

HP ProLiant DL360 Generation 3 Server Maintenance and Service Guide



September 2003 (Fourth Edition)
Part Number 293948-004

© 2003 Hewlett-Packard Development Company, L.P.

Microsoft®, Windows®, and Windows NT® are U.S. registered trademarks of Microsoft Corporation.

Hewlett-Packard Company shall not be liable for technical or editorial errors or omissions contained herein. The information in this document is provided “as is” without warranty of any kind and is subject to change without notice. The warranties for HP products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty.

HP ProLiant DL360 Generation 3 Server Maintenance and Service Guide

September 2003 (Fourth Edition)
Part Number 293948-004

Contents

About This Guide

Audience Assumptions	vii
Technician Notes	vii
Where to Go for Additional Help	ix
Integrated Management Log	ix
Telephone Numbers	ix

Chapter 1

Illustrated Parts Catalog

Mechanical Components Exploded View	1-1
System Components Exploded View	1-2
System Components Spare Parts List	1-3

Chapter 2

Removal and Replacement Procedures

Electrostatic Discharge Information	2-1
Symbols on Equipment	2-2
Rack Warnings and Precautions	2-3
Server Warnings and Precautions	2-3
Preparation Procedures	2-4
Hot-Plug Devices	2-4
Non-Hot-Plug Devices	2-4
Powering Down the Server	2-4
Removing the Server from the Rack	2-6
Server Access Panel	2-7
Processor Fan Module	2-8
Mass Storage Devices	2-10
Drive Locations	2-10
Hard Drive Blank	2-11
Hot-Plug U320 SCSI Hard Drives	2-11
Optical Device	2-13
Optical Device Ejector	2-15
Diskette Drive	2-18
Hot-Plug Power Supplies	2-19
PCI Riser Board Assembly	2-22
Replacing an Expansion Board	2-22
I/O System Fan Assembly	2-24
Power Converter Module	2-25

Optical Device/Diskette Drive Interface Board	2-28
SCSI Backplane Board	2-30
DIMMs.....	2-31
Processors	2-34
Processor Power Module	2-38
Battery-Backed Write Cache Enabler	2-40
Battery.....	2-41
System Board.....	2-43
Re-entering the Server Serial Number	2-44

Chapter 3

Cable Routing Diagram

Server Cable Routing	3-1
----------------------------	-----

Chapter 4

Diagnostic Tools

Diagnostic Tools Overview	4-1
Automatic Server Recovery-2.....	4-1
Insight Manager 7	4-1
Integrated Management Log	4-2
Integrated Lights-Out Technology.....	4-2
Option ROM Configuration for Arrays	4-3
ProLiant Essentials Rapid Deployment Pack.....	4-3
ROM-Based Setup Utility.....	4-3
ROMPaq Utility	4-4
Smart Components for Remote ROM Flash	4-4
SmartStart Software	4-4
SmartStart Autorun Menu	4-5
SmartStart Scripting Toolkit.....	4-5
Enterprise Diagnostics LX32 Utility	4-5

Chapter 5

LEDs, Switches, and Jumpers

Status Indicators.....	5-1
Front Panel LED Indicators.....	5-1
Rear Panel LED Indicators	5-3
System Board LEDs	5-4
Switches	5-5
System Maintenance Switch (SW2).....	5-6
Hot-Plug Redundant Power Supply/PCI Switch (SW1) Settings.....	5-6
Debug LED Switch (SW3) Settings	5-7
Clearing and Resetting System Password Settings.....	5-7
Clearing and Resetting System Configuration Settings	5-8
Setting the NIC Operating Mode.....	5-8

Chapter 6

Specifications

Operating and Performance Specifications for the HP ProLiant DL360 Generation 3 Server 6-1

Index

About This Guide

This maintenance and service guide can be used for reference when servicing HP ProLiant DL360 Generation 3 servers.



WARNING: To reduce the risk of personal injury from electric shock and hazardous energy levels, only authorized service technicians should attempt to repair this equipment. Improper repairs can create conditions that are hazardous.

Audience Assumptions

This guide is for service technicians. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazard in products with hazardous energy levels and are familiar with weight and stability precautions for rack installations.

Technician Notes



WARNING: Only authorized technicians trained by HP should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module-level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.



WARNING: To reduce the risk of personal injury from electric shock and hazardous energy levels, do not exceed the level of repairs specified in these procedures. Because of the complexity of the individual boards and subassemblies, do not attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create conditions that are hazardous.



WARNING: To reduce the risk of electric shock or damage to the equipment:

- Disconnect power from the system by unplugging all power cords from the power supplies.
- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.



CAUTION: To properly ventilate the system, you must provide at least 7.6 cm (3.0 in.) of clearance at the front and back of the server.



CAUTION: The computer is designed to be electrically grounded (earthed). To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

NOTE: Any indications of component replacement or printed wiring board modifications may void any warranty.

Where to Go for Additional Help

In addition to this guide, the following information sources are available:

- User documentation
- *Service Quick Reference Guide*
- Service training guides
- Service advisories and bulletins
- QuickFind information services
- Insight Manager software

Integrated Management Log

The server includes an integrated, nonvolatile management log that contains fault and management information. The contents of the Integrated Management Log (IML) can be viewed with Insight Manager.

Telephone Numbers

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.

For HP technical support:

- In the United States and Canada, call 1-800-652-6672.
- Outside the United States and Canada, refer to www.hp.com.

Illustrated Parts Catalog

This chapter provides the illustrated parts breakdown and spare parts list for the HP ProLiant DL360 Generation 3 server. Refer to Table 1-1 for the names and part numbers of the referenced spare parts.

Mechanical Components Exploded View

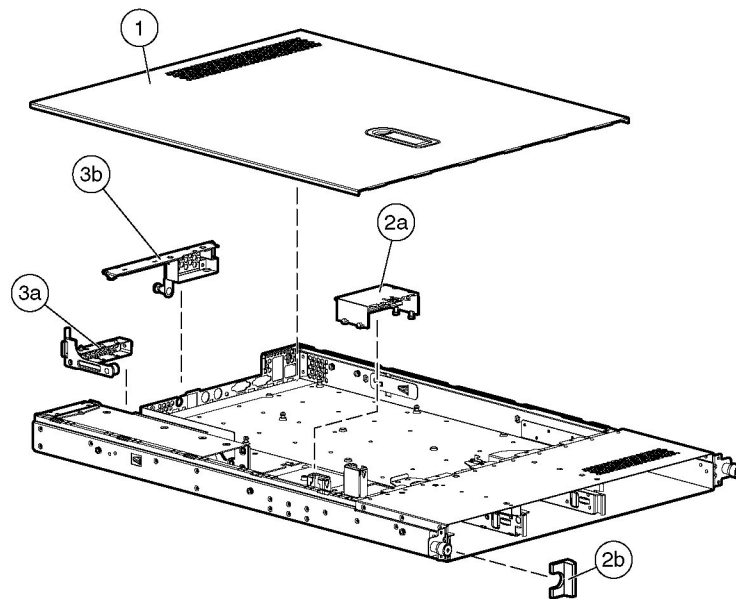


Figure 1-1: Mechanical components exploded view

Table 1-1: Mechanical Components Spare Parts List

Item	Description	Spare Part Number
1	Access panel	307526-001
2	Plastics kit	305451-001
	a) Power supply fan baffle	
	b) Left bezel	
3	Hardware kit	305452-001
	a) Power supply blank	
	b) PCI blank	

System Components Exploded View

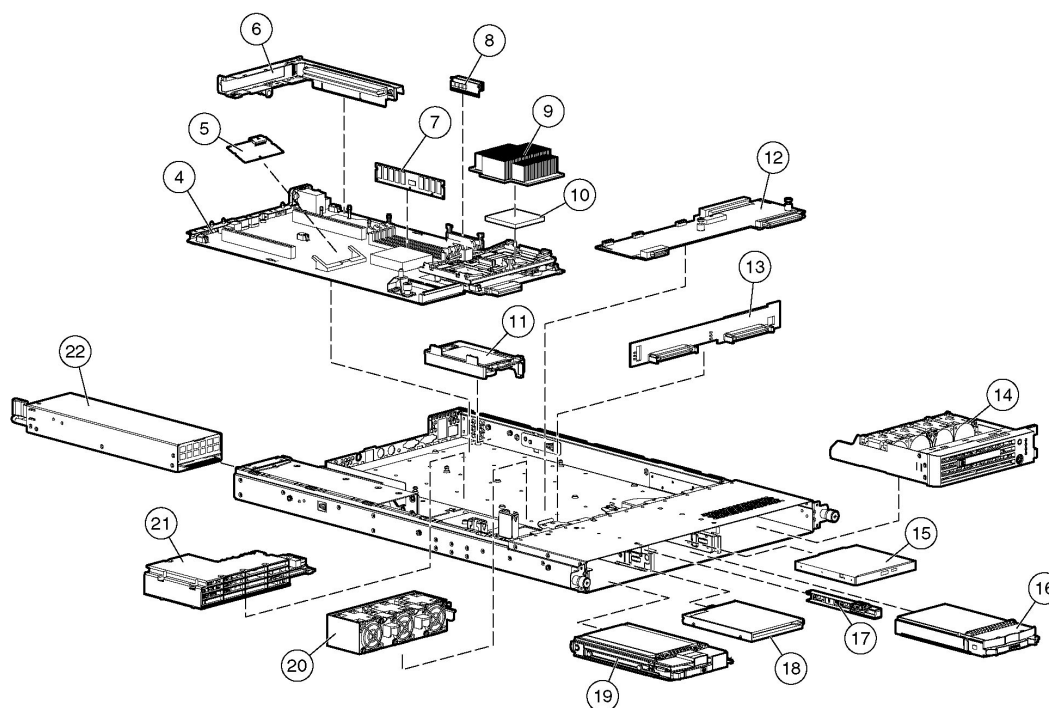


Figure 1-2: System components exploded view

System Components Spare Parts List

Table 1-2: System Components Spare Parts List

Item	Description	Spare Part Number
4	System board	305439-001
5	SmartArray 5i plus memory module	260741-001
6	PCI riser board assembly	305442-001
7	DIMM	
	a) 256-MB PC2100 266-MHz DDR SDRAM DIMM	300699-001
	b) 512-MB PC2100 266-MHz DDR SDRAM DIMM*	300700-001
	c) 1-GB PC2100 266-MHz DDR SDRAM DIMM*	300701-001
	d) 2-GB PC2100 266-MHz DDR SDRAM DIMM*	300702-001
8	Processor power module	305445-001
9	Heatsink	305448-001
10	Processor with heatsink	
	a) 2.40-GHz, 533-MHz, 512-K cache processor	305438-001
	b) 2.80-GHz, 533-MHz, 512-K cache processor *	305437-001
	c) 3.06-GHz, 533-MHz, 512-K cache processor *	325148-001
	d) 3.06-GHz, 533-MHz, 1-MB cache processor *	341764-001
	e) 3.20-GHz, 533-MHz, 1-MB cache processor *	349335-001
	(Reserved)	
11	Battery-backed write cache battery module	260740-001
12	Optical device/diskette drive interface board	305450-001
13	SCSI backplane board	305443-001
14	Processor fan module	305449-001
15	Optical device	
	a) CD-ROM drive	228508-001
	b) DVD-ROM drive*	268795-001
16	Hard drive blank	313046-001
17	Optical drive ejector	305451-001
18	Diskette drive	305440-001
19	U320 SCSI hard drive	
	a) 18-GB, 15-K hard drive*	289240-001
	b) 36-GB, 10-K hard drive*	289041-001
	c) 36-GB, 15-K hard drive*	289241-001

continued

Table 1-2: System Components Spare Parts List *continued*

Item	Description	Spare Part Number
	d) 72-GB, 10-K hard drive*	289042-001
	e) 72-GB, 15-K hard drive*	289243-001
	f) 146-GB, 10K hard drive*	289044-001
20	System fan assembly	307525-001
21	Power converter module	305446-001
22	325-W power supply	305447-001
23	400-W DC power supply*	338887-001
24	System board battery*	234556-001
25	Country kit*	309480-001
26	Return kit*	173842-001
27	Fixed rail kit*	310619-001
28	Sliding rails and cable management solution*	310618-001
29	Telco rack mounting kit*	252367-001
30	Optical device/diskette drive cable*	305444-001
* Not shown		

Removal and Replacement Procedures

This chapter provides subassembly/module-level removal and replacement procedures for the HP ProLiant DL360 Generation 3 server. After completing all necessary removal and replacement procedures, it is recommended that server diagnostic programs be run to verify that all components are operating correctly.

The following diagnostic programs, from the SmartStart and Support Software CD, may be used:

- System Configuration Utility
- Array Diagnostic Utility (ADU)

In addition, the Server Diagnostics program may be run. This program is available at www.hp.com/support.

Electrostatic Discharge Information

A discharge of static electricity can damage static-sensitive devices or micro circuitry. Proper packaging and grounding techniques are necessary to prevent damage. To prevent electrostatic damage, observe the following precautions:

- Transport products in static-safe containers such as conductive tubes, bags, or boxes.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free stations.
- Cover workstations with approved static-dissipating material. Use a wrist strap connected to the work surface and properly grounded tools and equipment.
- Keep the work area free of nonconductive materials such as ordinary plastic assembly aids and foam packing.
- Always be properly grounded when touching a static-sensitive component or assembly.
- Avoid touching pins, leads, or circuitry.
- Always place drives PCB assembly-side down.
- Use conductive field service tools.

Symbols on Equipment



Weight in kg
Weight in lb

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



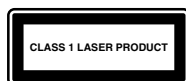
This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.



This symbol on an RJ-45 receptacle indicates a network interface connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



This label or equivalent is located on the surface of your CD-ROM drive. This label indicates that the product is classified as a Class 1 Laser Product.

Rack Warnings and Precautions



WARNING: To reduce the risk of personal injury or damage to equipment, always ensure that the rack is adequately stabilized before extending a component outside the rack. A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
- The full weight of the rack rests on the leveling jacks.
- The stabilizers are attached to the rack, if it is a single rack installation.
- The racks are coupled together in multiple rack installations.



WARNING: When installing the server in a telco rack, make certain that the rack frame is adequately secured to the building structure at the top and bottom.



WARNING: To reduce the risk of personal injury or damage to the equipment, at least two people are needed to safely unload the rack from the pallet. An empty 42U rack weighs 115 kg (253 lb), is over 2.1m (7 ft) tall, and may become unstable when being moved on its casters. Do not stand in front of the rack as it rolls down the ramp from the pallet, but handle the rack from both sides.

Server Warnings and Precautions



WARNING: To reduce the risk of personal injury from hot surfaces, allow the hot-plug drives and the internal system components to cool before touching.



WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from each power supply to disconnect power to the equipment.



CAUTION: Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply (UPS). This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.



CAUTION: HP servers must always be operated with the system access panel closed. Proper cooling will not be achieved if the system access panel is removed.

Preparation Procedures

Before removing any serviceable parts, determine whether the part is a hot-plug device or a non-hot-plug device.

Hot-Plug Devices

The hot-plug devices on ProLiant DL360 Generation 3 servers are the U320 SCSI hard drives and power supplies. U320 SCSI hard drives and power supplies can be serviced without removing the server from the rack.

IMPORTANT: It is not necessary to turn off the server to replace hot-plug hard drives.

Non-Hot-Plug Devices

Optical devices can be replaced with the server power in standby mode and can be replaced without the need to remove the server from the rack.

To service all other non-hot-plug devices, the server must be powered down completely and removed from the rack.

Powering Down the Server

Prior to performing most kinds of maintenance, it is necessary to power down the server.



WARNING: To reduce the risk of injury from electric shock, remove the power cord to completely disconnect power from the system.



WARNING: To reduce the risk of personal injury or damage to the equipment, ensure that only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.



WARNING: Because the rack allows you to stack computer components in a vertical rather than a horizontal plane, you must take precautions to provide for rack stability and safety to protect both personnel and property. Heed all cautions and warnings throughout the installation instructions that came with the server.



WARNING: To reduce the risk of personal injury or damage to the equipment: If the server is removed from the rack for device accessibility, remove the server from the rack and place it on a sturdy table or workbench. Refer to the *HP ProLiant DL360 Generation 3 Setup and Installation Guide* for further information on working with racks.



CAUTION: The system power in the server does not completely shut off from the front Power On/Standby switch. Moving the switch from On to Standby leaves some portion of the power supply and some internal circuitry active. Disconnect all power cords from the server to remove all power from the system.



CAUTION: Electrostatic discharge may damage electronic components. Be sure you are properly grounded before beginning any installation procedure. For more information, refer to “Electrostatic Discharge Information” earlier in this chapter.

To power down the server:

1. Shut down the operating system as directed in the operating system instructions.



CAUTION: Whenever installing hardware or performing maintenance procedures requiring access to internal components, it is recommended that all server data be backed up to avoid loss.

2. Press the Unit Identification switch on the server front panel (1). An LED illuminates blue on the server front and rear panels.
3. Press the server Power On/Standby switch (2) to power down the server. The Power On/Off LED (2) changes from green to amber, indicating standby mode.

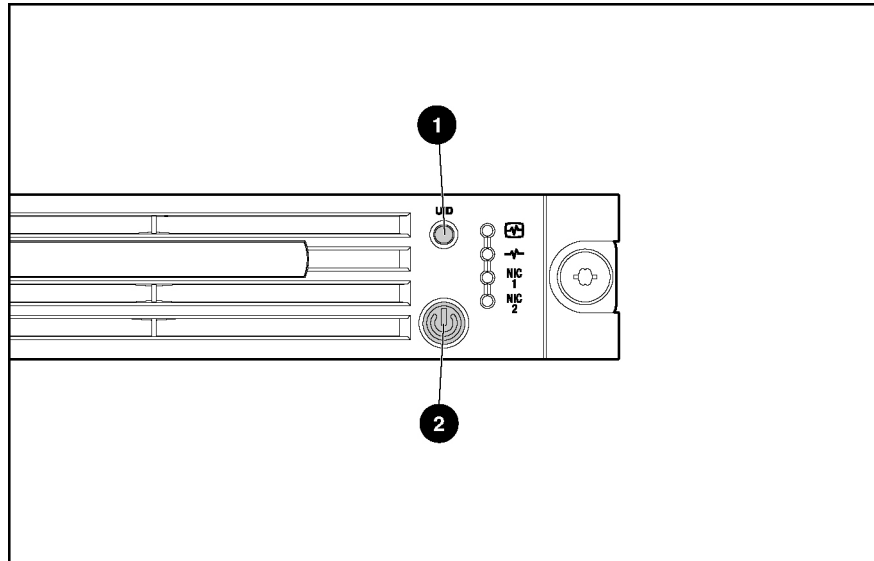


Figure 2-1: Activating the Front Unit Identification LED and powering down the server

4. At the rear of the server, locate the illuminated Rear Unit Identification LED switch that identifies the server being serviced.

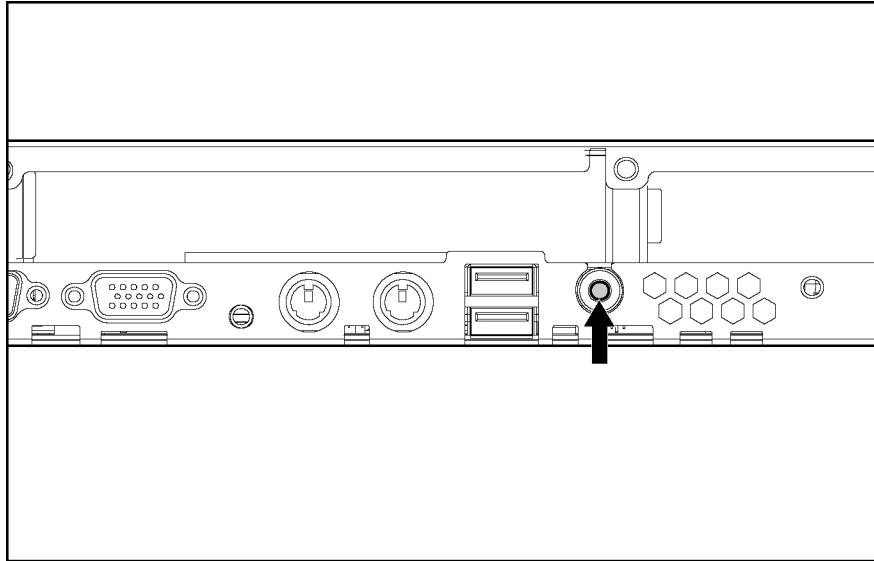


Figure 2-2: Rear Unit Identification LED switch

5. Disconnect power cord(s).

Removing the Server from the Rack

To remove the server from the rack:

1. If the server has a sliding rail solution:
 - a. Disconnect all remaining cables from the server rear panel (including cables extending from expansion boards).
 - b. Loosen the thumbscrews securing the server to the rack.
 - c. Slide the server out of the rack until the rail locks engage.
 - d. Press and hold the rail locks, extend the server until it clears the rack.
2. If the server has a universal rail solution:
 - a. Disconnect all remaining cables from the server rear panel (including cables extending from expansion boards), moving from left to right.

- b. Move to the front of the rack and loosen the thumbscrews securing the server to the rack (1).
- c. Grasp the front panel thumbscrews, and extend the server from the rack. The cables remain clamped in the cable tray. The rail release latches engage automatically.
- d. Press in and hold the rail release latches (2).
- e. Extend the server completely out of the rack (3), and set it on a flat, level surface.

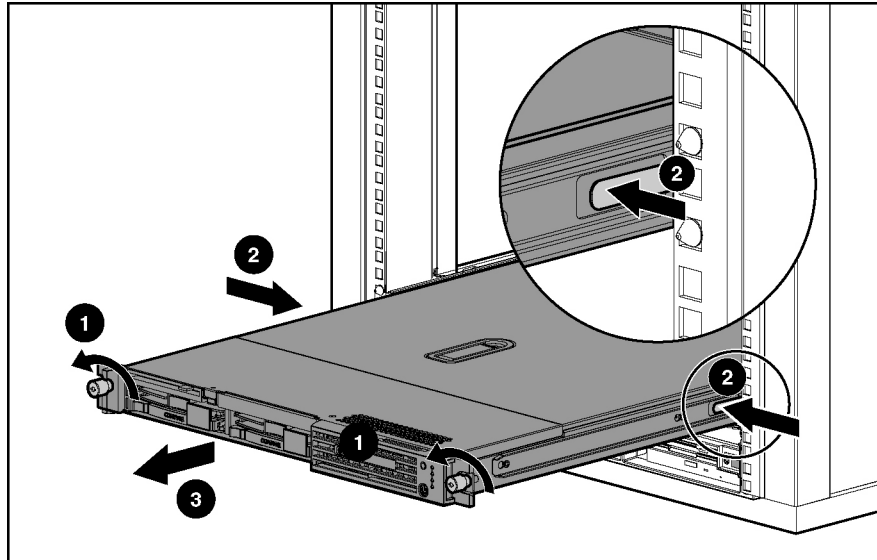


Figure 2-3: Removing the server from the rack

Reverse these procedures to replace the server into the rack.

Server Access Panel



WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.



CAUTION: Before removing the server access panel, be sure that the server is powered down and that the power cord is disconnected from the server or the electrical outlet.



CAUTION: Electrostatic discharge can damage electronic components. Be sure you are properly grounded before beginning any installation procedure.

To remove the access panel:

1. Lift up on the hood latch (1). The access panel will slide toward the back of the chassis.
2. Lift up to remove the access panel (2).

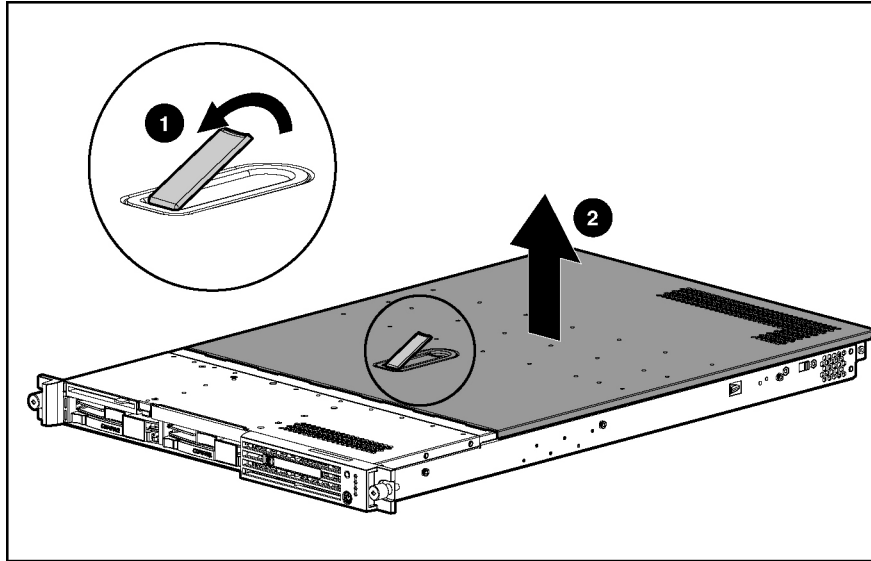


Figure 2-4: Removing the server access panel

Reverse steps 1 and 2 to replace the access panel.

Processor Fan Module

To remove the processor fan module:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.

4. Loosen the thumbscrew (1) securing the processor fan module to the chassis.
5. Press the processor fan module from the rear (2) to release it from the system board.

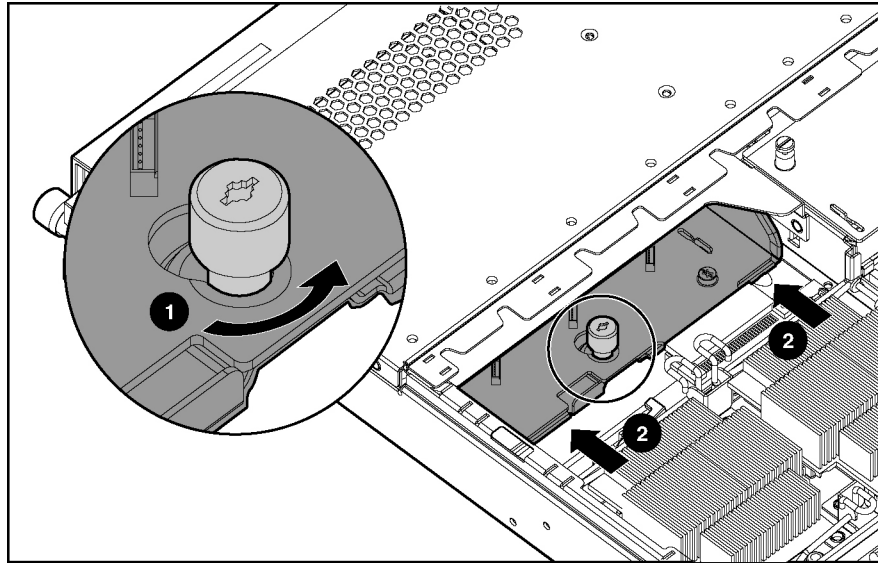


Figure 2-5: Loosening the processor fan module thumbscrew

6. Remove the processor fan module from the chassis.

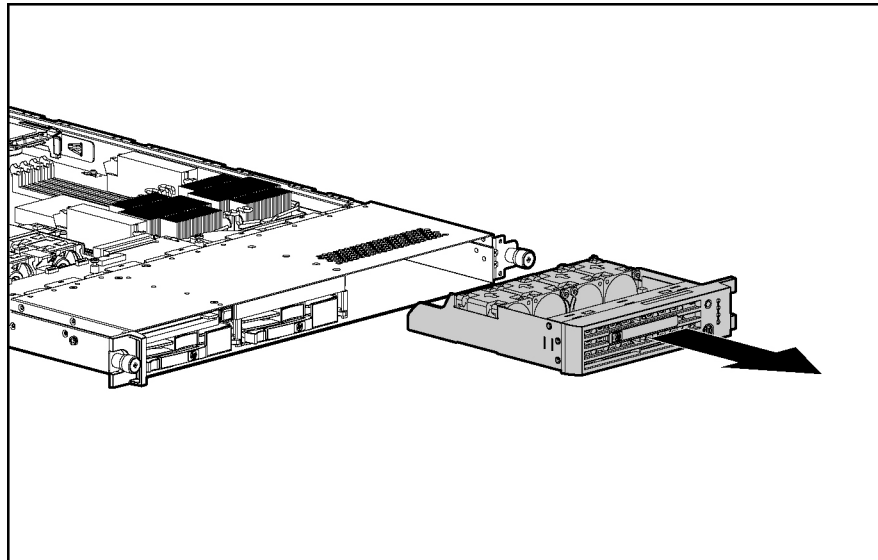


Figure 2-6: Removing the processor fan module

Reverse steps 1 through 6 to install the processor fan module.

Mass Storage Devices

The ProLiant DL360 Generation 3 server can support the following mass storage devices:

- (Up to) Two hot-plug U320 SCSI hard drives
- A low-profile optical device
- A low-profile, 3.5-inch, 1.44-MB diskette drive

This section describes the drive cage positions and removal and replacement procedures for these mass storage devices.

Drive Locations

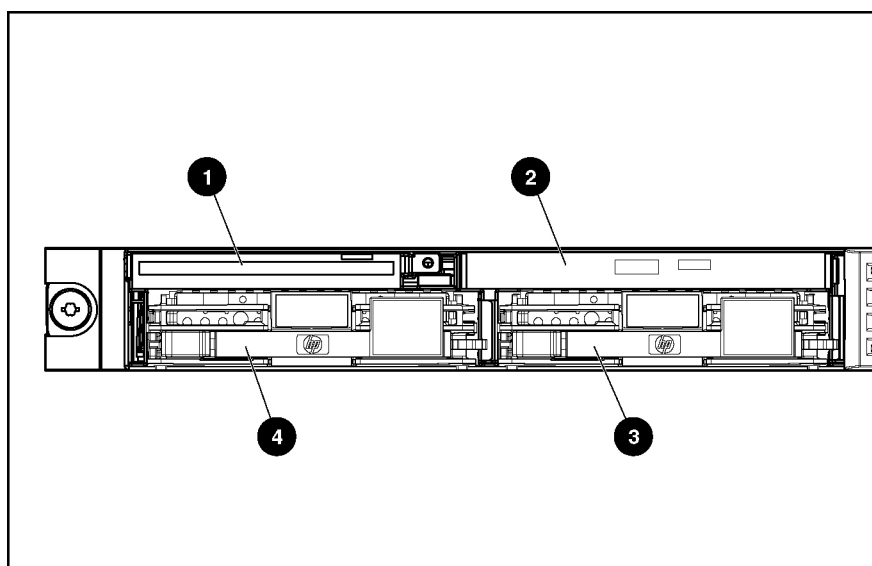


Figure 2-7: Server drive locations

Table 2-1: Server Drive Locations

Location	Description
1	Low-profile 3.5-inch, 1.44-MB diskette drive
2	Low-profile optical device
3	Hot-plug U320 SCSI hard drive, SCSI ID 0
4	Hot-plug U320 SCSI hard drive, SCSI ID 1

Hard Drive Blank



CAUTION: Do not operate the server without a hard drive or a hard drive blank installed. Failure to install a hard drive or a hard drive blank can lead to improper cooling and may damage the system.

To remove a hard drive blank:

1. Press the release button (1).
2. Pull the blank out of the drive bay (2).

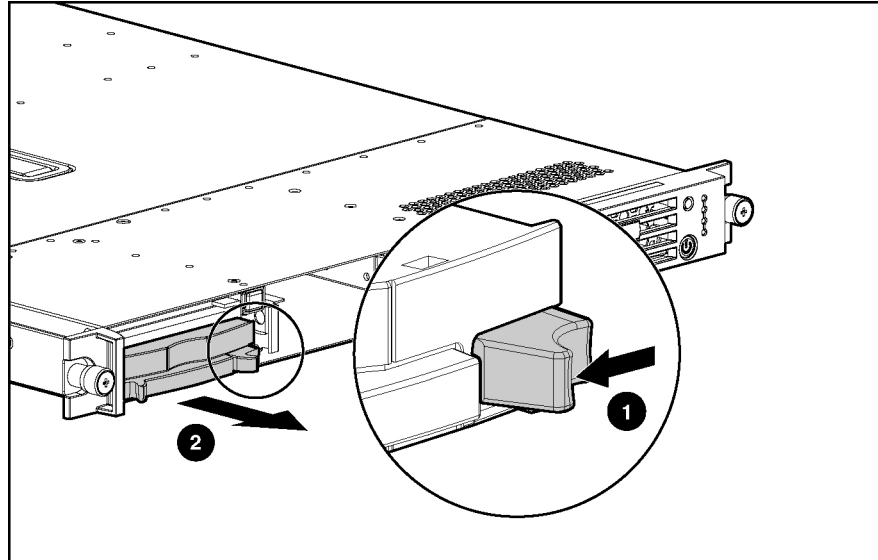


Figure 2-8: Removing a hard drive blank

To replace the hard drive blank, slide the blank into the bay until it locks into place.

Hot-Plug U320 SCSI Hard Drives

To assess a hard drive's status, you must observe and understand the hot-plug hard drive status LEDs. For a detailed explanation of hard drive status LEDs, refer to the *HP ProLiant DL360 Generation 3 Server Setup and Installation Guide*.



WARNING: Read "Hot-plug Hard Drive Replacement Guidelines" in the *Servers Troubleshooting Guide* prior to removing a hard drive.



CAUTION: Do not operate the server without a hard drive or a hard drive blank installed. Failure to install a hard drive or a hard drive blank can lead to improper cooling and may damage the system.

To remove a hot-plug U320 SCSI hard drive:

1. Press the button on the hard drive to release the drive latch (1).
2. Open the drive latch on the hard drive (2).
3. Pull the hard drive to remove it from the server (3).

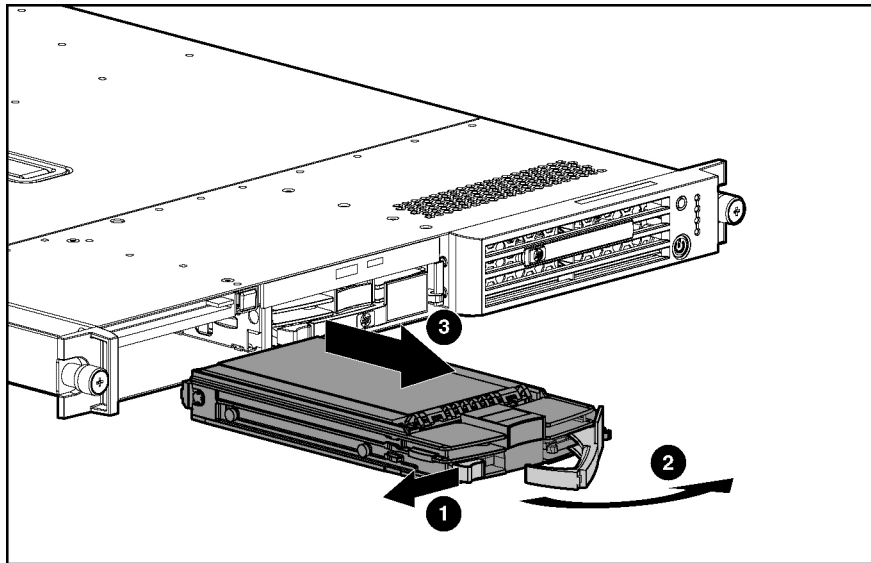


Figure 2-9: Removing a hot-plug U320 SCSI hard drive

IMPORTANT: The ProLiant DL360 Generation 3 server supports HP Universal U320 drives only. Compaq branded Ultra3 or HP branded U160 hot-plug drives are not supported.

To replace the hard drive:

1. Slide the hard drive into the open bay (1).
2. Close the drive latch to secure the hard drive into the server (2).

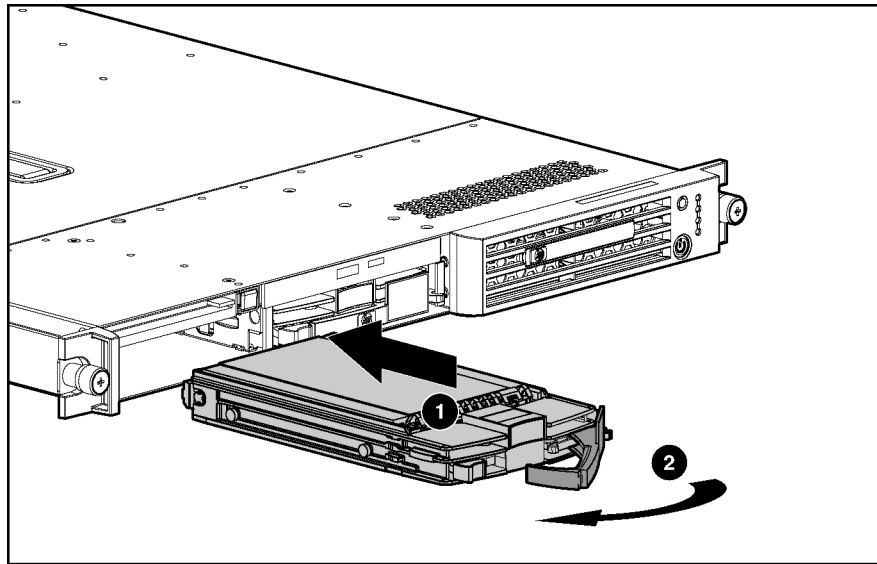


Figure 2-10: Installing a hot-plug U320 SCSI hard drive

Optical Device

The server supports a diskette drive and an optical device. The optical device and the diskette drive may be removed independently.



CAUTION: Do not operate the server without an optical device installed. Failure to install an optical device can lead to improper cooling and may damage the system.

To remove the optical device:

1. Press the Power On/Standby switch to place the server in standby mode. Refer to “Powering Down the Server” earlier in this chapter.
2. Push the optical device ejector button to release the optical device (1).

NOTE: Access to the optical device ejector button is intentionally restricted. Push the optical device ejector button with a small flat object such as a key or pen to eject the optical drive.

3. Grasp the optical device and remove it from the optical device bay (2).

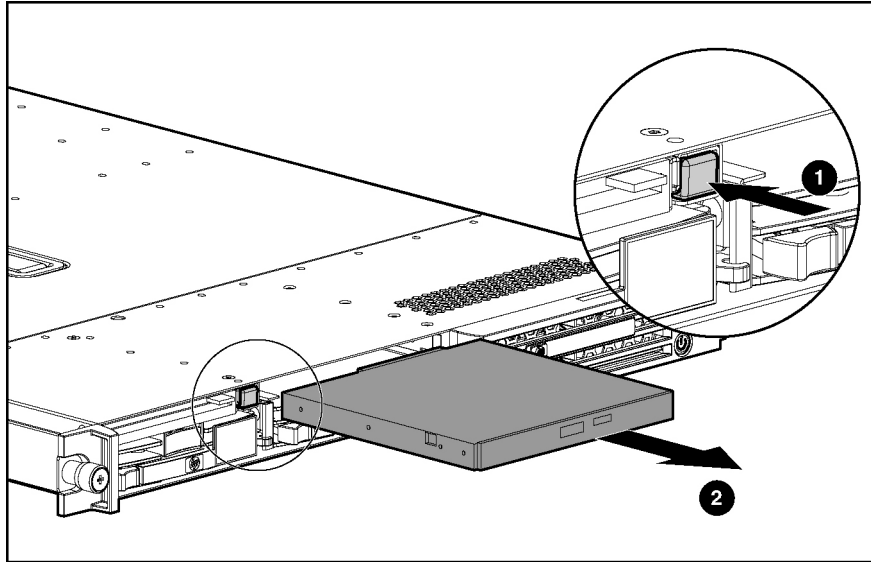


Figure 2-11: Removing the optical device

To replace the optical device:

1. Align the optical device with the optical device bay and slide the device into the chassis until it is fully seated.

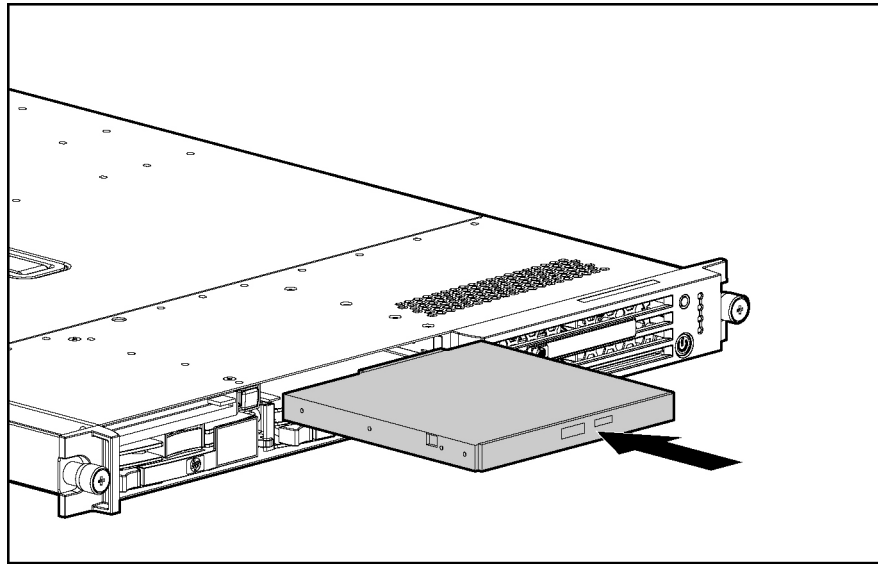


Figure 2-12: Aligning and installing the optical device

2. Press the Power/On Standby switch to power on the server, and resume normal operations.

Optical Device Ejector

To remove the optical device ejector:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the optical device. Refer to “Optical Device” earlier in this chapter.
3. Remove all hard drive blanks and hot-plug U320 SCSI hard drives. Refer to “Hard Drive Blank” and “Hot-Plug U320 SCSI Hard Drives” earlier in this chapter.
4. Partially extend the server to gain access to the screws securing the optical device ejector to the chassis.

5. Remove the screws securing the optical device ejector to the chassis.

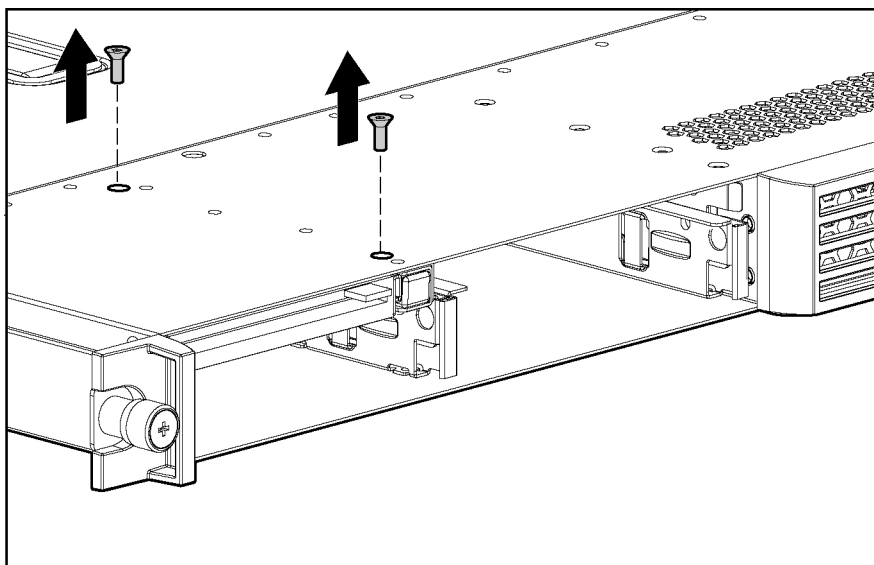


Figure 2-13: Removing optical device ejector screws

6. Press the tab on the side of the optical device ejector (1) to release it from the chassis.

NOTE: Access to the tab on the side of the optical device ejector is restricted. To push in the tab on the optical device ejector, use a small flat object such as a key, screwdriver, or pen.

7. Lower the optical device ejector and remove it from the chassis (2).

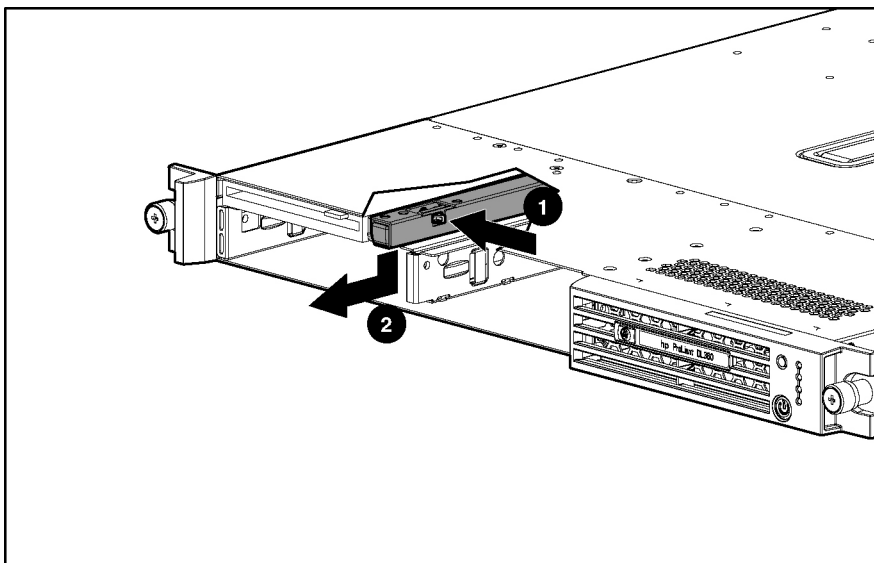


Figure 2-14: Removing the optical device ejector from the chassis

8. Press the tab on the side of the optical device ejector (1).
9. Slide the optical device ejector into the slot in the chassis (2) until the tab clicks in to place.

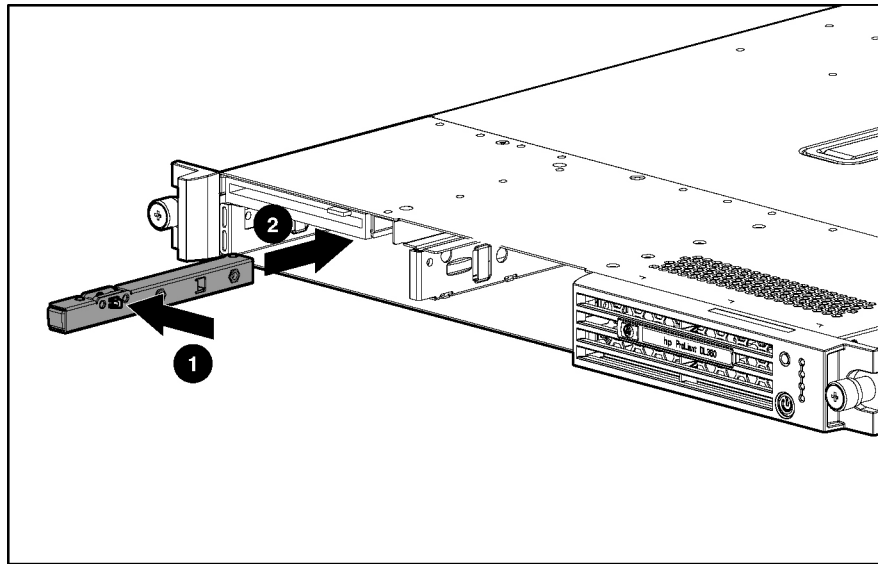


Figure 2-15: Inserting the optical device ejector into the chassis

10. Replace the screws securing the optical device ejector to the chassis.

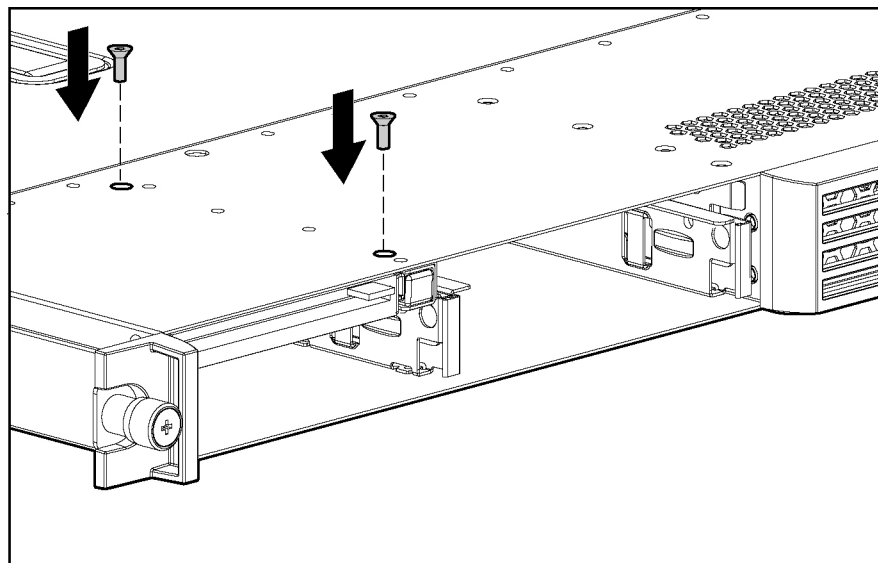


Figure 2-16: Replacing the optical device ejector screws

Diskette Drive

To remove the diskette drive:



CAUTION: Do not operate the server without a diskette drive installed. Failure to install a diskette drive can lead to improper cooling and may damage the system.

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the hot-plug U320 SCSI hard drive located below the diskette drive. Refer to “Hot-Plug U320 SCSI Hard Drives” earlier in this chapter.
5. Remove the diskette drive retaining screw (1).
6. Push the diskette drive from the rear to release it from the backplane connector, and pull the diskette drive out of the chassis (2).

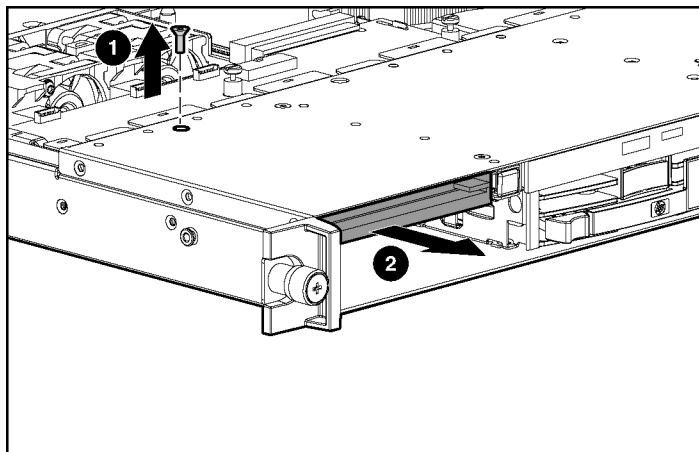


Figure 2-17: Removing the diskette drive

To replace the diskette drive:

1. Slide the diskette drive into the open bay (1).
2. Replace the diskette drive retaining screw (2).

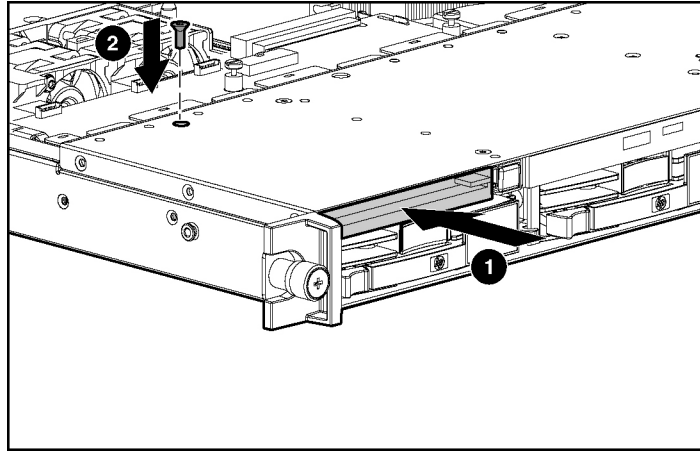


Figure 2-18: Installing the diskette drive

3. Replace the hot-plug U320 SCSI hard drive. Refer to “Hot-Plug U320 SCSI Hard Drives” earlier in this chapter.
4. Replace the access panel. Refer to “Server Access Panel” earlier in this chapter.
5. Replace the server in the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
6. Connect the power cord(s).
7. Press the Power On/Standby switch to power on the server and resume normal operations.

Hot-Plug Power Supplies

The procedures in this section assume that the server is configured with two power supplies.

To remove a power supply:

1. Disconnect the power cord.

2. If you are removing the power supply from hot-plug power supply bay 1, and there is a sliding rail solution in place:
 - a. Loosen the cable retractor thumbscrew (1).
 - b. Pull the cable retractor back, away from the server chassis, and then away from the rack rail (2).

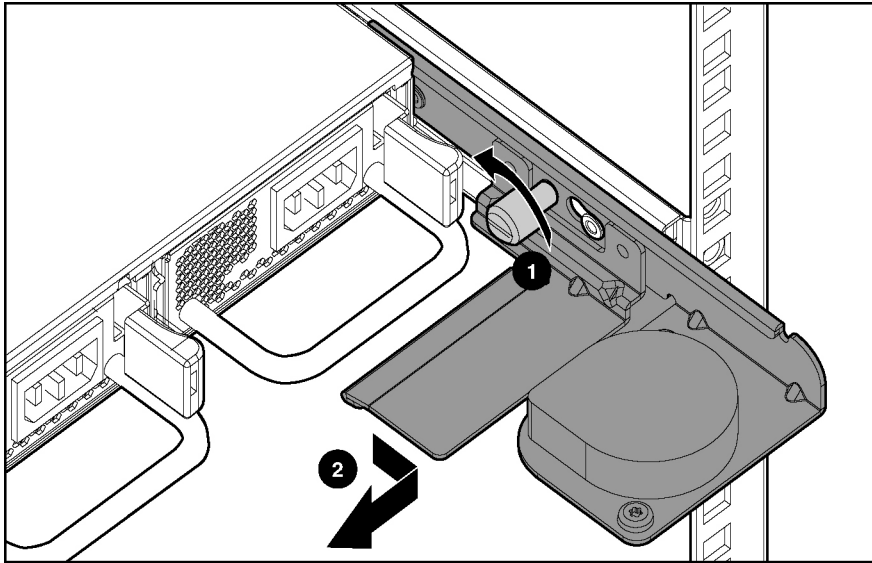


Figure 2-19: Moving the cable retractor to access the power supply in hot-plug power supply bay 1 (cables removed for clarity)

3. Grasp the handle on the power supply.
4. Push the power supply ejector button (1).
5. Pull the power supply from the server (2).

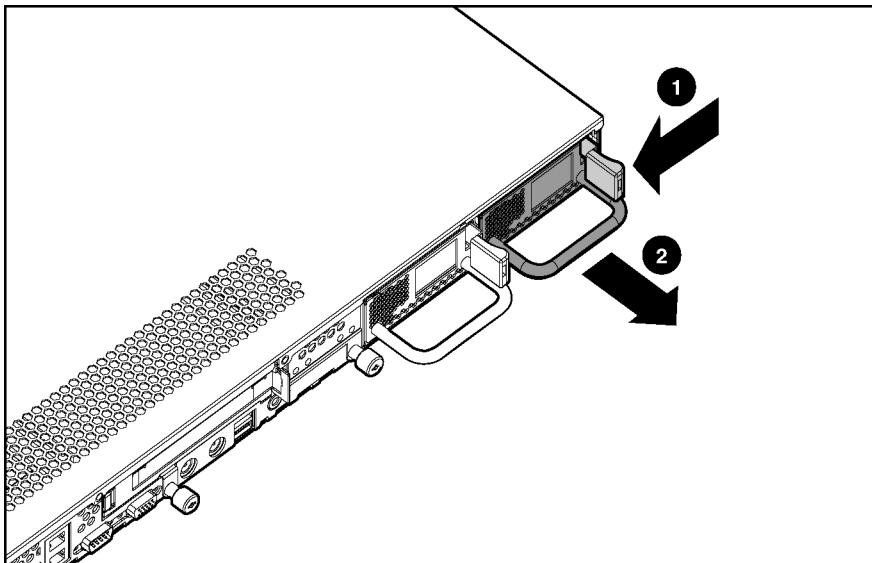


Figure 2-20: Removing a power supply (cables removed for clarity)

To install a hot-plug power supply:

1. Remove the protective cover from the connector on the power supply.
2. Slide the power supply into the chassis until it snaps into place.

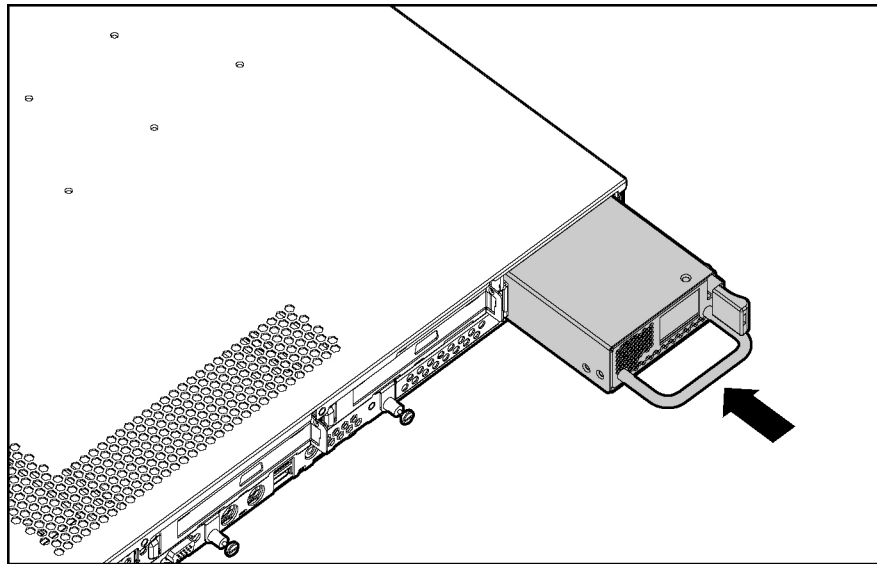


Figure 2-21: Installing a power supply (cables removed for clarity)

3. If you are replacing the power supply from hot-plug power supply bay 1, and there is a sliding rail solution in place:
 - a. Push the cable retractor toward the rack rail and toward the chassis (1).
 - b. Tighten the cable retractor thumbscrew (2).

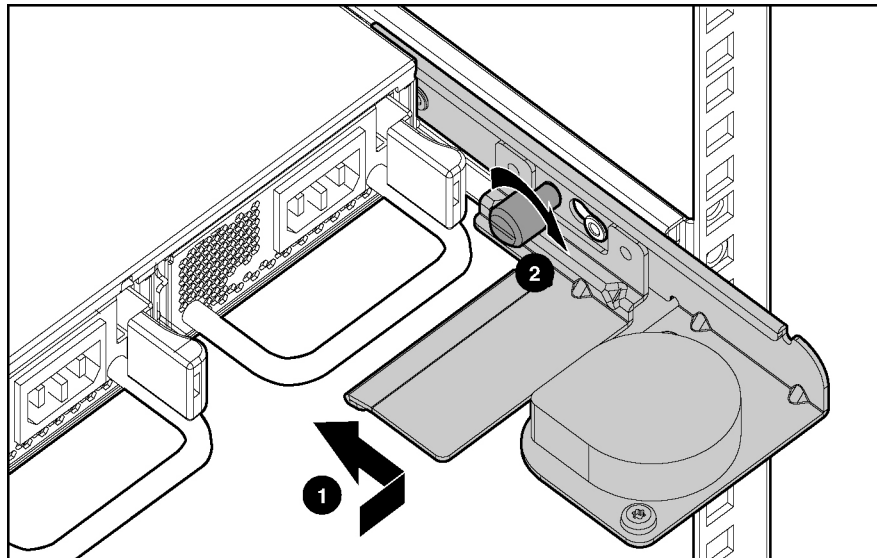


Figure 2-22: Returning the cable retractor (cables removed for clarity)

4. Connect the power cord.

PCI Riser Board Assembly

The procedures in this section assume that the server is configured with two PCI riser board assemblies.

To remove the PCI riser board assembly:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Loosen the PCI riser board thumbscrew (1).
5. Lift the front of the assembly slightly (2), and then pull it out from the server chassis PCI expansion board slot (3).

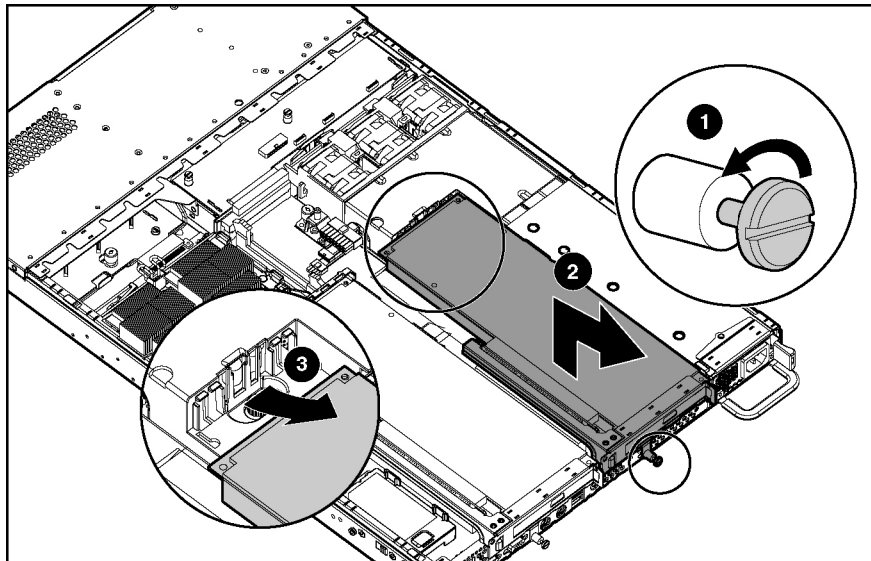


Figure 2-23: Removing the PCI riser board assembly

Reverse steps 1 through 5 to replace the PCI riser board assembly.

Replacing an Expansion Board

To replace an expansion board:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.

4. Remove the appropriate PCI riser board assembly. Refer to “PCI Riser Board Assembly” earlier in this chapter.
5. Slide the expansion board out of the slot.

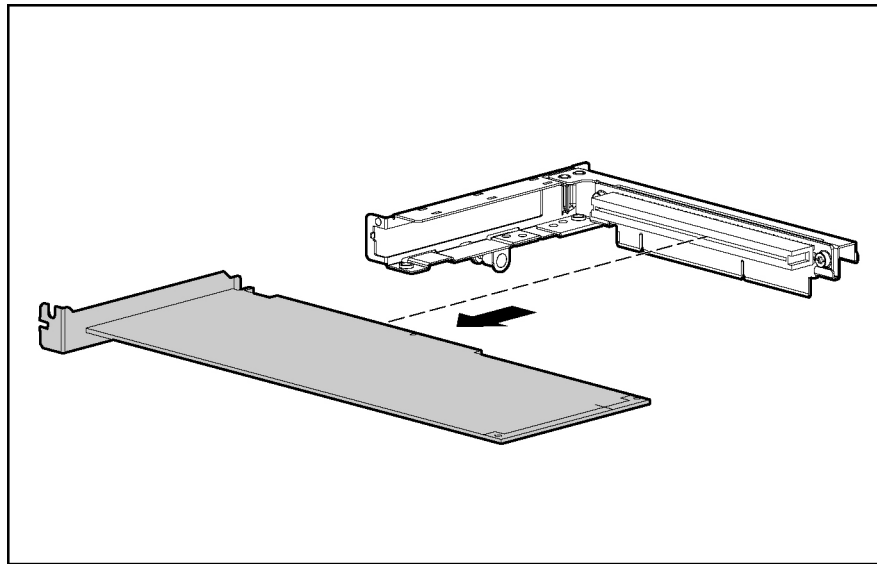


Figure 2-24: Removing an expansion board from the PCI riser board assembly

6. Align the expansion board with the guiding groove.
7. Slide the expansion board into the slot until the board firmly seats.

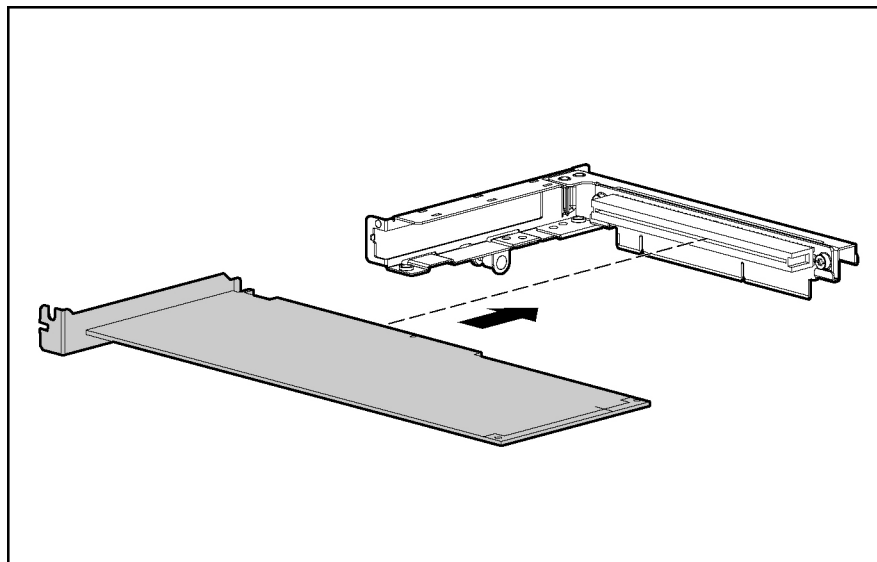


Figure 2-25: Installing an expansion board into the PCI riser board assembly

8. Install the PCI riser board assembly into the appropriate PCI expansion board slot. Refer to “PCI Riser Board Assembly” earlier in this chapter.

I/O System Fan Assembly

To remove the I/O system fan assembly:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the PCI riser board assembly. Refer to “PCI Riser Board Assembly” earlier in this chapter.
5. Disconnect the fan power cables from the optical device/diskette drive interface board (1).
6. Disconnect the optical device/diskette drive interface board power cable from the optical device/diskette drive interface board (2).
7. Remove the optical device/diskette drive interface board power cable from the clip on the side of the I/O fan assembly (3).

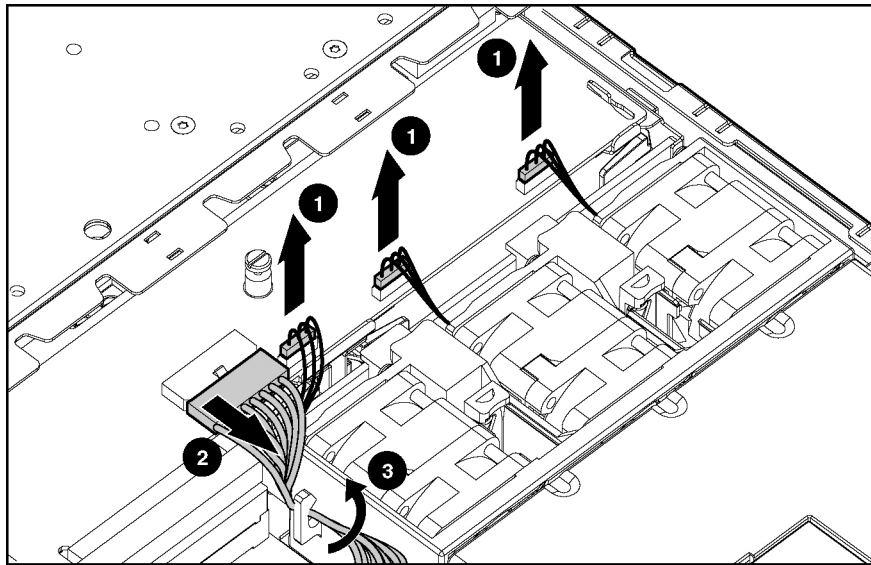


Figure 2-26: Disconnecting cables from the optical device/diskette drive interface board

8. Press in the retaining clips on either side of the I/O system fan assembly (1) and lift the assembly from the chassis (2).

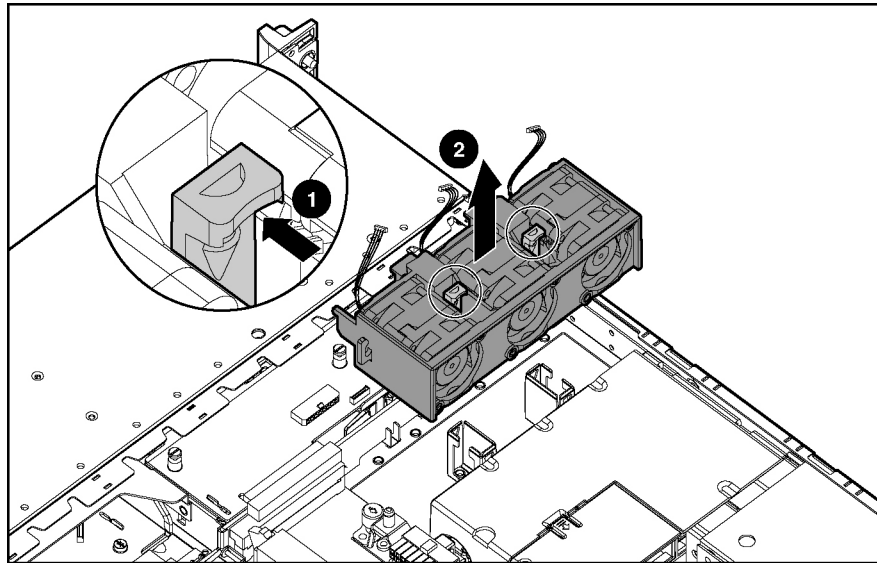


Figure 2-27: Removing the I/O system fan assembly

Reverse steps 1 through 8 to replace the fan assembly.

Power Converter Module

To remove the power converter module:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.

4. If your server is configured with hot-plug power supplies:
 - a. Remove both hot-plug power supplies. Refer to “Hot-Plug Power Supplies” earlier in this chapter.
 - b. Press down on the tab on the power supply fan baffle (1).
 - c. Slide the baffle toward the back of the chassis, and remove it (2).

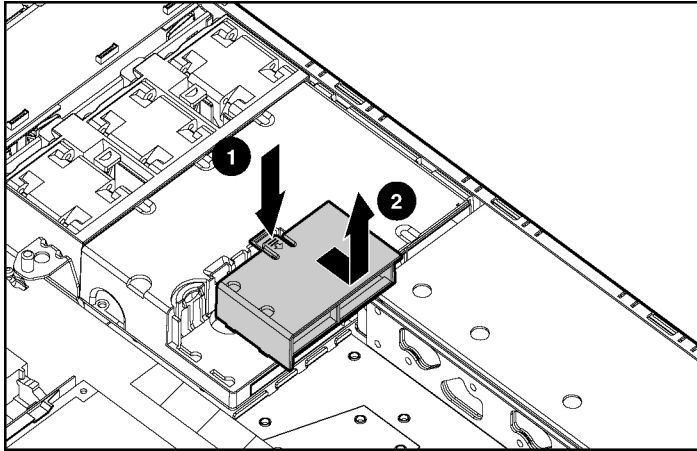


Figure 2-28: Removing the power supply fan baffle

5. If your server is configured with a PCI riser board assembly in PCI expansion board slot 2:
 - a. Remove the hot-plug power supply. Refer to “Hot-Plug Power Supplies” earlier in this chapter.
 - b. Remove the PCI riser board assembly from PCI expansion board slot 2. Refer to “PCI Riser Board Assembly” earlier in this chapter.

6. Disconnect the optical device/diskette drive interface board power cable (1).
7. Remove the optical device/diskette drive interface board power cable from the clip on the side of the I/O fan assembly (2).

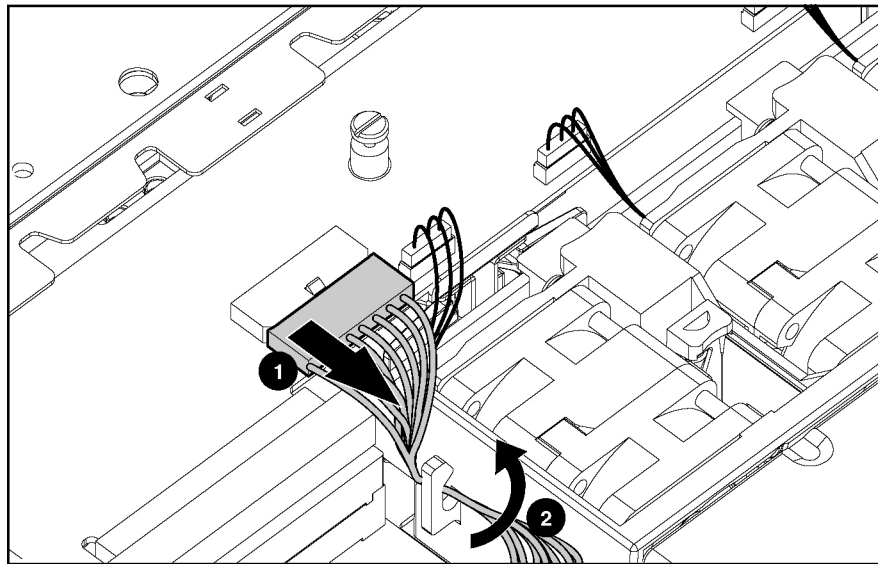


Figure 2-29: Disconnecting the optical device/diskette drive interface board power cable

8. Loosen the thumbscrew securing the power converter module to the chassis (1).
9. Slide the power converter module toward the rear of the chassis and remove it (2).

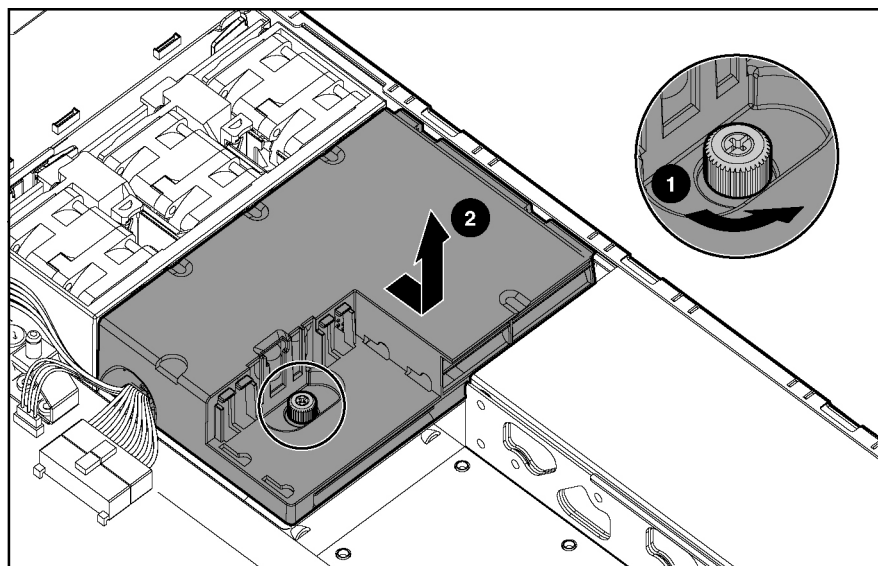


Figure 2-30: Removing the power converter module from the chassis

10. While holding the power converter, disconnect the power supply signal cable and the system power cable from the system board.

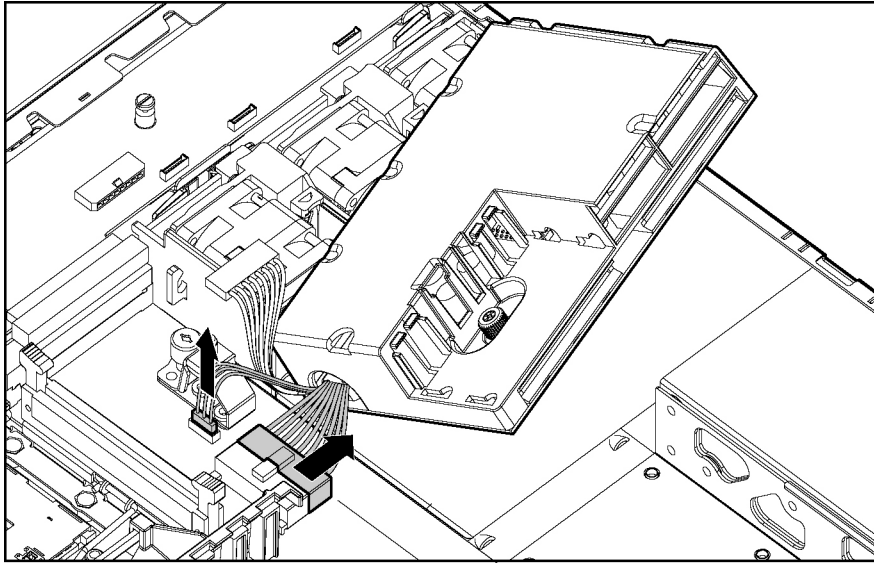


Figure 2-31: Disconnecting the power supply signal cable and the system power cable from the system board

Reverse steps 1 through 10 to replace the power converter module.

Optical Device/Diskette Drive Interface Board

To remove the optical device/diskette drive interface board:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the optical device and diskette drives. Refer to “Optical Device” and “Diskette Drive” earlier in this chapter.

5. Disconnect the I/O system fan assembly power cables (1) and the optical device/diskette drive interface board power cable (2).

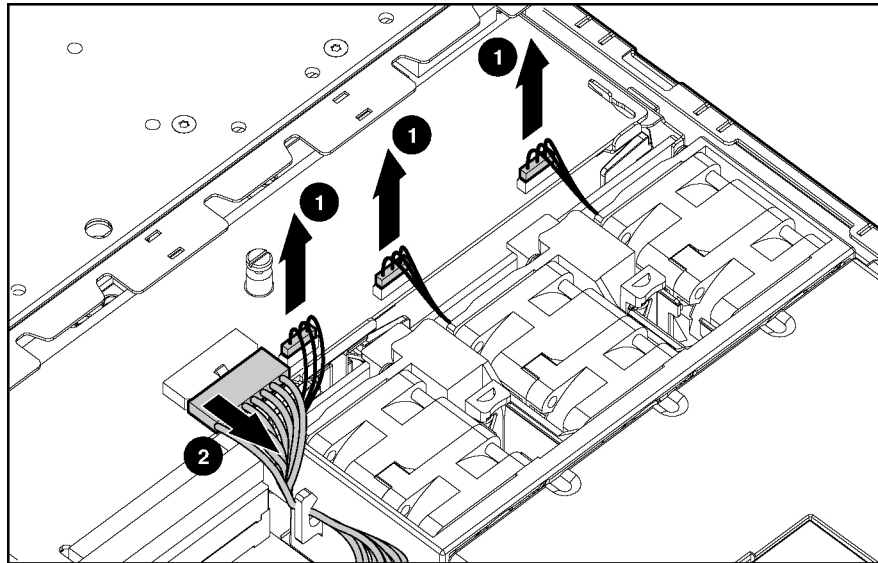


Figure 2-32: Disconnecting I/O system fan assembly and power converter module power cables

6. Disconnect the optical device/diskette drive cable (1).
7. Loosen the thumbscrews securing the interface board to the server chassis (2).
8. Pull the interface board forward, tip it, and remove it from the server chassis (3).

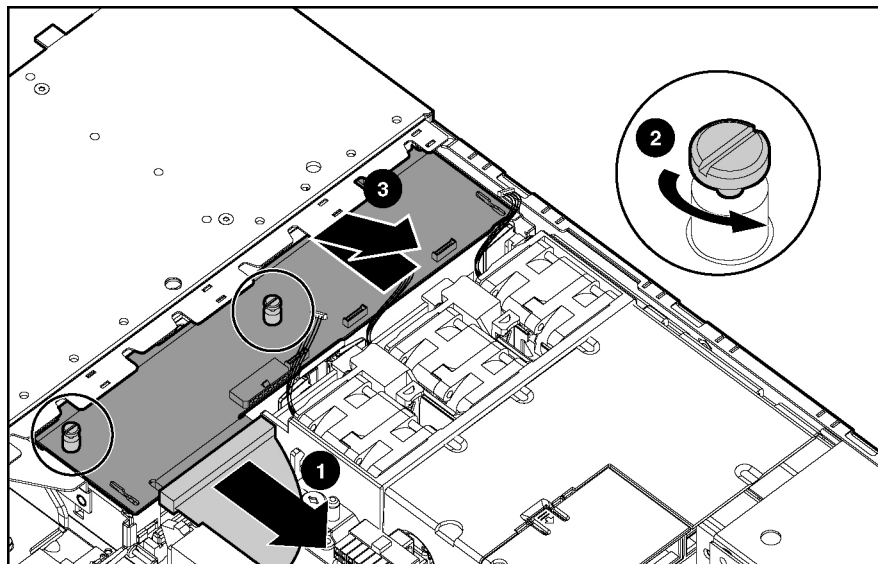


Figure 2-33: Removing the optical device/diskette drive interface board from the chassis

Reverse steps 1 through 8 to replace the optical device/diskette interface board.

SCSI Backplane Board

To remove the SCSI backplane board:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the optical device/diskette drive interface board. Refer to “Optical Device/Diskette Drive Interface Board” earlier in this chapter.
5. Lift the SCSI backplane board until it clears the server.

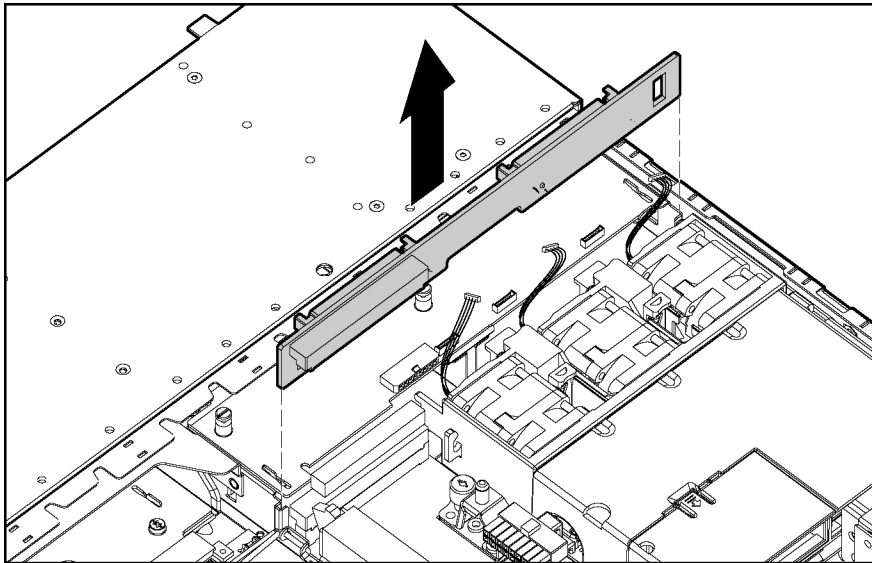


Figure 2-34: Removing the SCSI backplane

Reverse steps 1 through 5 to replace the SCSI backplane.

DIMMs

The ProLiant DL360 Generation 3 server ships standard with two Double Data Rate (DDR) Synchronous DRAM (SDRAM) Dual Inline Memory Modules (DIMMs) installed in DIMM sockets 1 and 2 (Bank A). Figure 2-35 and Table 2-2 show the location of the DIMM slots on the system board.

Observe the following guidelines when installing additional memory:

- DDR SDRAM DIMMs must be 266 MHz, PC2100, 3.3 volts, and 72-bits wide, with Error Correction Code (ECC). No other DIMMs are compatible with the server.
- Use only 256-MB, 512-MB, 1-GB, or 2-GB DDR SDRAM DIMMs.
- DIMMs must be installed in pairs and be of the same size. Install DIMMs only in one direction. Be sure to match the notch on the module with the tab on the DIMM slot. Before seating the DIMM in the slot, ensure that the module key is fully inserted.
- Use only HP DDR SDRAM DIMMs. DIMMs from other sources may affect data integrity.
- Install DDR SDRAM DIMM modules one at a time, in sequential order, starting with DIMM socket 1.

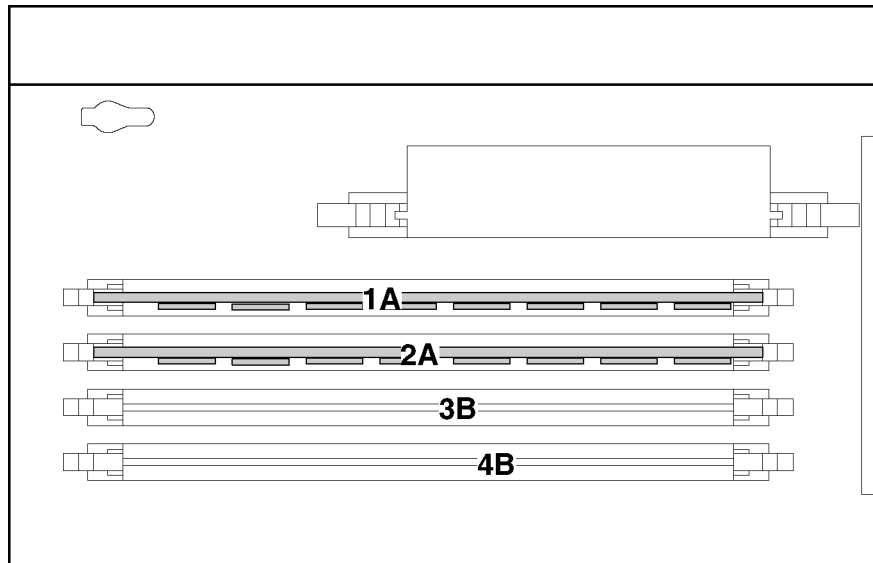


Figure 2-35: DIMM sockets identified on the system board

Table 2-2: DIMM Socket Identification

Item	Description
1A	DIMM socket 1A populated
2A	DIMM socket 2A populated
3B	DIMM socket 3B
4B	DIMM socket 4B



CAUTION: Electrostatic discharge may damage electronic components. Be sure you are properly grounded before beginning any installation procedure. Refer to “Electrostatic Discharge Information” earlier in this chapter.

IMPORTANT: A memory module can be installed only one way. Be sure to match the key slots on the module with the tabs on the memory slot. Push the module down into the slot, ensuring that the module is fully inserted and properly seated.

IMPORTANT: DIMMs must be installed in pairs and must be of the same size.

IMPORTANT: DIMMs must be 266 MHz, PC2100 DDR SDRAM, 3.3 volts, 72-bits wide, and ECC.

To remove a DIMM:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Open the DIMM slot latches (1).
5. Lift the DIMM from the expansion socket (2).

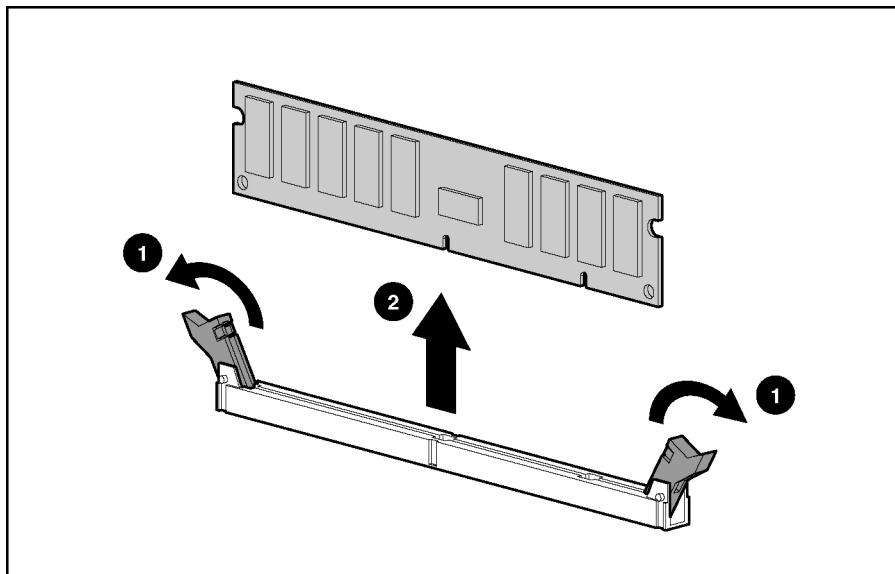


Figure 2-36: Removing a DIMM from the expansion socket

To install a DIMM:

1. Align the key slot in the bottom edge of the DIMM with the tab in the expansion socket.
2. Insert the DIMM at the same angle as the DIMM socket on the system board (1).
3. Press the DIMM firmly until the latches close (2).

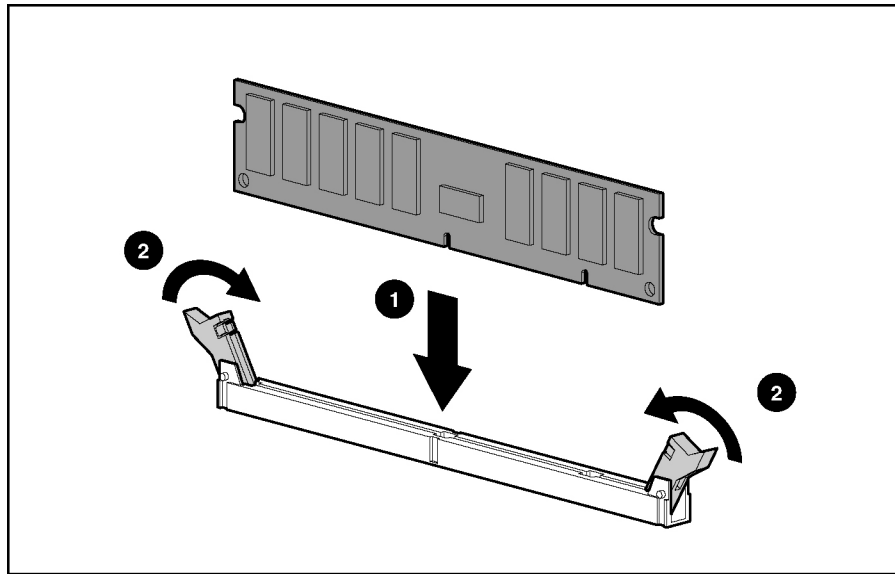


Figure 2-37: Installing a DDR SDRAM DIMM into the expansion socket

Processors

This server can support up to two processors. Each processor has an associated processor power module (PPM) that must be present for proper operation of the server.

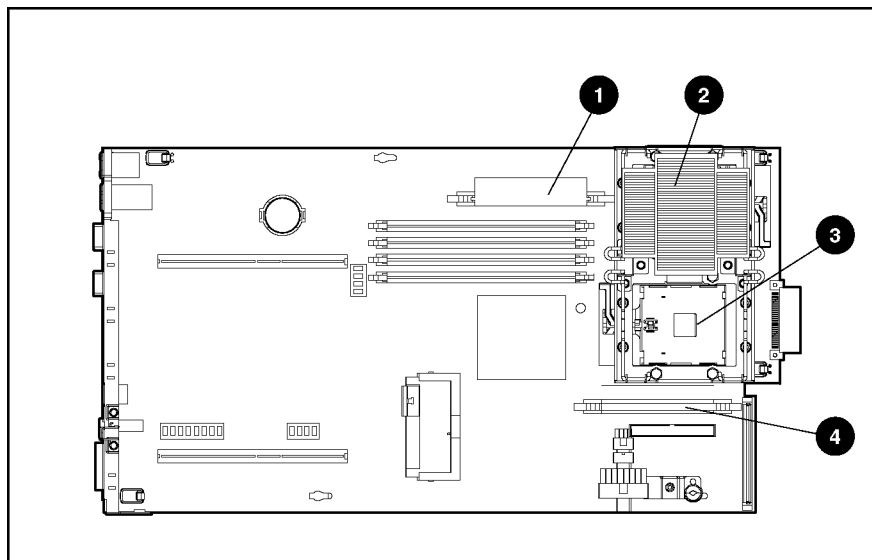


Figure 2-38: Processor and PPM socket locations

Table 2-3: Processor and PPM Sockets

Item	Description
1	PPM socket 1 (must always be populated)
2	Processor socket 1 (must always be populated)
3	Processor socket 2
4	PPM socket 2

Note: A PPM must be installed when a new processor is installed.



WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.



CAUTION: Processor socket 1 must be populated at all times. Failure to follow this process results in the system failing to boot and halting during the Power-On Self-Test (POST). This error will result in the system not functioning properly.

To remove a processor:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Unlatch processor heatsink retaining clips (1).
5. Remove the heatsink (2).

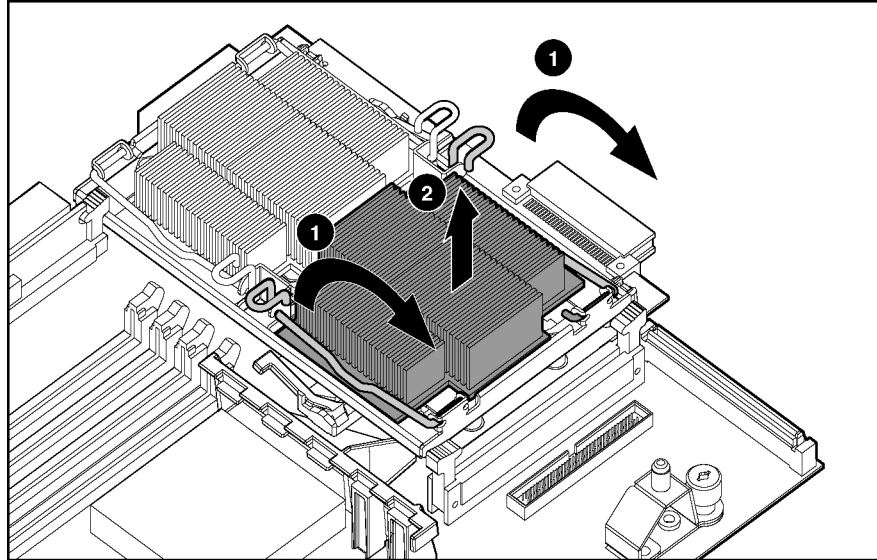


Figure 2-39: Removing a heatsink

6. Unlatch the socket locking lever (1).
7. Lift the processor from the socket (2).

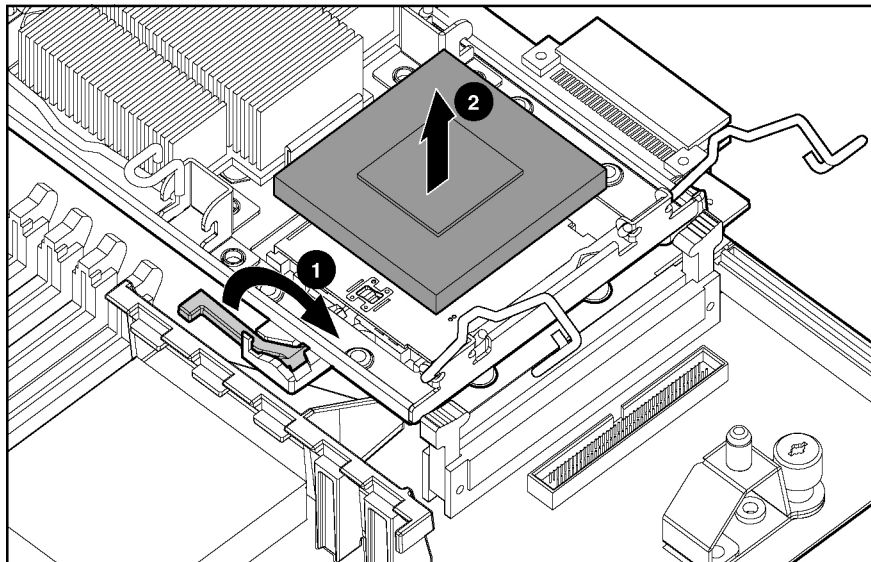


Figure 2-40: Unlocking and removing a processor



CAUTION: Always use a new heatsink when replacing processors. Failure to use new components may result in damage to the processor.



CAUTION: Make sure the processor locking lever is open before inserting the processor into the processor socket. Attempting to insert the processor with the processor locking lever closed may result in damage to the processor.

To replace the processor:

1. Install the processor into the socket (1).
2. Close the processor locking lever (2).

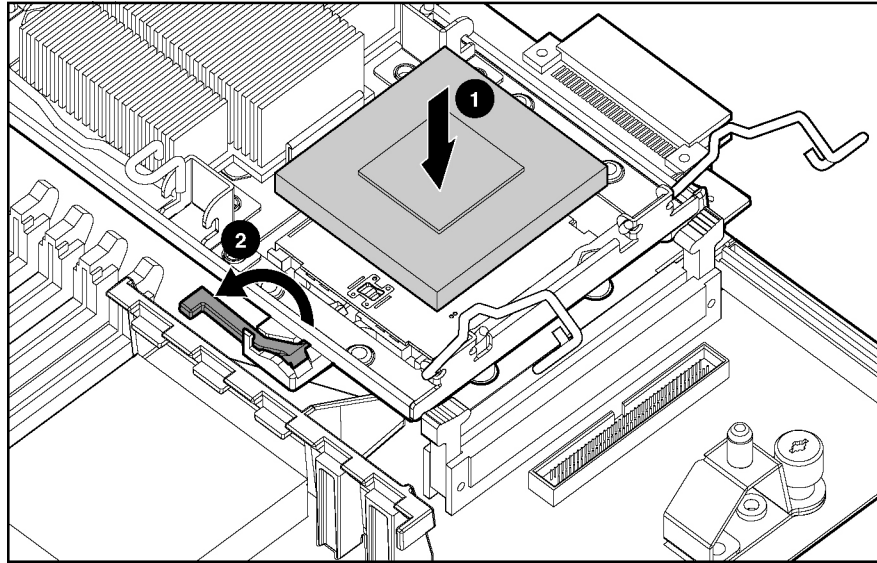


Figure 2-41: Installing and locking a processor in the socket



CAUTION: Heatsinks have an integrated, plastic-covered thermal pad. Remove the plastic cover from the new heatsink to expose the adhesive side of the thermal pad before placing the heatsink on the processor.

3. Remove the protective covering from the heatsink.

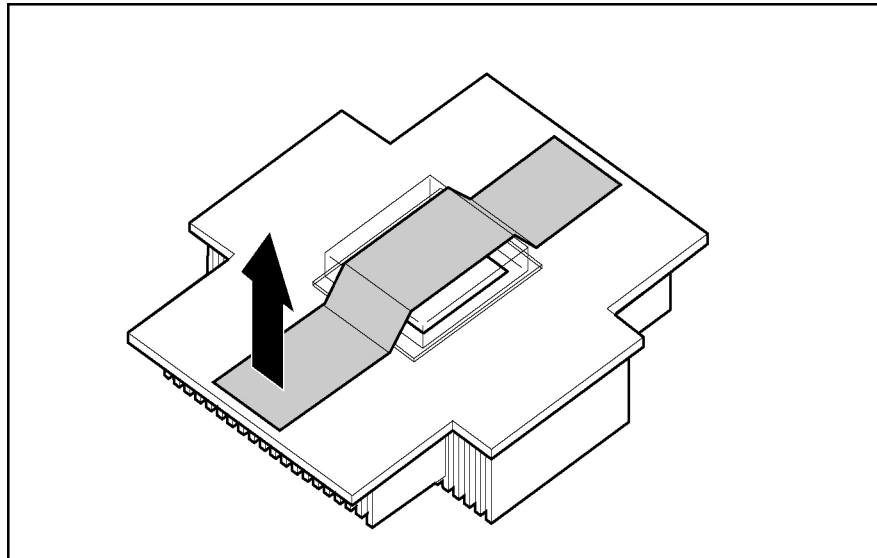


Figure 2-42: Removing the heatsink protective covering

4. Install the heatsink (1).



CAUTION: Before closing the heatsink retaining clip, be sure the processor socket locking lever is closed. Do not force the lever closed; it should close without resistance. Forcing the lever closed may result in damage to the processor socket, requiring replacement of the system board.

5. Close the processor heatsink retaining clips (2).

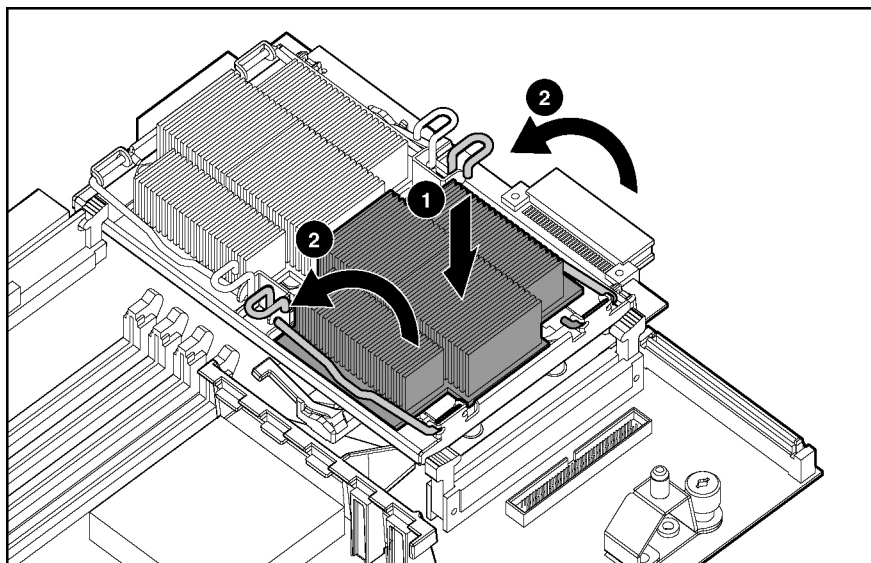


Figure 2-43: Installing the heatsink onto the processor and closing the locking latches

Processor Power Module

Each processor has an associated PPM. Figure 2-38 shows the location of the processors and PPMs on the system board.

To replace a PPM:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.

4. Open the PPM locking latches (1).
5. Lift the PPM from the socket (2).

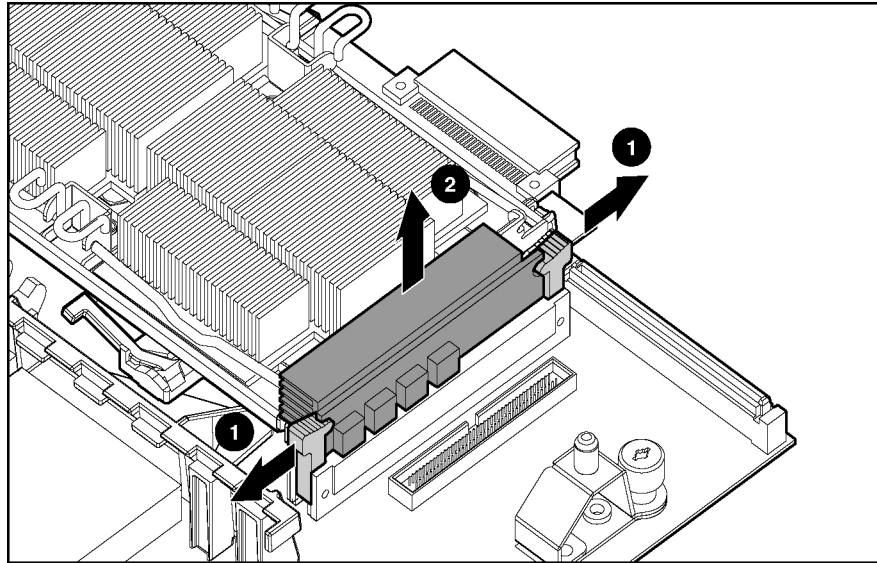


Figure 2-44: Removing a processor power module

6. Install a new PPM into the socket (1).
7. Close the locking latches (2).

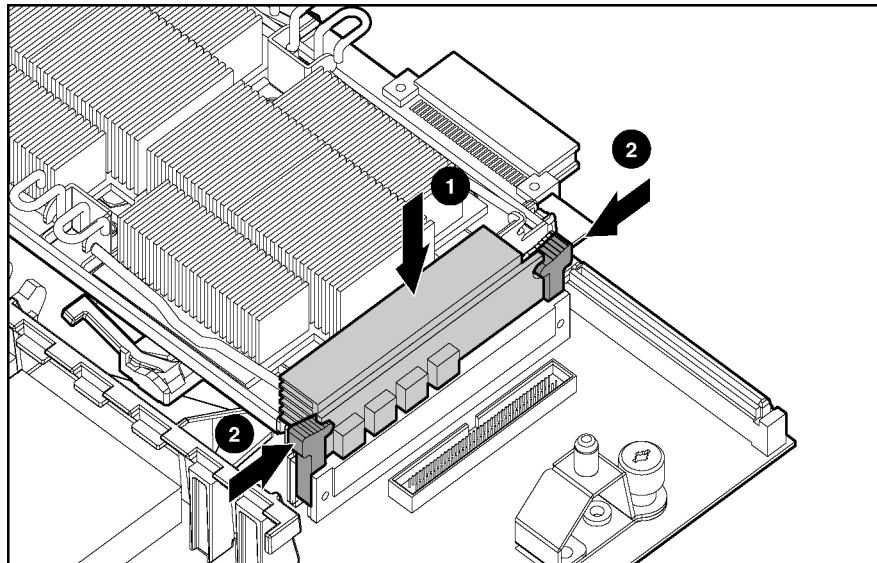


Figure 2-45: Installing a processor power module

NOTE: PPMs with the same part number may look different, but they are functionally equivalent.

Battery-Backed Write Cache Enabler

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the PCI riser board assembly from slot 1. Refer to “PCI Riser Board Assembly” earlier in this chapter.
5. Remove the battery module cable from the battery-backed write cache (BBWC) cable clip (1).
6. Disconnect the BBWC cable from the SmartArray 5i Plus Controller connector (2) and the BBWC battery module (3).

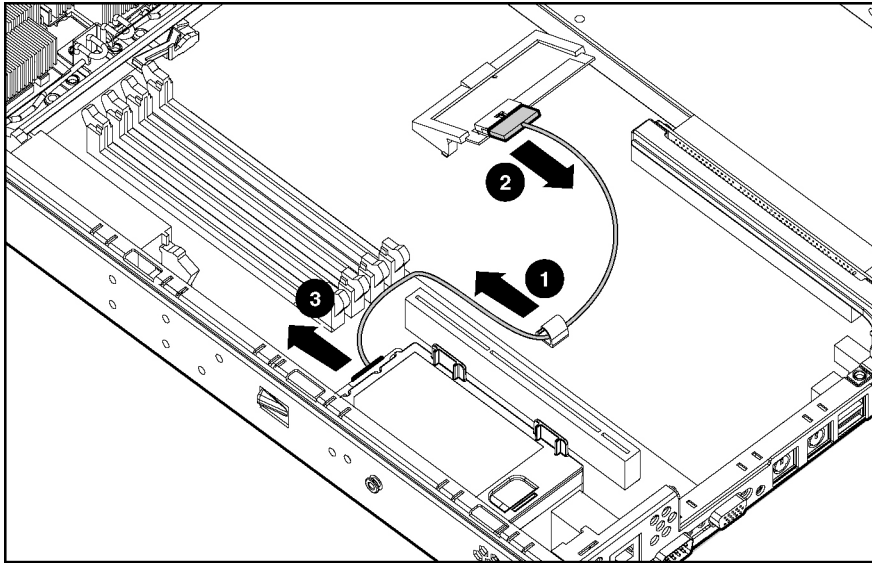


Figure 2-46: Disconnecting the battery-backed write cache cable

7. Pull the latch on the BBWC battery module (1).
8. Slide the BBWC battery module toward the front and away from the chassis (2), and remove from the chassis.

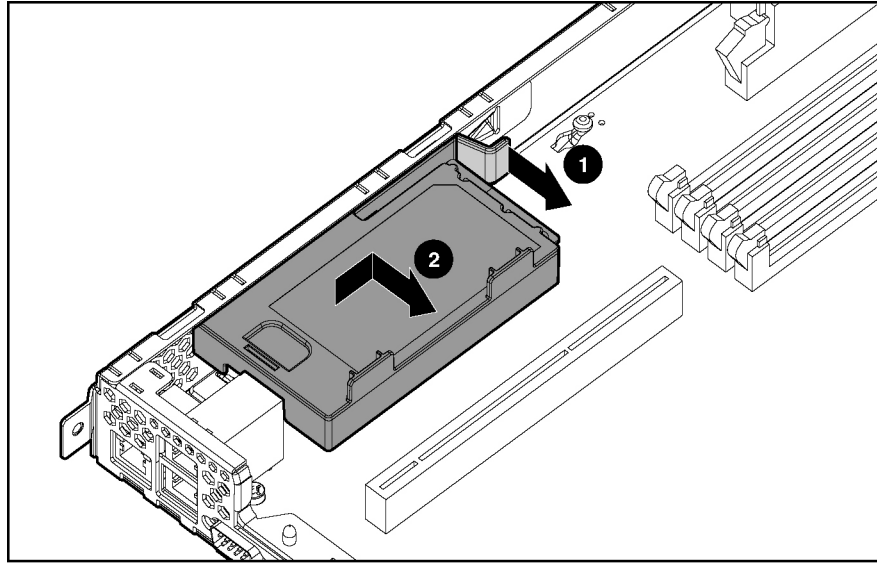


Figure 2-47: Removing the BBWC battery module from the chassis

Reverse steps 1 through 8 to install the BBWC battery module.

Battery

The ProLiant DL360 Generation 3 server has one memory device that requires a battery for retaining stored information. When your server no longer automatically displays the correct date and time, you may need to replace the battery that provides power to the real-time clock. With normal use, battery life is usually about 5 to 10 years. Replace used batteries with HP 540-milliampere-hour lithium, 3 V replacement batteries (P/N 179322-001).



WARNING: To reduce the risk of electric shock or equipment damage:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Disconnect power from the server by unplugging the power cord from either the electrical outlet or the server.

To replace a battery:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the battery-backed write cache enabler battery pack. Refer to “Battery-Backed Write Cache Enabler” earlier in this chapter
5. Locate the battery holder on the system board.

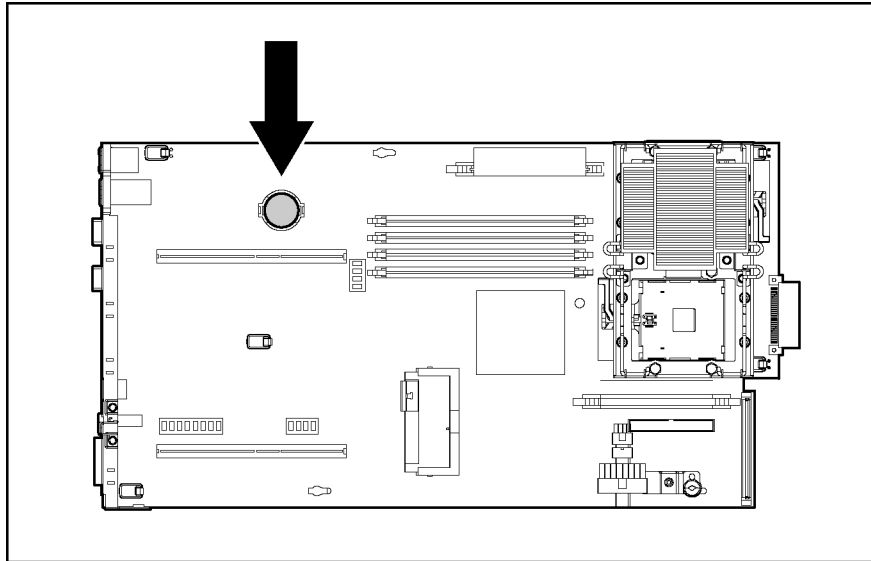


Figure 2-48: Battery location

6. Remove the existing battery.

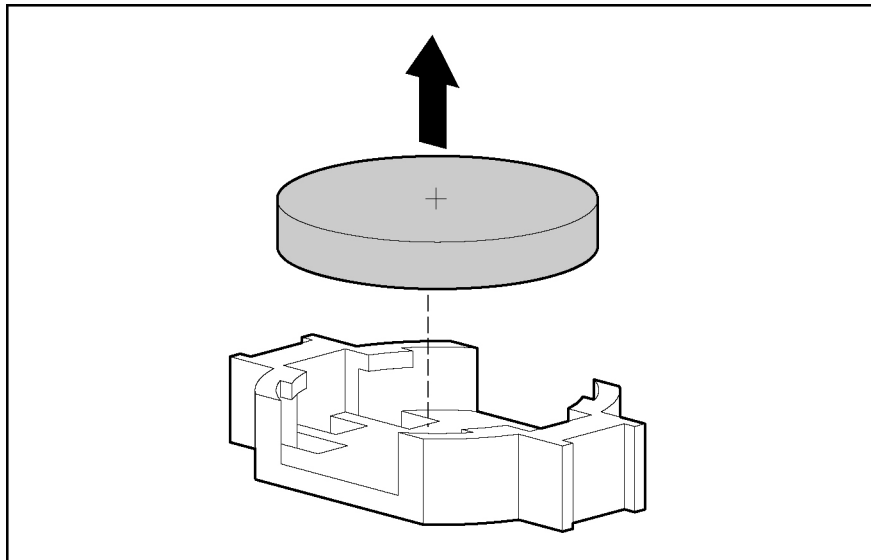


Figure 2-49: Removing the system battery

7. Reverse steps 5 and 6 to install a replacement battery.
8. Reverse steps 1 through 3 to complete the installation.
9. Run the ROM-Based Setup Utility to reconfigure the system with the new battery.

System Board

To replace the system board:

1. Power down the server. Refer to “Powering Down the Server” earlier in this chapter.
2. Remove the server from the rack. Refer to “Removing the Server from the Rack” earlier in this chapter.
3. Remove the access panel. Refer to “Server Access Panel” earlier in this chapter.
4. Remove the processor fan module. Refer to “Processor Fan Module” earlier in this chapter.
5. Remove the SCSI backplane board. Refer to “SCSI Backplane Board” earlier in this chapter.
6. Remove the I/O system fan assembly. Refer to “I/O System Fan Assembly” earlier in this chapter.
7. Remove the power converter module. Refer to “Power Converter Module” earlier in this chapter.
8. Loosen the system board thumbscrew (1).
9. Slide the system board toward the front of the chassis, tip it up, and remove it from the chassis (2).

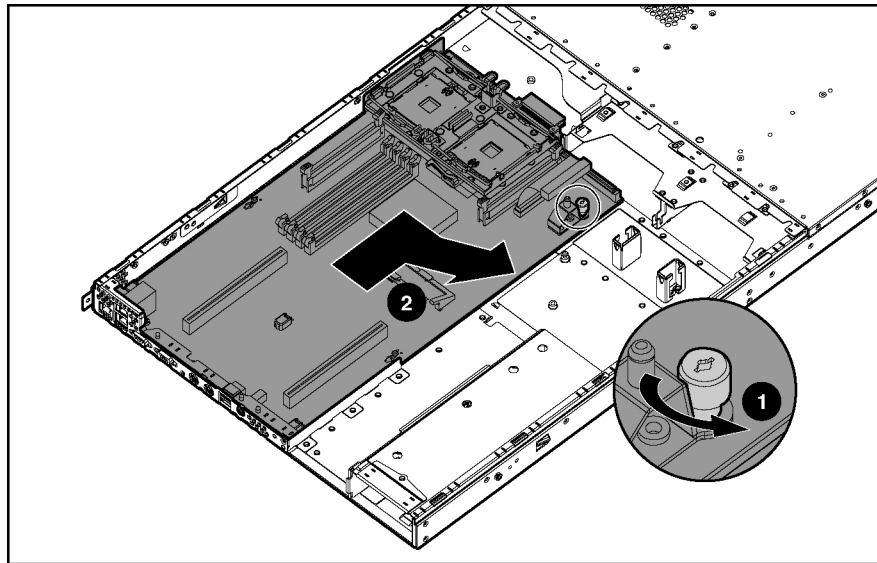


Figure 2-50: Removing the system board

Reverse steps 1 through 9 to install the system board.

IMPORTANT: The server serial number must be re-entered through RBSU after replacing the system board. Refer to the “Re-entering the Server Serial Number” section.

Re-entering the Server Serial Number

After replacing the server I/O module or clearing the NVRAM, the server serial number must be re-entered. To re-enter the serial number:

1. During the server startup sequence, press the **F9** key to access RBSU.
2. Select the **System Options** menu.
3. Select **Serial Number**. The following warning is displayed:

WARNING! WARNING! WARNING! The serial number is loaded into the system during the manufacturing process and should NOT be modified. This option should ONLY be used by qualified service personnel. This value should always match the serial number sticker located on the chassis.

Press the **Enter** key to clear the warning.

4. Enter the serial number and press the **Enter** key.
5. Press the **Escape** key to close the menu.
6. Press the **Escape** key to exit RBSU.
7. Press the **F10** key to confirm exiting RBSU. The server will automatically reboot.

Cable Routing Diagram

Server Cable Routing



CAUTION: When routing cables, always ensure that the cables are not in a position where they will be pinched or crimped.

Figure 3-1 identifies the proper routing of the cables for the HP ProLiant DL360 Generation 3 server.

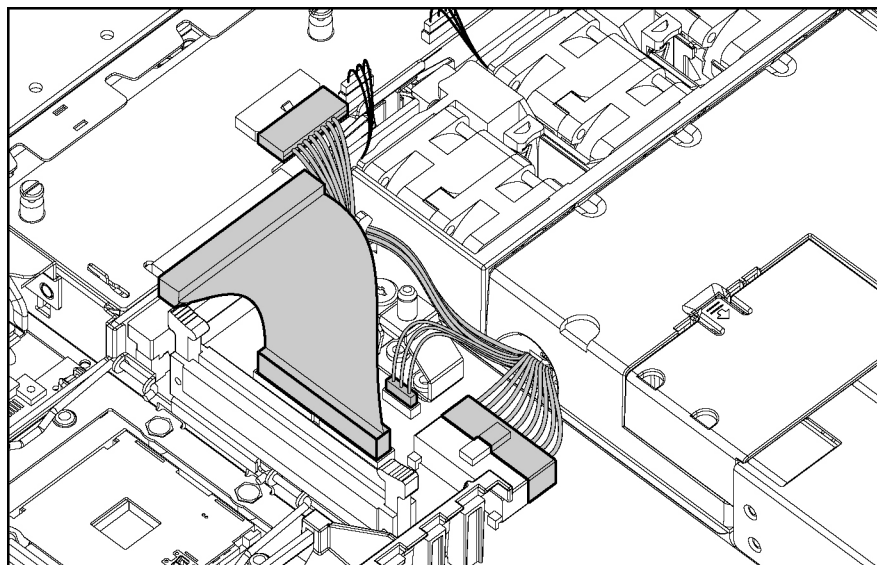


Figure 3-1: Routing of server cables

Diagnostic Tools

This chapter provides an overview of the diagnostic and management tools available for the HP ProLiant DL360 Generation 3 server. For more detailed information and procedures, refer to the *Servers Troubleshooting Guide* on the Documentation CD.

Diagnostic Tools Overview

The following tools are available to diagnose problems, test hardware, and monitor and manage server operations.

Automatic Server Recovery-2

Automatic Server Recovery-2 (ASR-2) is a feature that causes the system to restart when a catastrophic operating system error occurs, such as a blue screen, ABEND (abnormal end), or panic. A system fail-safe timer, the ASR-2 timer starts when the system management driver, also known as the health driver, is loaded. When the operating system is functioning properly, the system periodically resets the timer. However, when the operating system fails, the timer expires and restarts the server.

ASR-2 increases server availability by restarting the server within a specified time after a system hang or shutdown. At the same time, the Insight Manager 7 console notifies the user by sending a message to a designated pager number, that ASR-2 has restarted the system. The ASR-2 can be disabled from the Insight Manager 7 console or through RBSU.

Insight Manager 7

Insight Manager 7 is a Web-based application that allows system administrators to accomplish normal administrative tasks from any remote location, using a Web browser. Insight Manager 7 provides device management capabilities that consolidate and integrate management data from HP and third-party devices.

For additional information, refer to the Management CD in the *ProLiant Essentials Foundation Pack*.

Integrated Management Log

The Integrated Management Log (IML) records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with 1-minute granularity.

Recorded events in the IML can be viewed from within:

- Insight Manager 7
- Survey Utility
- Operating system-specific IML viewers
 - For NetWare: IML Viewer
 - For Windows: Event Viewer or IML Viewer
 - For Linux: IML Viewer Application
- Enterprise Diagnostics LX32 Utility

For more information, refer to the *Servers Troubleshooting Guide* on the Documentation CD, or the Management CD in the *ProLiant Essentials Foundation Pack*.

Integrated Lights-Out Technology

Integrated Lights-Out (iLO) technology is a standard component of selected ProLiant servers that provides server health and remote server manageability. The iLO subsystem includes an intelligent microprocessor, secure memory, and a dedicated network interface. This design makes iLO technology independent of the host server and its operating system. The iLO subsystem provides remote access to any authorized network client, sends alerts, and provides other server management functions.

Using iLO technology, it is possible to:

- Remotely power up, power down, or reboot the host server.
- Send alerts from the iLO subsystem, regardless of the state of the host server.
- Access advanced troubleshooting features through the iLO interface.
- Launch a Web browser and Simple Network Management Protocol (SNMP) alerting.
- Diagnose iLO using Insight Manager 7.

For more information about iLO technology features, refer to the *Integrated Lights-Out User Guide* on the Documentation CD or at www.hp.com/servers/lights-out.

Option ROM Configuration for Arrays

Before installing an operating system, use the Option ROM Configuration for Arrays (ORCA) utility to create the first logical drive, assign RAID levels, and establish online spare configurations.

ORCA provides support for the following functions:

- Configuring one or more logical drives using physical drives on one or more SCSI buses
- Viewing the current logical drive configuration
- Deleting a logical drive configuration

ORCA will default to the standard drive configuration if none is specified.

For more information about array controller configuration, refer to the *Smart Array 5i Plus Controller and Battery-Backed Write Cache Enabler User Guide*, or the *ROM-Based Setup Utility User Guide* on the Documentation CD.

ProLiant Essentials Rapid Deployment Pack

The ProLiant Essentials Rapid Deployment Pack software is the preferred method for rapid, high-volume server deployments. The Rapid Deployment Pack software integrates two powerful products: Altiris eXpress Deployment Server and the ProLiant Integration Module.

The Altiris eXpress Deployment Server console's intuitive graphical user interface provides simplified point-and-click and drag-and-drop solutions that enable the deployment of target servers remotely, perform imaging or scripting functions, and maintain software images.

For more information about the ProLiant Essentials Rapid Deployment Pack, refer to the documentation that ships on the ProLiant Essentials Rapid Deployment Pack CD.

ROM-Based Setup Utility

The ROM-Based Setup Utility (RBSU) performs a wide range of configuration activities, including the following:

- Configuring system devices and installed options
- Viewing system information
- Selecting the operating system
- Selecting the primary boot controller
- Managing storage options
- Configuring online spare memory

For more information on RBSU, refer to the *ROM-Based Setup Utility User Guide* on the Documentation CD.

ROMPaq Utility

Flash ROM upgrades the firmware (BIOS) with system or option ROMPaq utilities. To upgrade the BIOS, insert a ROMPaq diskette into the diskette drive and boot the system.

The ROMPaq utility checks the system and provides a choice (if more than one exists) of available ROM revisions. This procedure is the same for both system and option ROMPaq utilities.

For more information about the ROMPaq utility, refer to www.hp.com.

Smart Components for Remote ROM Flash

The Smart Components for Remote ROM Flash tool enable system administrators to efficiently upgrade system or controller ROM images across a wide range of servers and array controllers. This tool has the following features:

- Works offline and online
- Supports Microsoft® Windows NT®, Windows® 2000, Novell NetWare, and Linux operating systems
- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

To download the tool and for more information, refer to www.hp.com.

SmartStart Software

SmartStart software is a CD-based, single-server method for installing system software, thereby achieving a well-integrated server and ensuring maximum dependability and supportability. The SmartStart CD contains tools that diagnose problems with the server, configure storage arrays, and update the system ROM.

SmartStart software can:

- Install selected server operating systems using packaged product CDs.
- Install the latest optimized drivers.
- Create and copy standard server configuration scripts using the Scripting Toolkit and Configuration Replication Utility.
- Test server hardware using the new Enterprise Diagnostics LX32 Utility.
- Update the latest system or option ROM using the ROM Update Utility.
- Install software drivers directly from the CD. With systems that have internet connection, the SmartStart Autorun Menu provides access to the complete list of ProLiant System Software on the website.

For more information about SmartStart software, refer to www.hp.com/servers/smartstart.

SmartStart Autorun Menu

The SmartStart Autorun Menu can access the latest system software directly from the operating system environment, simply by inserting the SmartStart CD into a configured system. The Autorun Menu can:

- Install the latest ProLiant Support Packs.
- Download specific drivers and utilities.

SmartStart Scripting Toolkit

The SmartStart Scripting Toolkit is a set of Microsoft MS-DOS-based utilities that configure and deploy servers in a customized, predictable, and unattended manner. These utilities provide scripted server and array replication for mass server deployment and duplicate the configuration of a source server onto target systems with minimum user interaction.

For more information, and to download the SmartStart Scripting Toolkit, refer to www.hp.com.

Enterprise Diagnostics LX32 Utility

The Enterprise Diagnostics LX32 Utility displays information about the server hardware and tests the system to be sure that it is operating properly. Access the Enterprise Diagnostics LX32 Utility from the SmartStart CD or from www.hp.com

For more information, refer to the Management CD in the *ProLiant Essentials Foundation Pack*.

LEDs, Switches, and Jumpers

Status Indicators

The HP ProLiant DL360 Generation 3 server contains the following sets of LED indicators, which indicate the status of hardware components and settings:

- Front panel LED indicators
- Rear panel LED indicators
- System board LEDs

Use the following sections to determine the location and status of LEDs on the server.

Front Panel LED Indicators

The set of six LEDs on the front of the server indicates server status. The following figure and table identify and describe the location and function of the LEDs.

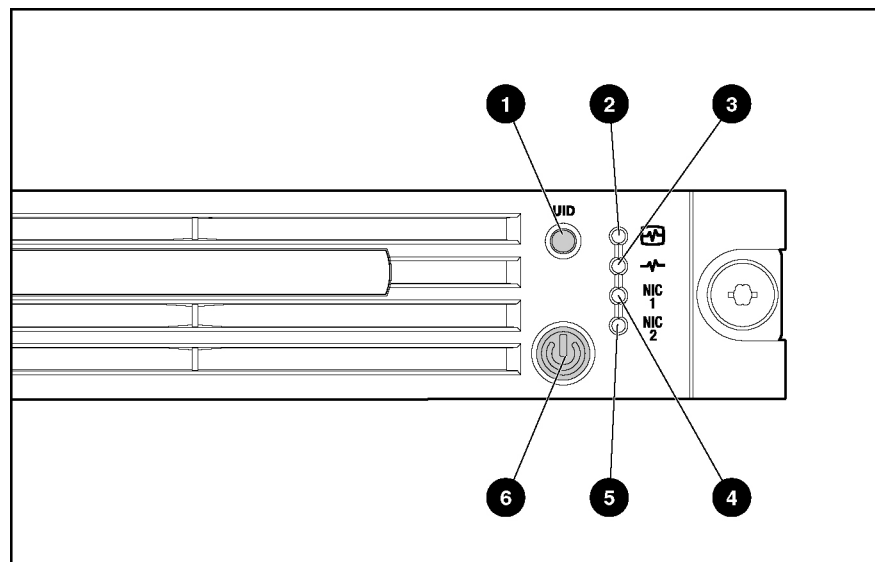


Figure 5-1: Identifying the front panel LED indicators

Table 5-1: Identifying the Front Panel LED Indicators

Item	LED	Status
1	Unit Identification LED/button	Blue = Activated Blinking = System remotely managed Off = Deactivated
2	Internal health LED	Red = System critical. Refer to system board LEDs to identify component in critical state. Amber = System degraded. Refer to system board LEDs to identify component in degraded state. Green = Normal
3	External health LED (power supply)	Amber = Power redundancy failure Green = Normal
4	NIC 1 link/activity LED	Green = Network link Blinking = Network link and activity Off = No link to the network. If power is off, view the rear panel RJ-45 LEDs.
5	NIC 2 link/activity LED	Green = Network link Blinking = Network link and activity Off = No link to the network. If the power is off, view the rear panel RJ-45 LEDs.
6	Power On/Standby button/system power LED	Amber = System shut down, but power still applied Green = System on Off = Power cord not attached or power supply failure

Rear Panel LED Indicators

The server rear panel contains five LEDs: one for the rear unit identification LED switch, two for the iLO connector, and two for the RJ-45 connectors. Use the following figure and table to identify each LED.

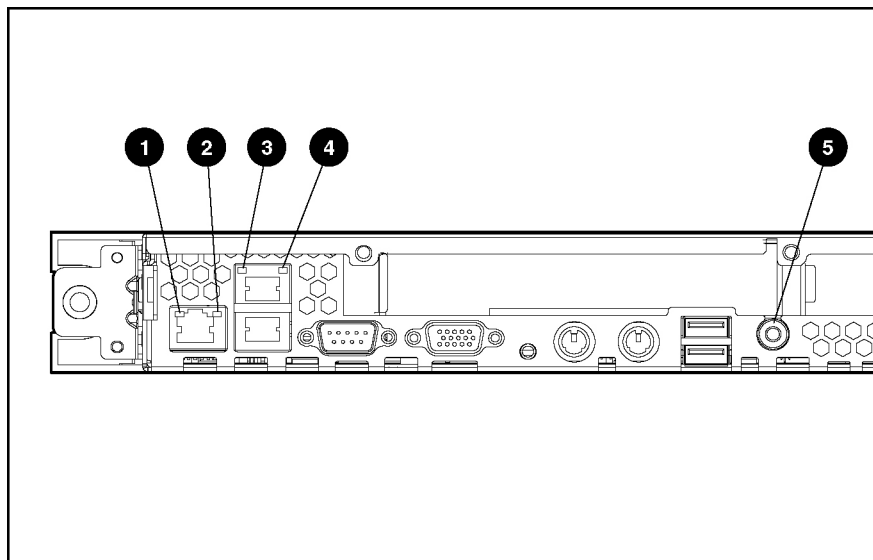


Figure 5-2: Identifying the rear panel LED indicators

Table 5-2: Rear Panel LED Indicators

Item	LED	Status
1	iLO link	On = Link Off = No Link
2	iLO activity	Off = No Activity Blinking = Activity
3	10/100/1000 NIC 1	Green = Network link Blinking = Network link and activity Off = No link to the network
4	10/100/1000 NIC 2	Green = Network link Blinking = Network link and activity Off = No link to the network
5	Rear Unit Identification LED switch	Blue = Activated Blinking = System remotely managed Off = Deactivated

System Board LEDs

The system board contains various LEDs, which display current conditions of the server. These are identified in the illustration and table below.

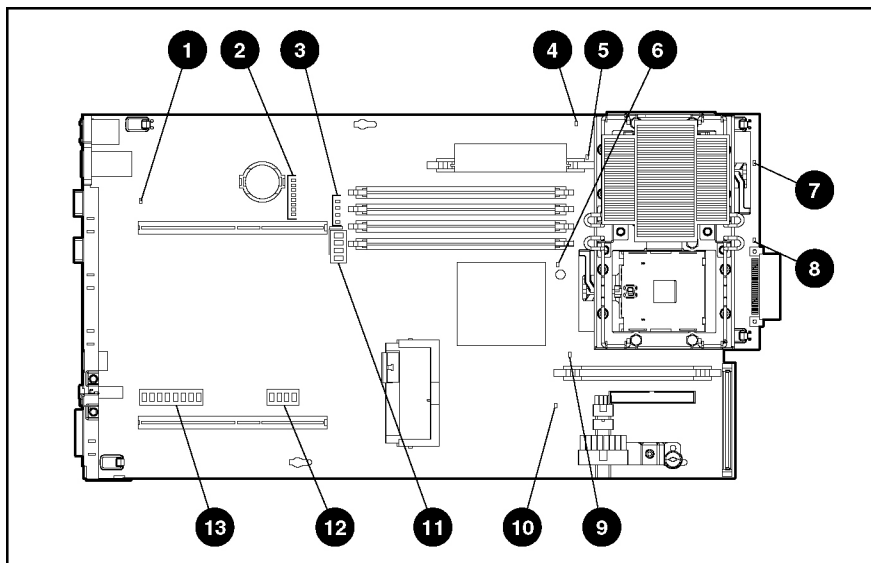


Figure 5-3: Locating the system board LEDs and switches

Table 5-3: System Board LEDs and Switches

Item	Description
1	Interlock LED
2	System debug LEDs (8 total)
3	DIMM error LEDs (4 total)
4	PPM 1 error LED
5	CPU 1 error LED
6	CPU 2 error LED
7	Overtemperature error LED
8	CPU fan failure LED
9	PPM 2 error LED
10	I/O fan failure LED
11	Debug LED switch (SW3)
12	Hot-plug redundant power supply/PCI install switch (SW1)
13	System maintenance switch (SW2)

Switches

The system board contains three switchbanks that may need to be modified to set configuration or to trigger special functions. These switches can cause problems if they are not correctly set.

When adding or removing a component or changing a security feature, the server must be reconfigured to recognize these changes. If the system configuration is incorrect, the server may not work properly, and you may receive error messages on the screen.

IMPORTANT: Reserved switches are provided for use by HP authorized service providers only and should not be changed from the indicated default settings.

Refer to Figure 5-3 and Table 5-3 for locations on the system board of the switches.

The following subsections provide reference information about setting the system board switches and jumpers, which is part of the reconfiguration process, along with running the ROM-Based Setup Utility (RBSU).

System Maintenance Switch (SW2)

The system maintenance switch (SW2) is an eight-position switch used for system maintenance. Refer to the labels attached to the inside of the server access panel for the proper system configuration switch settings. The following table shows the shipping configuration of SW2.

Table 5-4: System Maintenance Switch (SW2) Settings

Position	Function	Default	Description
S1	iLO service override	Off	Off = No function On = Override iLO security enabled
S2	Configuration lock	Off	Off = System configuration can be changed On = System configuration is locked
S3	Reserved	On	Reserved
S4	Floppy disable	Off	Off = Disable floppy boot On = Override RBSU setting and enable floppy boot
S5	Password override	Off	Off = Honor RBSU password setting On = Override RBSU setting and override password prompts
S6	Reset configuration	Off	Off = No function On = ROM reads system configuration as invalid, reset configuration
S7	Reserved	Off	Reserved
S8	Reserved	Off	Reserved

Note: "On" activates the function.

Hot-Plug Redundant Power Supply/PCI Switch (SW1) Settings

The hot-plug redundant power supply/PCI switch (SW1) is a four-position switch used for system maintenance. Refer to the labels attached to the inside of the server access panel for the proper switch settings. Table 5-5 shows the shipping configuration of SW1.

Table 5-5: Hot-Plug Redundant Power Supply/PCI Install Switch (SW1) Settings

Position	Function	Default	Description
S1	Reserved	Off	Reserved
S2	Reserved	On	Reserved
S3	Reserved	Off	Reserved
S4	Identify PCI slot or redundant power supply support	Off	Off = Normal (PCI slot 2 supported) On = Hot-plug redundant power supply installed

Debug LED Switch (SW3) Settings

The Debug LED switch (SW3) is a four-position switch used for system maintenance. S1 and S2 function as a pair. The default positions on this switch are Off and Reserved, and they are not modified by the user. Table 5-6 shows the configurations of SW3.

Table 5-6: Debug LED Switch (SW3) Settings

Position	Function	Setting	Description
S1/S2	Debug LED switch	Off/Off	Port 84
		Off/On	SmartArray 5i diagnostic LEDs
		On/Off	iLO diagnostic LEDs
		On/On	Port 84
S3	Reserved	Off	Reserved
S4	Reserved	Off	Reserved

Clearing and Resetting System Password Settings

It may be necessary to clear and reset the system password.

IMPORTANT: This method of clearing and resetting system passwords is necessary only if the current password is not known.

Otherwise, when prompted, the password can be entered followed by a forward slash (/). This operation removes the current password and allows one of the following to be performed:

- Enter the RBSU and set the password to a new value.
 - Leave the password value blank to disable the password feature.
-

When the system switch position S5 is set to the On position, the system is prepared to clear the system password.

1. Power down the server.
2. Set the switch at position 5 to the On position.
3. Restart the server, and wait for confirmation.
4. Power down the server.
5. Set the switch at position 5 to the default Off position.
6. Restart the server. The password is cleared.

Clearing and Resetting System Configuration Settings

It may be necessary at some time to clear and reset system configuration settings. When the system switch position S6 is set to the On position, the system is prepared to erase all system configuration settings from both CMOS and NVRAM.

IMPORTANT: Clearing CMOS and/or NVRAM deletes the configuration information. Refer to the *HP ProLiant DL360 Generation 3 Server Setup and Installation Guide* for complete instructions on configuring the server.

To clear and reset the system configuration settings, follow the procedures outlined in the “Clearing and Resetting System Password Settings” section earlier in this chapter, replacing switch position S6 for S5. After completing the steps, press the **F9** key to run the RBSU and reset all system configuration settings.

NOTE: For complete instructions on how to use RBSU, refer to the *ROM-Based Setup Utility User Guide* found in the ProLiant Essentials Foundation pack.

Setting the NIC Operating Mode

The NIC operating modes do not have to be set because the controllers automatically differentiate between the 10-Mb, 100-Mb and 1-Gb environments.

Specifications

Operating and Performance Specifications for the HP ProLiant DL360 Generation 3 Server

Table 6-1: Operating and Performance Specifications

Specifications		
Dimensions		
Height	4.32 cm	1.70 in
Depth	69.22 cm	27.25 in
Width	42.62 cm	16.78 in
Weight (maximum)	16.78 kg	37 lb
Weight (no drives installed)	12.47 kg	27.5 lb
Input requirements		
Rated input voltage	100 VAC to 240 VAC	—
Rated input frequency	50 Hz to 60 Hz	—
Rated input current	3.8 A (110 V) to 1.9 A (220 V)	—
Rated input power	425 W	—
BTUs per hour	1458	—

continued

Table 6-1: Operating and Performance Specifications *continued*

Specifications		
Power supply output		
Rated steady-state power	325 W	—
Maximum peak power	325 W	—
Temperature range		
Operating (Refer to note)	10°C to 35°C	50°F to 95°F
Shipping (Refer to note)	-40°C to 60°C	-40°F to 140°F
Relative humidity (noncondensing)		
Operating (Refer to note)	10% to 90%	—
Nonoperating (Refer to note)	5% to 95%	—
Maximum wet-bulb temperature	28°C	82.4°F
NOTE: Operating temperature has an altitude derating of 1°C per 304.8 M (1,000 ft). No direct sunlight. Storage maximum humidity of 95% is based on a maximum temperature of 45°C. Altitude minimum for storage is 70 KPa.		

A

- access panel
 - removing 2-8
 - replacing 2-8
- activating unit identification switches 2-5
- ASR-2 (Automatic Server Recovery-2) 4-1

B

- battery
 - location on system board 2-42
 - part number 2-41
 - replacing 2-43
- battery-backed write cache enabler
 - removing 2-40
 - replacing 2-41
- BIOS upgrade 4-4
- blanks
 - hard drive 2-11
 - PCI 1-2
 - power supply 1-2

C

- cable retractor
 - removing 2-20
 - replacing 2-21
- cable routing diagram 3-1
- CMOS, clearing 5-8
- component-level repairs vii
- configuration of system 4-3
- current, rated input 6-1

D

- debug LED switch 5-7
- deployment software 4-3
- diagnostic tools 4-1
- diagnostics utility 4-5
- dimensions, server 6-1
- DIMMs
 - identification 2-31
 - installation guidelines 2-31
 - population order 2-31

- removing 2-32
- replacing 2-33
- slot latches 2-32
- sockets 2-31

- diskette drive
 - removing 2-18
 - replacing 2-19

E

- ejecting lever, processor 2-36
- electrostatic discharge 2-1
- Enterprise Diagnostics LX32 Utility 4-5
- expansion board in a PCI riser board assembly
 - removing 2-22
 - replacing 2-23

F

- fan assembly
 - removing 2-24
 - replacing 2-25
- flash ROM 4-4
- floppy disk drive *See* diskette drive
- frequency, rated input 6-1
- front panel LEDs *See* LEDs

G

- grounding
 - caution viii
 - guidelines 2-1
 - plug vii

H

- hard drive
 - removing 2-12
 - replacing 2-13
- hard drive blank
 - removing 2-11
 - replacing 2-11
- hardware kit 1-2
- health driver 4-1

heatsink

- caution 2-36
- removing 2-35
- replacing 2-37

help resources ix

hot-plug devices, U320 SCSI hard drive 2-4

hot-plug power supplies *See* power supplieshot-plug U320 SCSI hard drive *See* hard drive

HP authorized reseller ix

humidity, server 6-2

II/O system fan assembly *See* fan assembly

icons, symbols on equipment 2-2

iLO *See* Integrated Lights-OutIML *See* Integrated Management Log

input requirements 6-1

Insight Manager 7 4-1

Integrated Lights-Out (iLO) 4-2

Integrated Management Log (IML) 4-2

K

kits

- country 1-4
- fixed rail 1-4
- hardware 1-2
- plastics 1-2
- Telco rack mounting 1-4

L

LEDs

- front panel 5-1
- network activity 5-3
- network link 5-3
- rear panel 5-3
- rear unit identification 5-3
- rear unit identification switch 2-6
- system board 5-4

left bezel 1-2

locating, unit identification switches 2-5

low-profile diskette drive *See* diskette drive**M**mass storage devices *See* storage devices

mechanical components 1-1

mechanical components exploded view,
illustrated 1-1memory *See also* DIMMs

- installation guidelines 2-31
- installation order 2-31
- removing 2-32
- replacing 2-33

N

Network Interface Controllers (NICs)

LEDs, activity status 5-3

LEDs, link status 5-3

setting the operating mode 5-8

non-hot-plug devices 2-4

O

optical device

removing 2-14

replacing 2-15

optical device/diskette drive interface board

removing 2-28

replacing 2-29

Option ROM Configuration for Arrays (ORCA) 4-3

ORCA *See* Option ROM Configuration for Arrays**P**

part numbers 1-2, 1-3

parts catalog, illustrated 1-1

password protection

clear and reset 5-7

how to set up 5-7

PCI blank 1-2

PCI riser board assembly

removing 2-22

replacing 2-22

plastics kit 1-2

Power On/Standby switch 2-5

power supply

blank 1-2

fan baffle 1-2

output power 6-2

removing 2-19

replacing 2-21

power, rated input 6-1

PPM *See* processor power module

processor fan module

removing 2-8

replacing 2-9

processor power module

removing 2-38

replacing 2-39

socket locations 2-34

processors

removing 2-35

replacing 2-37

socket locations 2-34

ProLiant Essentials Rapid Deployment Pack 4-3

R

rated input
 current 6-1
 frequency 6-1
 power 6-1
 voltage 6-1

rear panel, LEDs 5-3

rear unit identification LED switch 2-6

Remote ROM Flash, Smart Components 4-4

removing
 access panel 2-8
 battery 2-42
 battery-backed write cache enabler 2-40
 DIMMs 2-32
 diskette drive 2-18
 expansion board in a PCI riser board
 assembly 2-22
 fan assembly 2-24
 hard drive 2-12
 hard drive blank 2-11
 heatsink 2-35
 memory 2-32
 optical device 2-14
 optical device/diskette drive interface
 board 2-28
 PCI riser board assembly 2-22
 power converter module 2-25
 power supply 2-19
 processor 2-35
 processor fan module 2-8
 processor power module 2-38
 SCSI backplane board 2-30
 server from the rack 2-6
 system board 2-43

replacing
 battery 2-43
 battery-backed write cache enabler 2-41
 DIMMs 2-33
 diskette drive 2-19
 expansion board in a PCI riser board
 assembly 2-23
 fan assembly 2-25
 hard drive 2-13
 hard drive blank 2-11
 heatsink 2-37
 memory 2-33
 optical device 2-15
 optical device/diskette drive interface
 board 2-29
 PCI riser board assembly 2-22
 power supply 2-21
 processor 2-37

processor fan module 2-9
 processor power module 2-39
 SCSI backplane board 2-30
 server into the rack 2-7
 system board 2-44

requirements, input 6-1
 ROM-Based Setup Utility (RBSU) 4-3
 ROMPaq utility 4-4

S

SCSI backplane board
 removing 2-30
 replacing 2-30

serial number, re-entering 2-44

server
 dimensions 6-1
 drive locations 2-10
 maximum peak power 6-2
 maximum wet-bulb temperature 6-2
 operating temperature range 6-2
 power supply output power 6-2
 powering down 2-5
 rated input current 6-1
 rated input frequency 6-1
 rated input power 6-1
 rated input voltage 6-1
 rated steady state power 6-2
 relative humidity, nonoperating 6-2
 relative humidity, operating 6-2
 removing from the rack 2-6
 replacing into the rack 2-7
 shipping temperature range 6-2
 size 6-1
 temperature range 6-2
 weight 6-1

Smart Components for Remote ROM Flash 4-4

SmartStart Autorun Menu 4-5

SmartStart Scripting Toolkit 4-5

SmartStart software 4-4

socket locations
 processor 2-34
 processor power module 2-34

socket locking lever 2-36

specifications 6-1

status LEDs *See* LEDs

switches
 debug LED (SW3) 5-7
 Power On/Standby 2-5
 redundant power supply/PCI (SW1) 5-6
 system maintenance (SW2) 5-6

symbols on equipment 2-2

system board
 battery 2-41
 battery replacement 2-42
 LEDs 5-4
 removing 2-43
 replacing 2-44
system components exploded view, illustrated 1-2

T

technical support
 Canada ix
 other countries ix
 United States ix
technician notes vii
telephone numbers ix
temperature, server 6-2

U

unit identification switches
 LEDs, front 2-5
 LEDs, rear 2-5, 5-3

V

ventilation clearances viii
voltage, rated input 6-1

W

warranty viii
weight, server 6-1
wet-bulb temperature, server 6-2