO	Display connected MP users
X	Exit management processor and disconnect
XD	Diagnostics and/or reset of MP

Booting the Server

To boot the server, perform the following step.

1. Depress the power switch located to the right of the Front Panel LEDs.

NOTE If the front bezel is attached and in the closed position, you will need to open the small door on the front bezel to gain access to the power switch.

If the autoboot function is enabled, the system will boot to the installed operating system. If autoboot is not enabled, the system will enter the EFI Boot Manager. The EFI Boot Manager allows you to control the server's booting environment. For more information about the EFI Boot Manager, refer to the *hp Integrity rx5670 Operation and Maintenance Guide*.