

# **Installation Guide**

## **HP Integrity BL60p Server Blade**



**Manufacturing Part Number: AD000-90010**

**Second Edition**

**June 2006**

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## About This Document

This document provides information and instructions on installing the HP Integrity BL60p server blade into a p-class enclosure.

The document printing date and part number indicate the document's current edition. The printing date changes when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The document part number changes when extensive changes are made.

Document updates may be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details.

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## Intended Audience

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

This document is not a tutorial.

## New and Changed Information in This Edition

This guide has been updated with:

- This document is being updated as part of the continuous product improvement (CPE) initiative to enhance the current HP Integrity BL60p server blade documentation.

## Publishing History

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

**Table 1**            **Publishing History Details**

<b>Document Manufacturing Part Number</b>	<b>Operating Systems Supported</b>	<b>Supported Product Versions</b>	<b>Publication Date</b>
AD000-90001	HP-UX	BL60p	January 2006
AD000-90010	HP-UX	BL60p	June 2006

## Document Organization

This guide is divided into the following chapters.

Chapter 1	<b>Introduction</b> Use this chapter to learn about the features and specifications of the HP Integrity BL60p server blade.
Chapter 2	<b>Unpack and Inspect the Server</b> Use this chapter to inspect the server in its shipping packaging, and unpacking it.
Chapter 3	<b>Installing Additional Components</b> Use this chapter for procedures on installing additional components purchased with the server that were not factory installed.
Chapter 4	<b>Installing and Powering On the Server Blade</b> Use this chapter for procedures on how to install and power on the server blade.
Chapter 5	<b>Configuring iLO MP Access</b> Use this chapter for procedures on how to configure your server blade to access iLO MP functionality.
Chapter 6	<b>Accessing iLO MP</b> Use this chapter for procedures on how to access iLO MP functionality on the server blade once it is configured to do so.
Chapter 7	<b>Accessing EFI or OS from iLO MP</b> Use this chapter for procedures on how to access EFI or your OS once you have accessed iLO MP.
Chapter 8	<b>Installing and Booting the Operating System</b> Use this chapter for procedures on how to install and boot the operating system on the server blade (if not factory installed).
Chapter 9	<b>Downloading and Installing the Latest Firmware</b> Use this chapter for procedures on how to download and install the latest firmware for your server blade.
Chapter 10	<b>Troubleshooting</b> Use this chapter to learn about high-level troubleshooting procedures when installing the server blade.
Appendix A	<b>EFI Configuration Settings</b> Use this appendix to learn about configuring EFI boot options as well as high-level EFI configuration settings.
Appendix B	<b>NVRAM Backup Utility</b> Use this appendix to learn about the NVRAM backup utility.

## Typographic Conventions

This document uses the following conventions.

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

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**CAUTION** A caution provides information required to avoid losing data or avoid losing server blade functionality.

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

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**Book Title** The title of a book. On the Web and on the Instant Information CD, it may be a hot link to the book itself.

**KeyCap** The name of a keyboard key or graphical interface item (such as buttons, tabs, and menu items). Note that **Return** and **Enter** both refer to the same key.

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<i>Emphasis</i>	Text that is emphasized.
<b>Bold</b>	Text that is strongly emphasized.
<b>Bold</b>	The defined use of an important word or phrase.
ComputerOut	Text displayed by the computer.
<b>UserInput</b>	Commands and other text that you type.
Command	A command name or qualified command phrase.
Option	An available option.
Screen Output	Example of computer screen output.
[ ]	The contents are optional in formats and command descriptions. If the contents are a list separated by  , you must select one of the items.
{ }	The contents are required in formats and command descriptions. If the contents are a list separated by  , you must select one of the items.
...	The preceding element may be repeated an arbitrary number of times.
	Separates items in a list of choices.

## HP-UX Release Name and Release Identifier

Each HP-UX 11i release has an associated release name and release identifier. The *uname* (1) command with the -r option returns the release identifier. This table shows the releases available for HP-UX 11i.

**Table 2 HP-UX 11i Releases**

Release Identifier	Release Name	Supported Processor Architecture
B.11.11	HP-UX 11i v1	PA-RISC
B.11.20	HP-UX 11i v1.5	Intel® Itanium®
B.11.22	HP-UX 11i v1.6	Intel Itanium
B.11.23	HP-UX 11i v2.0	Intel Itanium

## Related Documents

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

### Web Site for HP Technical Documentation:

<http://docs.hp.com>

### Server Hardware Information:

<http://docs.hp.com/hpux/hw/>

### Windows Operating System Information

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

- [http://docs.hp.com/windows\\_nt/](http://docs.hp.com/windows_nt/)
- <http://www.microsoft.com/technet/>

### **Diagnostics and Event Monitoring: Hardware Support Tools**

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

### **Web Site for HP Technical Support:**

<http://us-support2.external.hp.com/>

### **Books about HP-UX Published by Prentice Hall**

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

- *HP-UX 11i System Administration Handbook*  
[http://www.hp.com/hpbooks/prentice/ptr\\_0130600814.html](http://www.hp.com/hpbooks/prentice/ptr_0130600814.html)
- *HP-UX Virtual Partitions*  
[http://www.hp.com/hpbooks/prentice/ptr\\_0130352128.html](http://www.hp.com/hpbooks/prentice/ptr_0130352128.html)

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

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Please include title, manufacturing part number, and any comment, error found, or suggestion for improvement you have concerning this document. Also, please include what we did right so we can incorporate it into other documents.

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# 1 Introduction

The HP Integrity BL60p server blade is a dense, low-cost, p-Class Intel® Itanium 2® server blade. The BL60p server blade supports the HP-UX operating system. The BL60p server blade is designed for commercial server blade customers deploying p-Class blade enclosures who need an HP-UX operating environment. The BL60p server blade is consistent with other full-slot, single-width p-Class blades.

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**NOTE** This documentation is based on the assumption that the p-Class server blade enclosure is powered on and running properly.

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This chapter addresses the following topics:

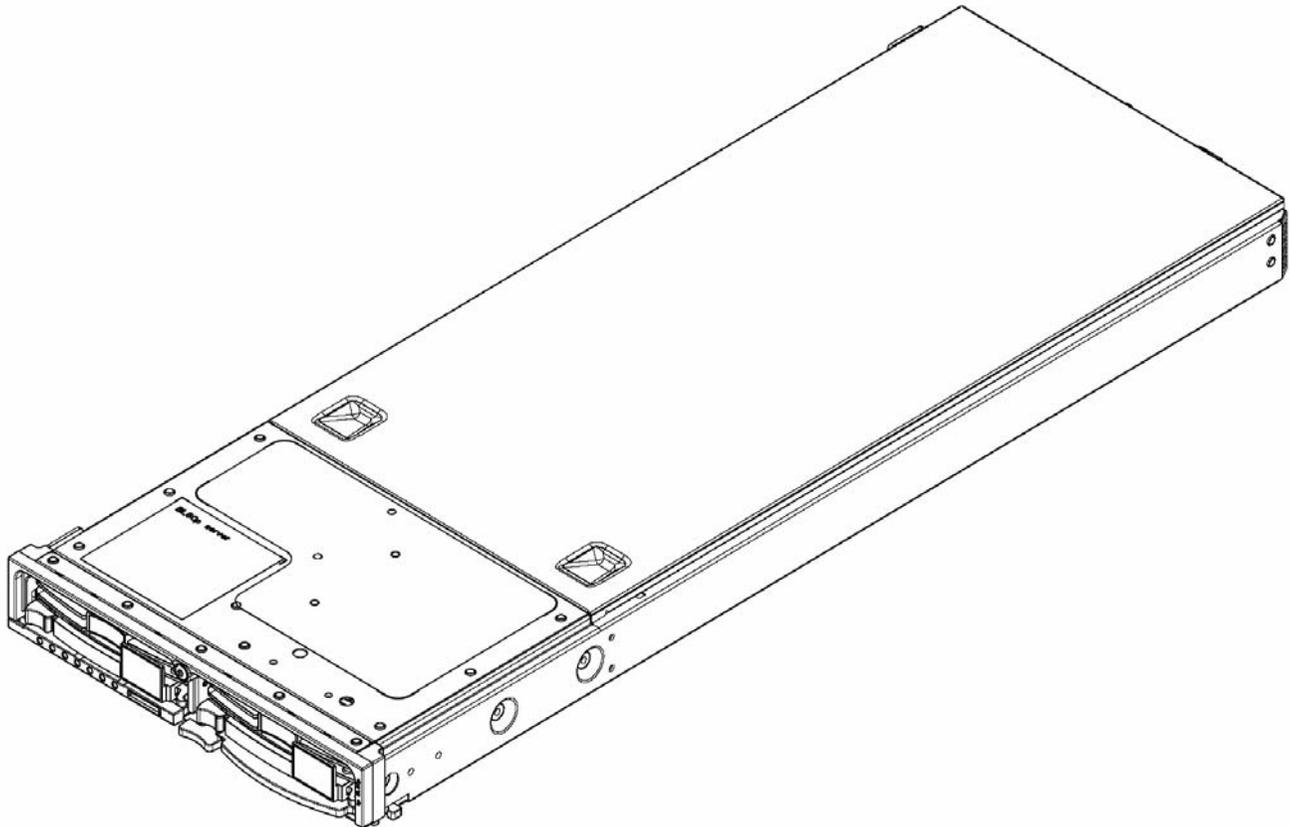
- “Server Blade Overview” on page 16
- “Server Blade Components” on page 17
- “SCSI Backplane” on page 22
- “I/O Subsystem (Communications Module)” on page 22
- “Memory Subsystem” on page 23
- “Power Subsystem (on System Board)” on page 24
- “CPU / Core Electronics Complex” on page 24
- “Installation Sequence and Checklist” on page 25
- “Safety Information” on page 26
- “Enclosure Information” on page 26

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## Server Blade Overview

The server blade can hold two Intel Itanium-2 (200MHz front side bus [FSB]) processors. The server blade supports up to 8 GB of memory (using four 2 GB, PC2100 DIMMs) and two hot-pluggable SCSI disks. The server blade management capability is derived from the Extended Core I/O (ECI) card design, as utilized in other HP Integrity server products.

**Figure 1-1 HP Integrity BL60p Server Blade**



### Server Blade Dimensions

Table 1-1 shows the dimensions and weight of the server blade.

**Table 1-1 Server Dimensions**

Dimensions	Value
Height	4.29 cm (1.69 in.)
Width	26.14 cm (10.29 in.)
Depth	71.1 cm (28.00 in.)
Weight	Unloaded: 8.8 kg (19.4 lb.) Fully loaded: 9.43 kg (20.8 lb.)

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## Server Blade Components

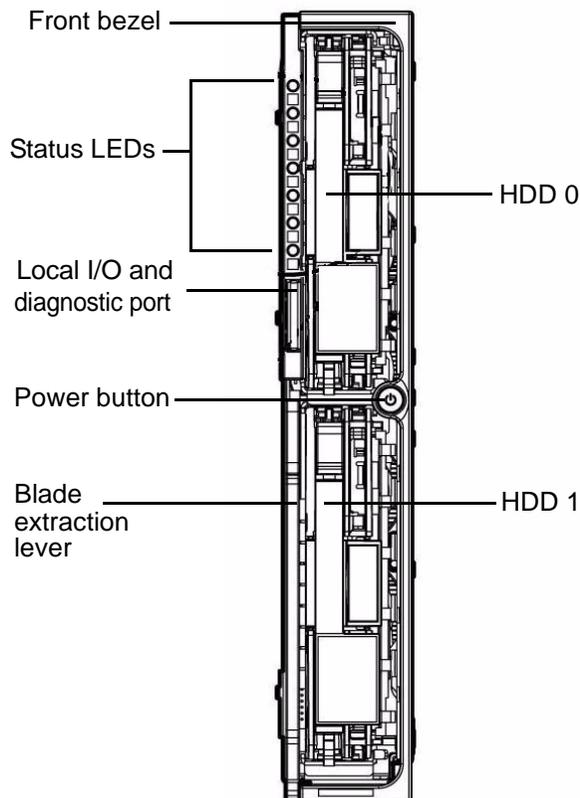
The following sections detail the components of the server blade. The components are shown in a front view and a top view.

### Front View

The server blade features include the following components:

- Front bezel: The front bezel assembly provides air vents and EMI containment features. The front bezel provides the HP logo, matching family product color scheme, and branding name. The display panel LEDs indicate unit ID, power status, LAN status, and overall server blade health.
- Two hot-plug Ultra320 SCSI disks: These SCSI disks utilize the universal carrier (leveraged from the HP ProLiant BL20p G3). These disks can be removed and replaced without removal of the bezel.
- Local I/O and diagnostic port (requires local I/O cable connection)
- Power button
- Blade extraction lever (to remove and replace blade)

**Figure 1-2 Front View of the Server Blade**



## Front Panel LEDs

The server blade contains seven LEDs on the front panel that indicate the server status. Use Figure 1-3 to locate the front panel LEDs.

**Figure 1-3 Integrity BL60p Server Blade Front Panel LEDs**

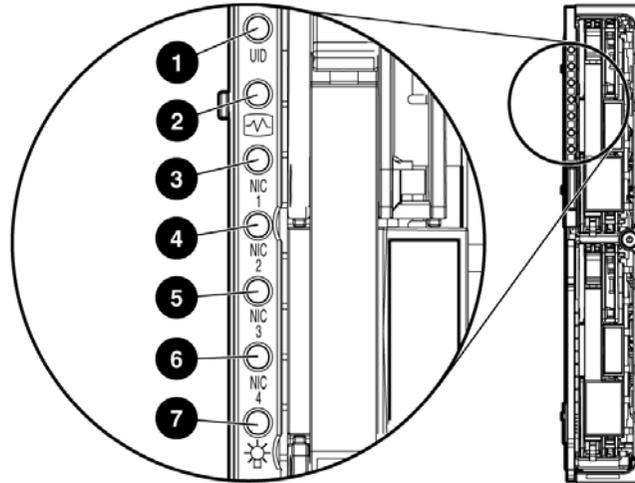


Table 1-2 details the functions of the front panel LEDs.

**Table 1-2 Integrity BL60p Server Blade Front Panel LEDs**

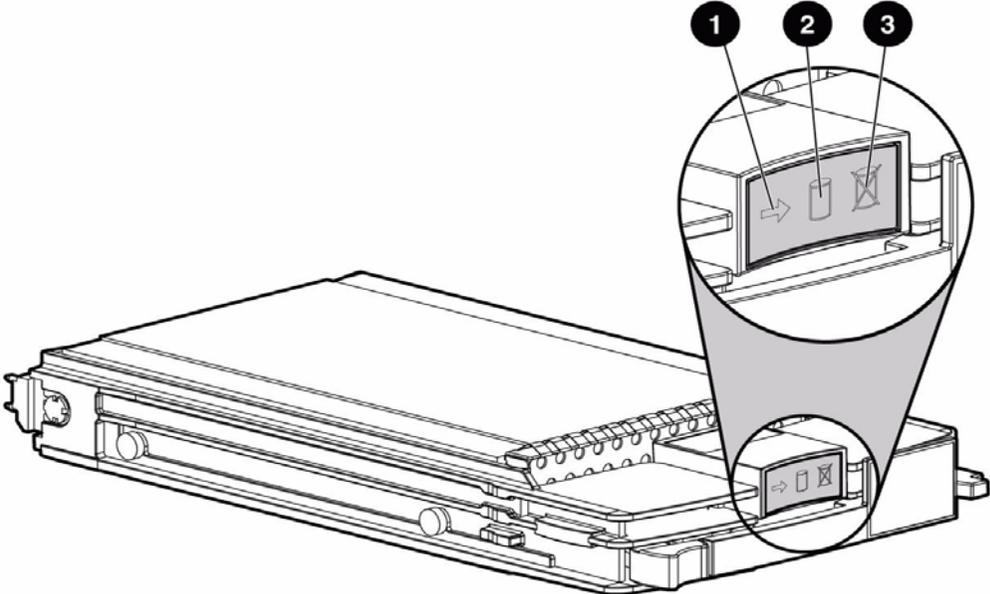
Item	LED Description
1	Unit identification (UID)
2	Health
3	NIC 1
4	NIC 2
5	NIC 3
6	NIC 4
7	Power

For more information regarding the front panel LEDs see “Troubleshooting LEDs” on page 77.

### SCSI Hard Disk Drive LEDs

The two SCSI hard disk drives on the BL60p server blade have identical LEDs that show the status of the hard disk drives. See Figure 1-4 for locations of the hard disk drive LEDs.

**Figure 1-4** SCSI Hard Disk Drive LEDs

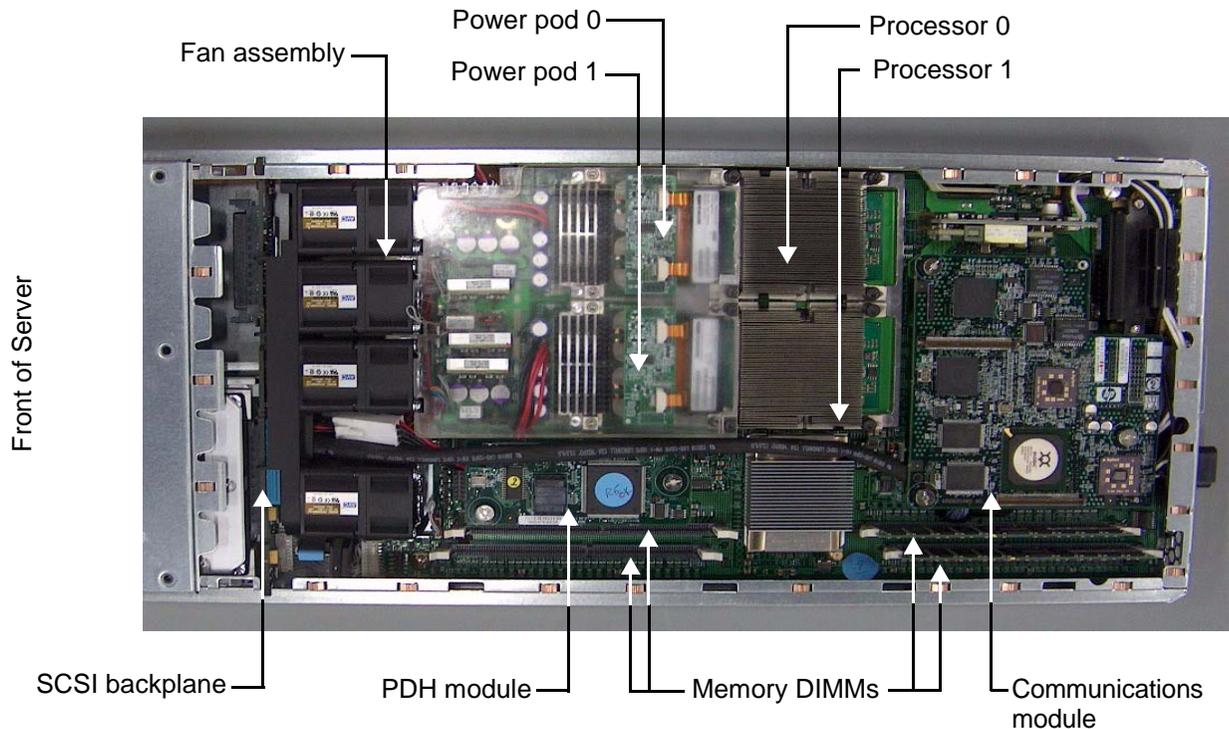


### Top View (with access cover and airflow guide removed)

There is one removable access cover located on the right side of the server blade. This cover gives access to three printed circuit assemblies (PCAs). See Figure 1-5 for their location:

- SCSI backplane
- PDH module
- Communications module

**Figure 1-5** Top View of the Server Blade



The following field replaceable components (FRUs) are also accessible when the access cover is removed:

- Fan assembly (four fans in a plastic assembly bracket)
- Processors
- Memory DIMMs

None of these items are hot-swappable. They are only accessible when the server blade is removed from the enclosure.

## Rear Panel

Use Figure 1-6 to identify the server blade rear panel connectors.

**Figure 1-6** Server Blade Rear Panel Connectors

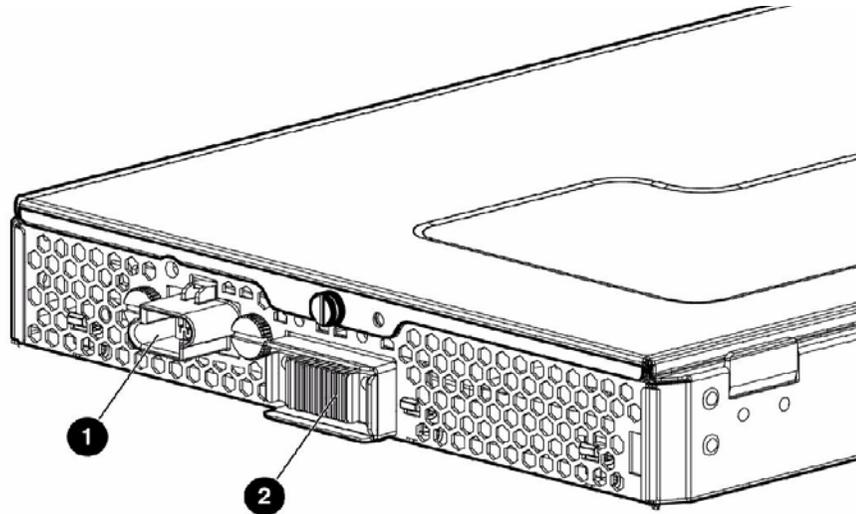


Table 1-3 describes the server blade rear panel connectors.

**Table 1-3** Server Blade Rear Panel Connectors

Item	Description
1	Power connector
2	Signal connector

## SCSI Backplane

The server blade SCSI backplane is a dual-disk, single-channel, Ultra320 disk subsystem. It is designed specifically for the BL60p server blade.

The server blade SCSI backplane provides the following key features:

- Drive configuration: Two low profile disk drives (28.5mm pitch)
- Drive carrier: Common carrier
- SCSI bus configuration: Single bus
- SCSI specification: Ultra320 (backward compatible to Ultra160)
- SCSI drive interface: Low voltage differential (LVD) only
- I2C EEPROM for FRU-ID information
- Hot-swap circuitry
- SCSI bus reset circuitry
- Drive activity LEDs

An LVD SCSI cable connects the SCSI backplane board to the server blade system board. A separate power cable from the system board provides the power to the disks and other circuitry. The power cable also contains the I2C bus lines which provide a data path to the EEPROM.

---

## I/O Subsystem (Communications Module)

The I/O solution for the server blade is to use a communications module for the LAN and Fibrechannel to communicate over the blade enclosure signaling backplane (through the system board). The module design meets the following objectives:

- Functions correctly and consistently with the BL p-Class LAN and Fibrechannel solutions.
- Module design works with the existing HP-UX drivers for the BCM 5704 and ISP 2312.

The LAN and Fibrechannel portions of the design emulate the HP AB456 combo card logical design to ensure correctness and consistency from an HP-UX driver context.

- Meets the mechanical and thermal constraints of the server blade design.

As part of the I/O solution for the server blade, the Communications Module provides the following I/O connections:

- Two dual 10/100/1000 LAN connections (4 links) routed to the system interface connector.
- Dual 2 Gb Fibrechannel connections routed to the system interface connector.

---

## Memory Subsystem

The server blade physical memory layout includes the DDR SDRAM memory DIMMs, along with the memory bus traces and required termination. The memory subsystem supports only Double Data Rate Synchronous Dynamic Random Access Memory (DDR SDRAM) technology utilizing industry-standard PC2100 type DDR SDRAM DIMMs. The DIMMs use a 184-pin JEDEC standard connector. The server blade memory subsystem provides two memory cells; each cell is 144 bits wide each (128 bits of data, 16 bits of ECC). Each cell accommodates two DIMM slots; in the server blade, space and power limitations restrict the total loaded DIMM count to four slots (two DIMMs per cell).

The minimum amount of memory that can be installed in the server blade is 1 GB (two 512 MB DIMMs). The maximum amount of memory that can be installed in a server blade is 8 GB (four 2 GB DIMMs).

The DIMMs used in the server blade must be low-profile (1.2" tall) DIMMs. The DIMMs are standard DDR2100 registered DIMMs. Only DIMMs qualified by HP are supported.

Following is the recommended load order for DIMM pairs:

- Load slots DIMM0A and DIMM0B first
- Load slots DIMM1A and DIMM 1B second

### DIMMs

The memory subsystem supports only Double Data Rate Synchronous Dynamic Random Access Memory (DDR SDRAM) technology utilizing industry-standard PC2100 type DDR SDRAM DIMMs, 1.2" tall. The DIMMs use a 184-pin JEDEC standard connector.

You are required to load the DIMMs in pairs. To enable chip sparing, the DIMM pairs must be loaded in quads (all four DIMMs must be the same capacity). Table 1-4 summarizes the BL60p server blade memory solutions.

**Table 1-4 Server Blade Memory Array Capacities**

Min / Max Memory Size	Single DIMM Sizes
1 GB / 2 GB	512 MB DIMM
2 GB / 4 GB	1 GB DIMM
4 GB / 8 GB	2 GB DIMM

---

**NOTE** Loading DIMMs as a quad (four identical DIMMs) enables lock-step mode and chip sparing.

---

## Power Subsystem (on System Board)

Each server blade receives bulk DC voltage from the enclosure. Bulk DC voltage is then converted to the required DC voltages needed by the server blade's power block.

The server blade DC-to-DC power subsystem has two major components: E-Fuse (input fuse), and the LB40 (DC-to-DC conversion circuit). E-Fuse functionality provides an electronic fuse to support insertion and removal of individual blades while -48 VDC inlet power is present on the enclosure backplane. It also generates a non-switched 12 V output rail that is used to generate 3.3 V standby and 5.0 V standby voltage rails through point-of-load (POL) converters. LB40 modules take the -48 VDC power from the enclosure backplane through the E-Fuse, and generates a switched 12 V output rail when the server blade is powered on.

All other switched voltage rails in the design are provided through POL converters that tap into this 12 V switched rail. CPU power pods also connect to this switched 12 V rail, and are controlled through their respective enable pins.

Nonswitched 3.3 V standby and 5.0 V voltage rails are always present to support power management, minimal fans, baseboard management control (BMC), server blade management, and portions of the LAN circuitry. The switched POL voltage rails are 12 V, 3.3 V, 5 V, 2.5 V, 1.8 V, 1.5 V, 1.2 V and 1.25 V.

The 12 V, 5 V and 3.3 V standby power rails are energized whenever -48 VDC power is present to the blade. The LB40 12 V output is turned on when a server blade power-on is detected and is sent to the system board for direct use and for feeding a distributed system of DC-to-DC converters (POLs), which generate the operating voltages that power the server blade circuitry.

To minimize peak power consumption, internal disk power-ups are staggered.

---

## CPU / Core Electronics Complex

The server blade board houses two Zero Insertion Force (ZIF) CPU sockets, two application specific integrated circuits (ASICs), clock generation and distribution circuitry, voltage conversion, boundary scan, ITP (In-Target Probe for processors), and debug features.

### Intel® Itanium® CPU Module

The CPU in the server blade is an Intel® Itanium® moderate-power (100 W), moderate-cost processor. The processor operates at 1.6 GHz, and has 3 MB of cache enabled. The CPU module includes the CPU chip, the CPU power pod (12 VDC in), a custom passive heatsink assembly (unique for the BL60p server blade), and the hardware to attach all of the module pieces together.

The CPUs are connected to the main chipset component, through the front-side bus (FSB). In the server blade, the FSB operates at 200 MHz, and since data can be transferred on each clock edge, the data transfer rate is 400 MTransfers/sec peak (approximately 6 GB/s). One end of the FSB is electrically terminated with the Zx1 ASIC. The other end of the bus is terminated with a CPU module. In the middle, you can load an additional processor. For the server blade to function properly, the processor must be mounted in the module farthest away from the ASIC to electrically terminate the FSB.

Each CPU module includes a power pod component that is fed 12 V from the system board through a pig-tail cable. The power pod generates the power rail required by the CPU. For signal connections, the CPU module is attached to the system board through a ZIF socket. The CPU is also secured by mechanical attachment to a bolster plate/frame apparatus attached to the system board.

---

## Installation Sequence and Checklist

Follow the sequence of steps shown in Table 1-5 to ensure a successful server installation:

**Table 1-5            Installation Sequence Checklist**

Step	Description	Completed
1	Unpack and inspect the server shipping container; inventory the contents using the packing slip.	
2	Install additional components shipped with the server.	
3	Install and power on the server blade	
4	Configure iLO MP access	
5	Access iLO MP	
6	Access EFI or OS from iLO MP	
7	Install and Boot OS	
8	Download and install the latest firmware bundle from the HP support Web site.	

## Safety Information

Use care to prevent injury and equipment damage when performing removal and replacement procedures. Voltages might be present within the server. Many assemblies are sensitive to damage by electrostatic discharge.

Follow the procedures listed below to ensure safe handling of components, to prevent injury, and to prevent damage to the HP server:

- When removing or installing any server component, follow the instructions provided in this guide
- If installing a hot-pluggable component, software intervention may be required prior to removing the component
- If installing an assembly that is not hot-pluggable, remove the server blade from the enclosure

---

**WARNING** Ensure that the server blade is powered down and removed from the enclosure prior to working with the server (unless you are removing or installing a hot-pluggable component).

**Voltages are present at various locations within the server whenever the server blade is installed in the enclosure. 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.**

---

- Do not wear loose clothing that might snag or catch on the server or on other items
- Do not wear clothing subject to static charge build-up, such as wool or synthetic materials
- If installing an internal assembly, wear an antistatic wrist strap and use a grounding mat, such as those included in the Electrically Conductive Field Service Grounding Kit (HP 9300-1155)
- Handle components by the edges only. Do not touch any metal-edge connectors or any electrical components on accessory boards

---

## Enclosure Information

This installation document only covers the BL60p server blade itself, and does not include any specific server blade enclosure information. For server blade enclosure information, go to:

<http://h20000.www2.hp.com/bc/docs/support/SupportManual/c00172260/c00172260.pdf>





---

## 2 Unpacking and Inspecting the Server Blade

This chapter describes procedures performed before installation. You must ensure that you have adequately prepared your environment for your new server, received the components that you ordered, and verified that the server and its containers are in good condition after shipment.

This chapter addresses the following topics:

- “Verify Site Preparation” on page 30
- “Inspect the Shipping Containers for Damage” on page 30
- “Unpack the Server” on page 30
- “Check the Inventory” on page 31
- “Damaged Equipment Returns” on page 31

## Verify Site Preparation

Verifying site preparation is an essential factor of a successful server installation, and includes the following tasks:

- Gather LAN information: Determine the two separate IP addresses for the integrated Lights Out Management Processor (iLO MP) LAN and the server blade LAN
- Establish a method to connect to the server console. For more information on console connection methods, see Chapter 5, “Configuring iLO MP Access,” on page 51
- Verify electrical requirements: Ensure that grounding specifications and power requirements are met
- Validate server physical space requirements
- Confirm environmental requirements

For more information on server electrical, physical space, and environmental requirements, see the *HP Integrity BL60p Server Blade Site Preparation Guide*

---

## Inspect the Shipping Containers for Damage

HP shipping containers protect their contents under normal shipping conditions. After the equipment arrives, carefully inspect each carton for signs of shipping damage. Shipping damage constitutes moderate to severe damage, such as punctures in the corrugated carton, crushed boxes, or large dents. Normal wear or slight damage to the carton is not considered shipping damage. If you find shipping damage to the carton, contact your HP customer service representative immediately.

---

## Unpack the Server

The following procedure describes how to unpack a server blade.

- Step 1.** Use the instructions printed on the outside top flap of the carton.
- Step 2.** Remove all inner accessory cartons and the top foam cushions, leaving only the server.
- 

**IMPORTANT** Inspect each carton for shipping damage as you unpack the server.

---

- Step 3.** Place server on an antistatic pad.
-

---

## **Check the Inventory**

The sales order packing slip lists all of the equipment shipped from HP. Use this packing slip to verify that all of the equipment has arrived.

---

**NOTE** To identify each item by part number, see the sales order packing slip.

---

---

## **Damaged Equipment Returns**

If the equipment has any damage, you must immediately contact your HP customer service representative. The service representative initiates appropriate action through the transport carrier or the factory and assists you in returning the equipment.



---

## 3 Adding Additional Components

This chapter describes the installation of components that are not installed at time of delivery. If your server blade has no additional components to install, go to Chapter 4, “Installing and Powering On the Server Blade,” on page 47.

This chapter addresses the following topics:

- “Service Tools Required” on page 34
- “Adding a Hot-Plug SCSI Hard Disk Drive” on page 34
- “Adding Internal Components” on page 36

---

## Service Tools Required

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

- IPF CPU Install Tool Kit, consisting of:
  - Disposable ESD Kit
  - Labelless CPU install tool (2.5 mm hex and Torx 15)
- 1/4-inch flat blade screwdriver
- Phillips No. 1 screwdriver
- ACX-10 Torx screwdriver
- ACX-15 Torx screwdriver

---

## Adding a Hot-Plug SCSI Hard Disk Drive

Use the following procedures if the server blade has a hard drive blank installed, and you need to install a hot-plug SCSI hard drive.

---

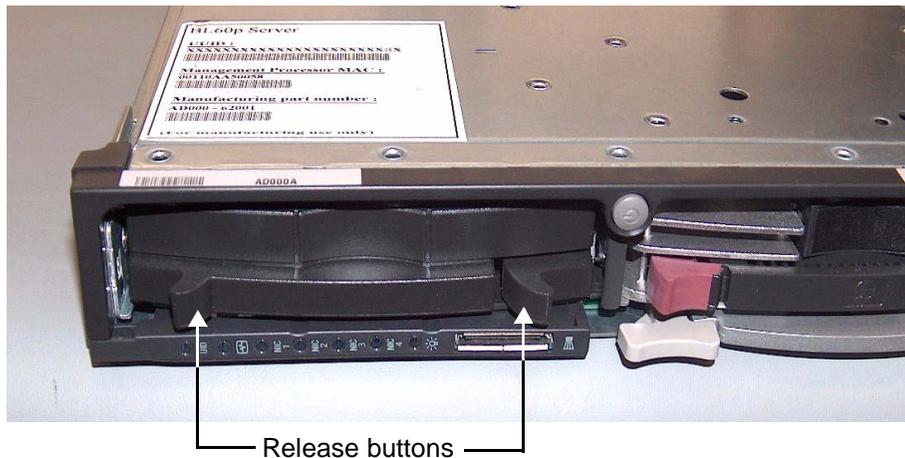
**NOTE** For a list of supported hard disk drives for the server blade, go the following link:  
<http://h18004.www1.hp.com/products/servers/Integrity-bl/p-class/60p/index.html>

---

**Step 1.** Press the release buttons simultaneously.

**Step 2.** Pull the blank out of the drive bay.

**Figure 3-1 Removing a Hard Drive Blank**



---

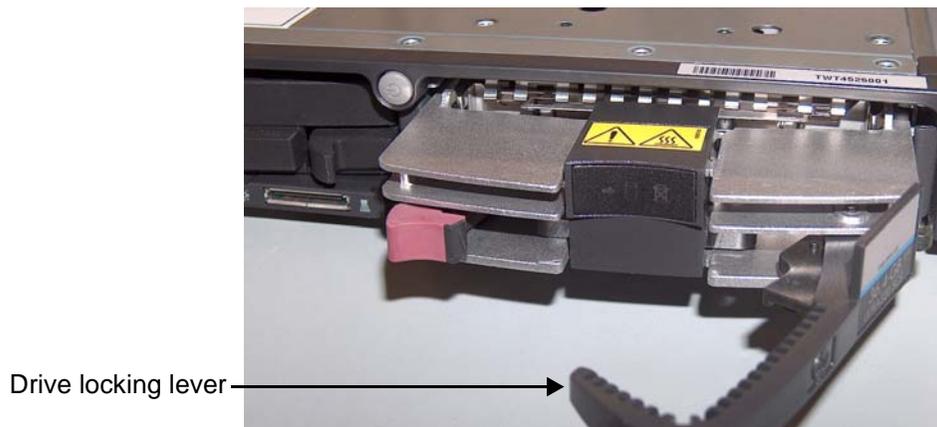
**CAUTION** Always populate hard drive bays with either a hot-plug SCSI hard drive or a hard drive blank. Operating the server blade without a hot-plug SCSI hard drive or hard drive blank results in improper airflow and improper cooling that can lead to thermal damage to the server blade.

---

Install a hot-plug SCSI hard drive by performing the following steps:

- Step 1.** Slide the drive into the cage until it is fully seated. See Figure 3-2.
- Step 2.** Close the lever to lock the drive into place.

**Figure 3-2 Installing a Hot-Plug SCSI Hard Drive**



---

## Adding Internal Components

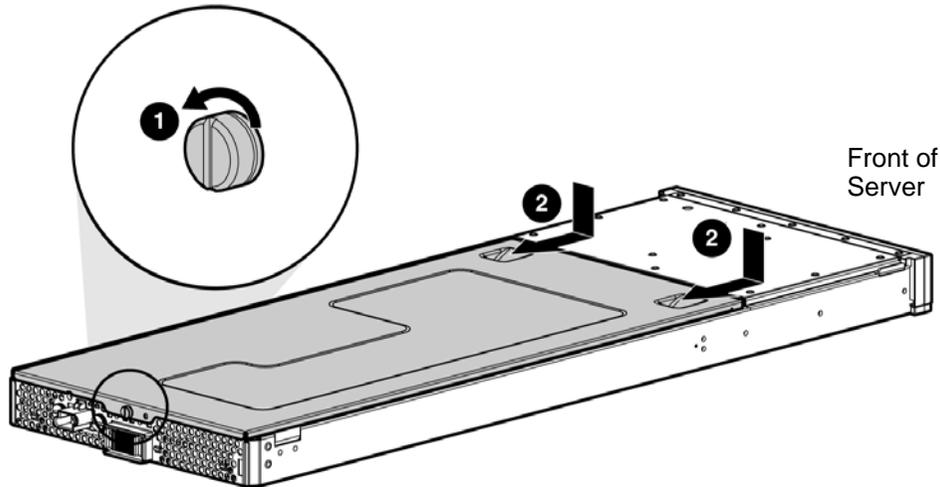
Use these procedures to install any internal components that were not installed into your server blade. Before you can install the internal components, you need to remove the access panel.

### Removing the Access Panel

To remove the access panel, perform the following steps:

- Step 1.** Loosen the thumbscrew (1).
- Step 2.** Press down on the thumb indentations, slide the access panel toward the rear of the unit about 1.25 cm (0.5 in), and lift to remove the panel (2). See Figure 3-3.

**Figure 3-3** Removing the Server Blade Access Panel



Once the access panel is off, you can do the following:

- Add an additional processor  
If you are adding a processor to your server blade, go to “Adding a Processor” on page 36.
- Add additional memory DIMMs  
If you are adding memory DIMMs to your server blade, go to “Adding Memory DIMMs” on page 43.

### Adding a Processor

Use this procedure to install an additional processor into the server blade. Handle the processor and power pod assembly carefully. The processor and power pod assembly used in the server blade is very delicate and can be easily damaged.

If you are not adding a processor to the server blade, but are installing additional memory DIMMs, go to “Adding Memory DIMMs” on page 43.

---

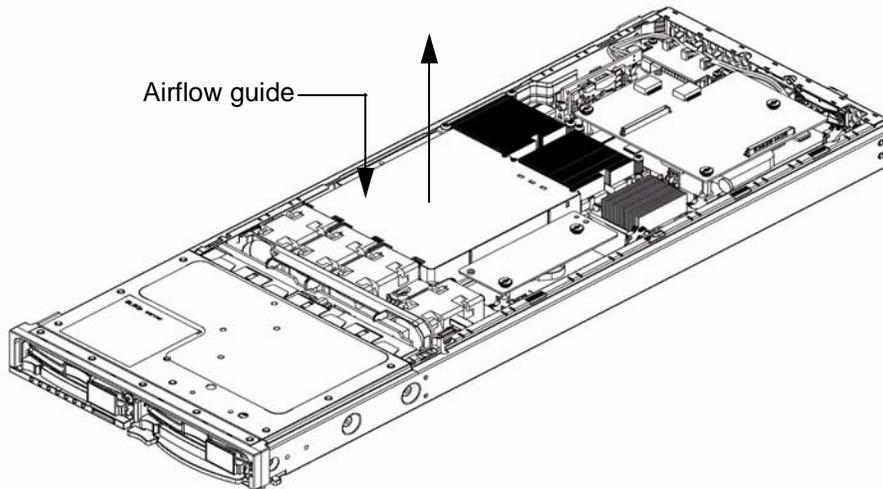
**CAUTION** Use care when handling the processor and power pod assembly when removing or installing. Support the assembly on both sides when picking it up, or the connector may break, and the processor will not work.

---

To install a processor, perform the following steps:

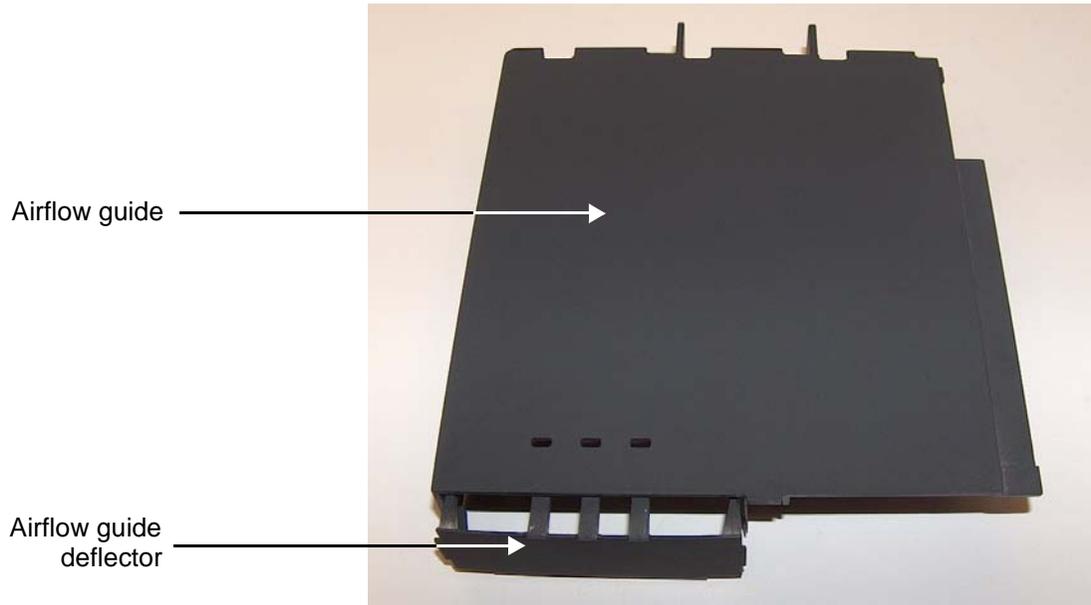
**Step 1.** Remove the airflow guide by pulling it straight up. See Figure 3-4.

**Figure 3-4 Airflow Guide**



**Step 2.** Remove the plastic air deflector (for the empty CPU 1 socket) on the airflow guide by pulling it off of the airflow guide. See Figure 3-5. Save this piece in case you ever revert the server blade back to a one-processor server blade.

**Figure 3-5 Airflow Guide Air Deflector**

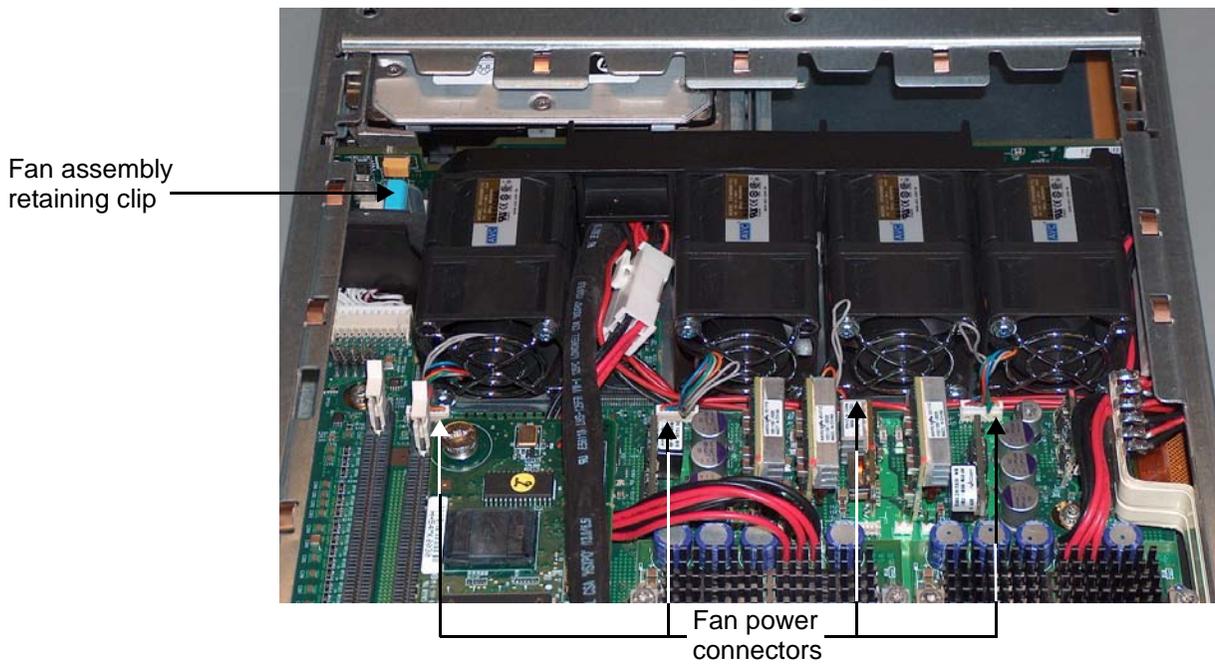


**Step 3.** Remove the fan assembly by doing the following:

- a. Disconnect the fan power connectors from the system board. See Figure 3-6.

**Figure 3-6 Power Connectors on Fan Assembly**

Front of server



- b. Squeeze the plastic retaining clip on the fan assembly, and pull the assembly up and out of the server blade.

- Step 4.** Assemble the processor and power pod by doing the following:
- Carefully remove the processor and power pod from its packaging. Remove the pin cover and any additional protective material from the processor and power pod. The processor and power pod are not assembled for shipment, and must be put together before installation. See Figure 3-7.

**Figure 3-7 Power Pod and Processor Components**



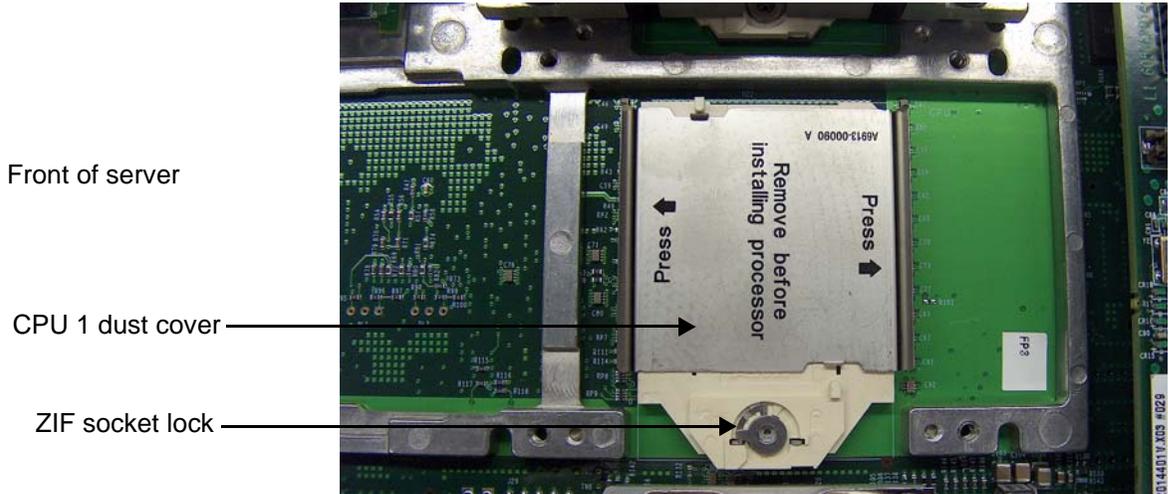
- Assemble the power pod and processor together by sliding the processor board into the power pod connector. See Figure 3-8.

**Figure 3-8 Power Pod and Processor Module**



- Step 5.** Remove the dust cover from the empty CPU 1 slot on the system board. See Figure 3-9.

**Figure 3-9 CPU 1 Slot Dust Cover**



**Step 6.** Make sure the ZIF socket lock for the empty CPU 1 slot on the system board is unlocked by gently trying to turn the 2.5 mm hex screwdriver counter clockwise. If the socket lock does not turn, the socket is open and ready for the processor to be installed.

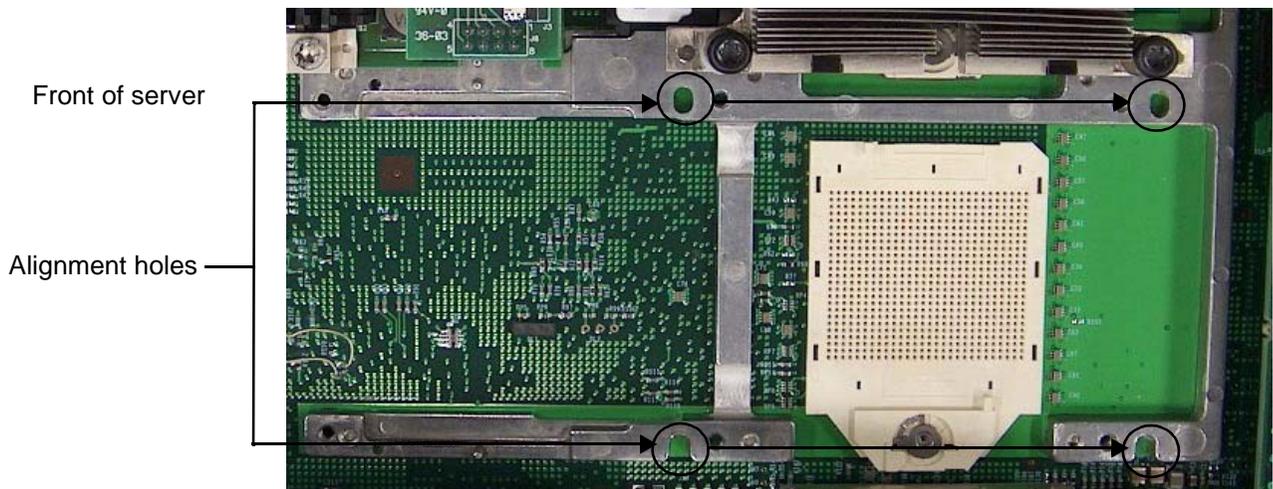
---

**CAUTION** When installing a processor and power pod module into the server blade, make sure to hold the module on both sides. Failure to properly pick up the module will break the module and render it unusable.

---

**Step 7.** Carefully install the assembled processor and power pod module into the empty CPU 1 slot on the server blade system board. Line up the guide pins on the heat sink to the alignment holes in the CPU slot to seat the CPU correctly. See Figure 3-10.

**Figure 3-10 Alignment Holes in the CPU Slot**

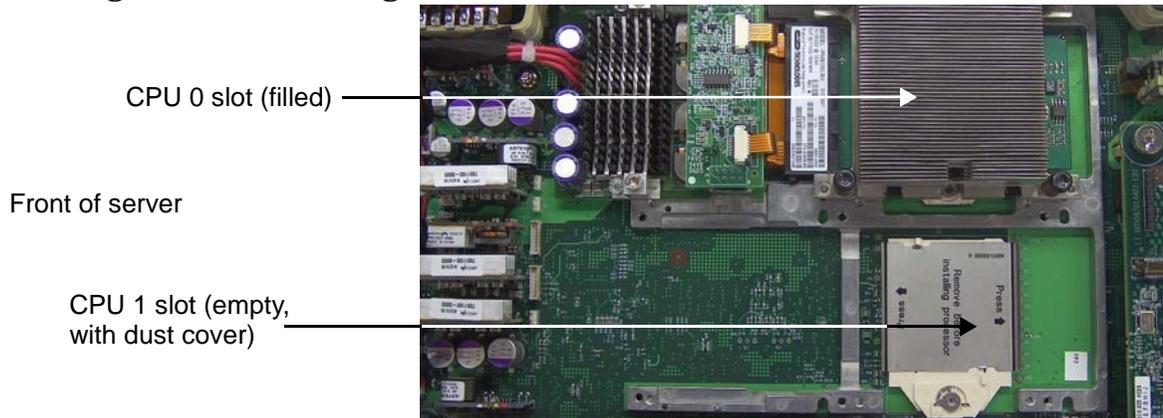


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**NOTE** The CPU load order is CPU 0, then CPU 1. CPU 0 should be filled when the server blade is purchased. See Figure 3-11 for slot locations.

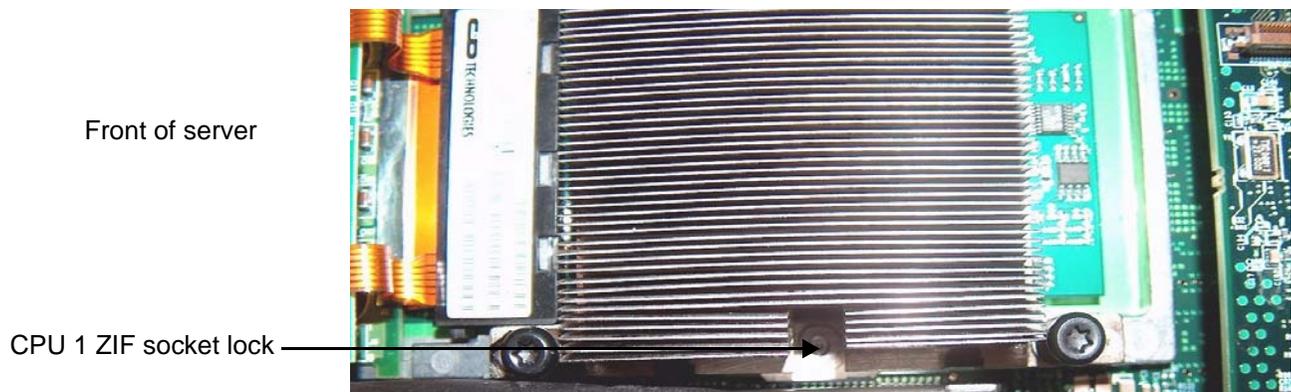
---

**Figure 3-11 Installing Additional Processor**



- Step 8.** Tighten the ZIF socket lock with the 2.5 mm hex end of the (ACX-15) Torx screwdriver by turning the screwdriver clockwise. See Figure 3-12.

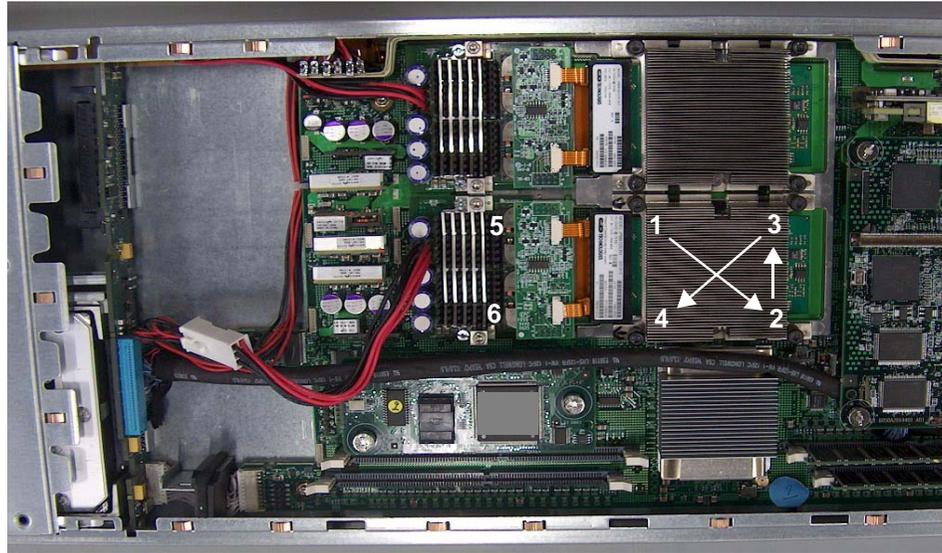
**Figure 3-12 ZIF Socket Lock on the Processor**



- Step 9.** Tighten the captive shoulder screws (1 - 4) on the processor heat sink in the order shown in Figure 3-13 with the (ACX-15) Torx screwdriver.
- Step 10.** Tighten the captive screws (5 - 6) on the power pod with the (ACX-15) Torx screwdriver. See Figure 3-13.

**Figure 3-13 Installing Processor Module on Server Blade Board**

Front of server



**Step 11.** Connect the power cable to the pod power connector on the processor power pod module.

**Step 12.** Install the fan assembly by performing the following steps:

- a. Place the fan assembly into the server blade, and push down on the assembly until the retention tab clicks into place.

---

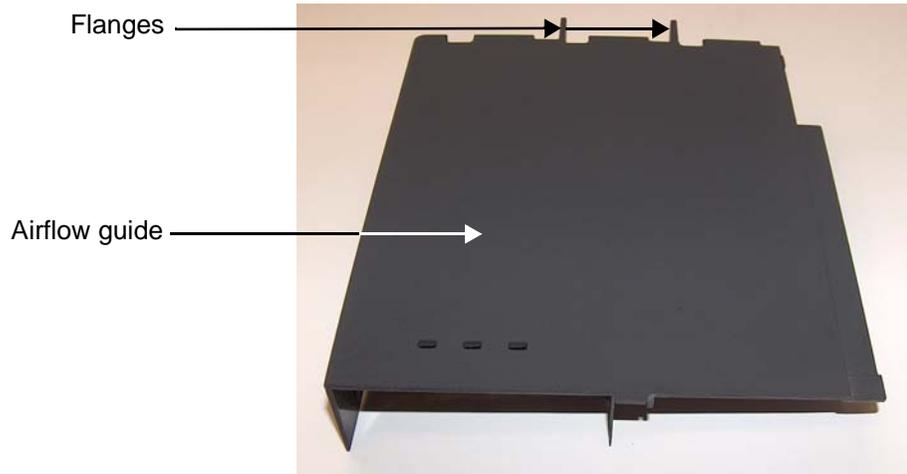
**NOTE** Make sure to route the processor module power wires through the gap on the fan bracket.

---

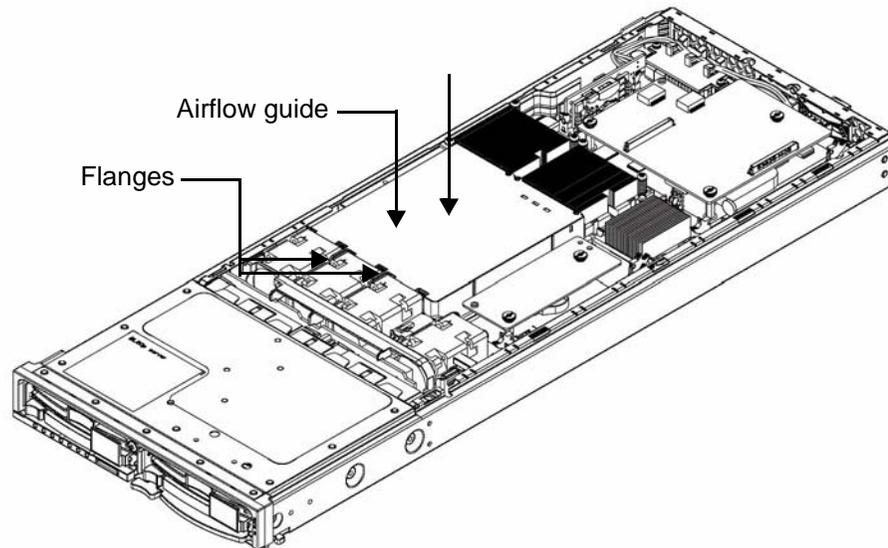
- b. Connect the four fan assembly cables to the system board. See Figure 3-6.

**Step 13.** Install the airflow guide by lowering the airflow guide on top of the processors, with the flanges going between the fans on the fan assembly. Route the wires into the slots on the airflow guide. See Figure 3-14 and Figure 3-15.

**Figure 3-14 Airflow Guide**



**Figure 3-15 Replacing the Airflow Guide**



---

**NOTE** If you are only adding a processor to your server blade, and not adding memory DIMMs, go to “Replacing the Access Panel” on page 45. If you are adding DIMMs, go to “Adding Memory DIMMs” on page 43.

---

### Adding Memory DIMMs

Four DIMM slots are provided on the system board. These DIMM slots are designated in ordered pairs, 0A – 0B; and 1A – 1B (see to Figure 3-16 for DIMM slot locations). DIMM sizes within each pair must match. Loading order for the DIMM slots is sequential with the loading order being 0A – 0B, and 1A – 1B.

The server blade uses a minimum of 1 GB of memory (two 512 MB DIMMs), and a maximum of 8 GB of memory (four 2 GB DIMMs). If you have purchased additional memory, use these procedures to install more memory into your blade server.

---

**NOTE** For proper DIMM configurations, see the *HP Integrity BL60p Server Blade User Service Guide*.

---

The memory subsystem supports chip spare functionality. Chip spare enables an entire SDRAM chip on a DIMM to be bypassed (logically replaced) in the event that a multi-bit error is detected on that SDRAM.

In order to use the chip spare functionality, use only DIMMs built with the same HP part numbers, and these DIMMs must be loaded in quads.

Install additional memory DIMMs into the HP Integrity BL60p server blade by doing the following:

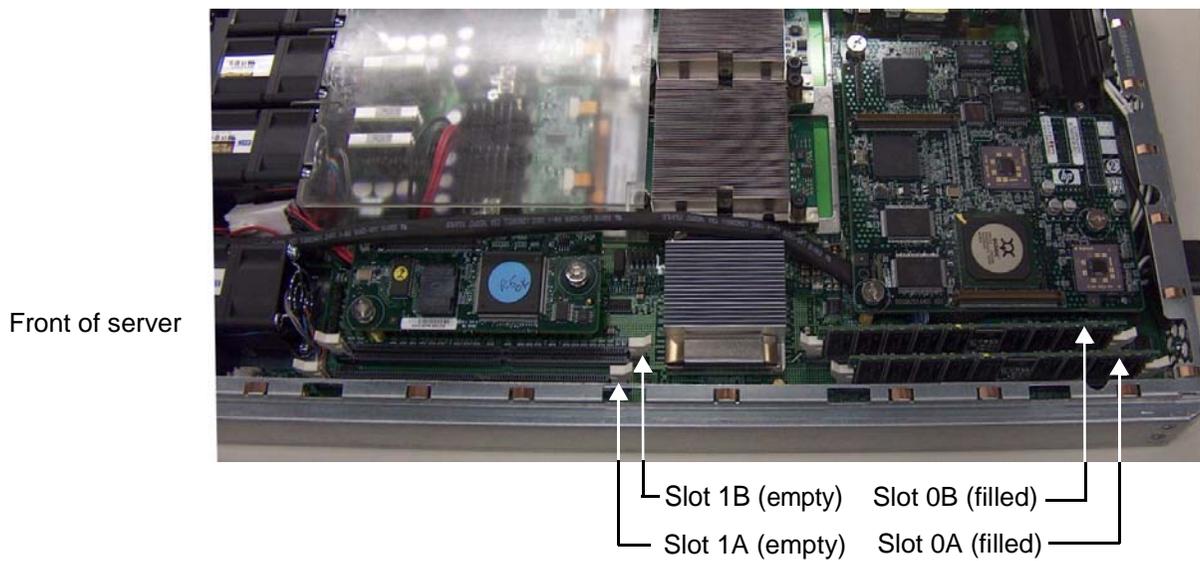
**Step 1.** Locate the DIMM slots on the server blade system board. See Figure 3-16.

---

**NOTE** The server blade ships with at least two DIMMs installed in slots 0A and 0B.

---

**Figure 3-16 DIMM Slot Locations**



---

**NOTE** The airflow guide shown in Figure 3-16 is clear for illustration purposes only. The airflow guide included with your server is black.

---

**Step 2.** Ensure the DIMM slot latches are open.

---

**CAUTION** Use only HP low profile (1.2 in.) DIMMs. DIMMs from other sources may adversely affect data integrity.

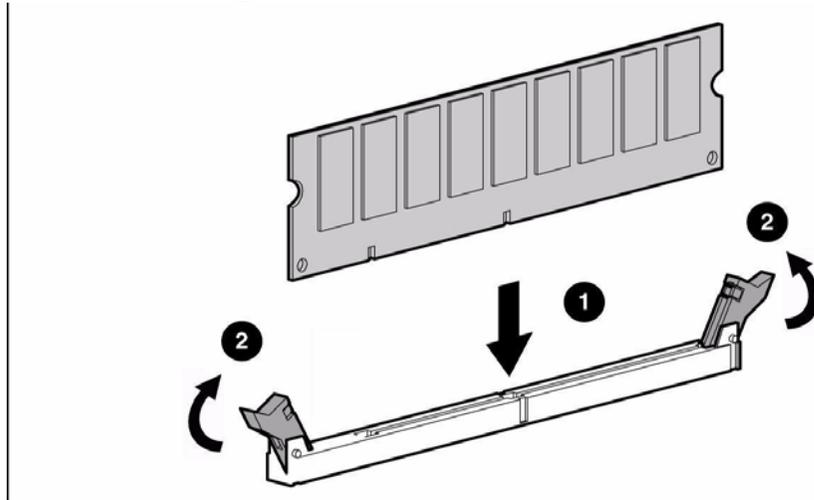
DIMMs do not seat fully if turned the wrong way.

Always install DIMMs in identical pairs.

---

**Step 3.** Insert DIMM in slot and push down firmly until the latches click shut. See Figure 3-17.

**Figure 3-17 Installing a DIMM**

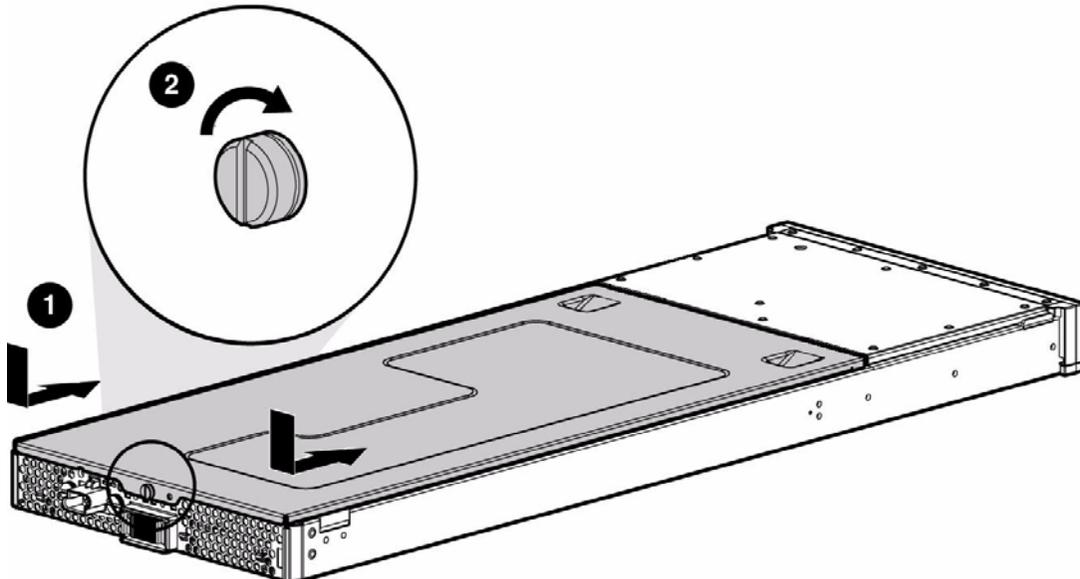


### Replacing the Access Panel

To replace the access panel, perform the following steps:

- Step 1.** Place the access panel on the blade with the panel hanging over the back of the enclosure about 1.25 cm (0.5 in), and slide the access panel toward the front of the server until the thumb indentations click into place (1).
- Step 2.** Tighten the thumbscrew (2). See Figure 3-18.

**Figure 3-18 Replacing the Access Panel**





---

# 4 Installing and Powering On the Server Blade

This chapter details how to install the HP Integrity BL60p server blade into a standard enclosure and power it on. When you install the server blade into the enclosure, the server blade should power on automatically.

This chapter addresses the following topics:

- “Installing the Server Blade into the Enclosure” on page 48
- “Powering On the Server to Full Power” on page 49

---

## Installing the Server Blade into the Enclosure

The following procedure shows how to install the server blade into a standard enclosure.

---

**IMPORTANT** Before installing the server blade into the enclosure, write down the information on the label. Write down the UUID, the Product number, server blade serial number, the MAC address, and the iLO MP MAC address of the server located on the top panel of the server blade. See Figure 4-1. You will need this information later in the install process (“Configuring ARP Ping to Enable iLO MP Access” on page 55), and also for replacement procedures.

---

**NOTE** Server blades are set to power up automatically upon insertion into the enclosure. If you have changed this setting, use the power button to power on the server blade.

---

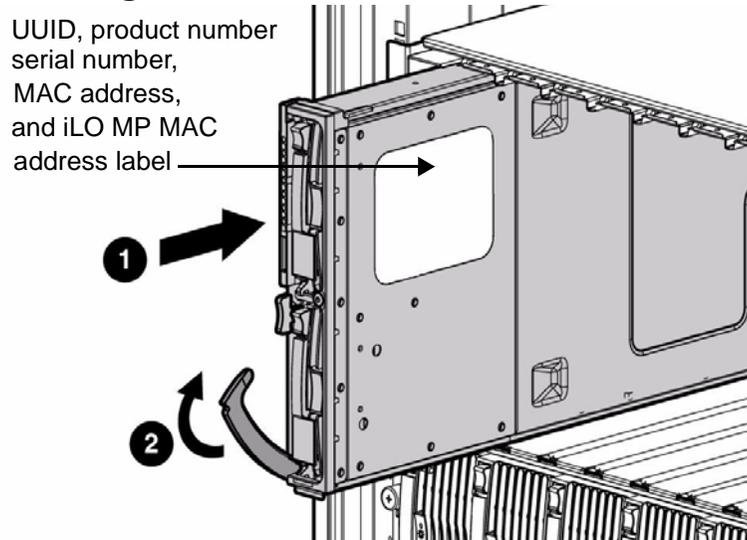
**Step 1.** Ensure the extraction lever is released (open) on the server blade.

**Step 2.** Slide the server blade into the enclosure (1). See Figure 4-1.

**Step 3.** Close the extraction lever (2).

The server blade should come up to full power. The server blade is at full power if the top power LED is green and the system LED is green. If the system LED is amber then the server blade is in standby power mode. Press the power button to power the server blade to full power.

**Figure 4-1 Installing a Server Blade into the Enclosure**



## Powering On the Server to Full Power

By default, server blades are set to power up automatically when installed in a server blade enclosure. However, the server blade may only power on to standby power. Verify the power state by looking at the LEDs on the front panel, and using Table 4-1. If the power LED is amber, the server blade has standby power only. In this state, standby power is available to server circuits, but main power is off. If the power LED is green, the server blade is at full power. For more front panel LED information, see “Troubleshooting LEDs” on page 77.

### Power States

The server has three power states: standby power, full power, and off. You must install the server blade into the enclosure to achieve the standby power state. Depending on your server blade settings, the server blade may go straight to full power when it is installed into the enclosure. If the server blade does not go straight to full power when installed into the enclosure, press the power button to achieve full power. In the off state, the server blade is not installed in the enclosure. Table 4-1 describes the server power states:

**Table 4-1 Power States**

Power States	Server Blade Installed in Enclosure	Front Panel Power Button Activated	Housekeeping Power Applied	DC Power Applied
Standby power	Yes	No	Yes	No
Full power	Yes	Yes	Yes	Yes
Off	No	No	No	No

### Power Button

To power the server blade to full power from standby power, do the following:

**Step 1.** Press the power button on the front panel. See Figure 4-2.

---

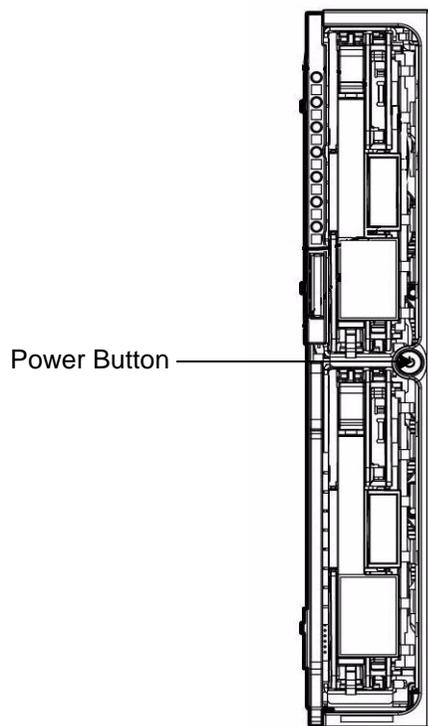
**CAUTION** When there are many servers in an enclosure, make sure you are pressing the correct power button on the server you are powering on, or you may unintentionally power off the wrong server blade.

---

**Step 2.** Observe the server blade runs through its start-up procedures. This may take up to five minutes.

The server blade stops at the EFI Boot Manager menu.

**Figure 4-2 Power Button Location**



---

# 5 Configuring iLO MP Access

On the initial install of the BL60p server blade into the enclosure, you need to access iLO MP. Before you can access iLO MP, you must perform configuration steps to enable iLO MP access. An iLO MP connection is required to allow initial access to EFI and the OS. You use iLO MP to provide advanced troubleshooting, diagnostics, and the initial network configuration of the server blade. There are three ways to configure iLO MP access. Use one of the following procedures listed below to configure your access to iLO MP.

This chapter addresses the following topics:

- “Configuring DHCP to Enable iLO MP Access” on page 52
- “Configuring the RS-232 Port to Enable iLO MP Access” on page 52
- “Configuring ARP Ping to Enable iLO MP Access” on page 55

## Configuring DHCP to Enable iLO MP Access

Use this procedure to use DHCP in order to access iLO MP functionality. The server blade comes from the factory with DHCP enabled. This procedure assumes that you have a DHCP server connected to the same network as your server blade.

**Step 1.** Enter the default host name (or the assigned DHCP IP address) in the telnet login window (or web address field) to connect to the iLO MP.

The default host name is the letters “mp” in front of the 12-character MAC address. The MAC address is located on the MAC address label. Retrieve the MAC and iLO MP MAC addresses you wrote down to get the MAC address (see “Installing the Server Blade into the Enclosure” on page 48).

---

**NOTE** If step 1 does not work, you may not have access to a domain name server (DNS) along with the DHCP server. You need to contact your DHCP Server Administrator to get your assigned DHCP IP address for log in.

---

**Step 2.** Click OK. You should now be at the MP prompt. Proceed to Chapter 6, “Accessing iLO MP,” on page 57.

---

## Configuring the RS-232 Port to Enable iLO MP Access

Use the following procedure to configure the RS-232 port to enable iLO MP access. To do this procedure, you need to have a terminal emulator (for example, a laptop) to connect with.

### Connecting the Local I/O Cable to the Server Blade

Use the following procedure to connect your server blade to a terminal device using your I/O cable port.

---

**NOTE** The mylar port cover states that the BL60p server blade does not support the use of the LAN and VGA connectors on the local I/O cable, as shown in Figure 5-1.

---

**Step 1.** Fold back the mylar port cover from the front of the server blade.

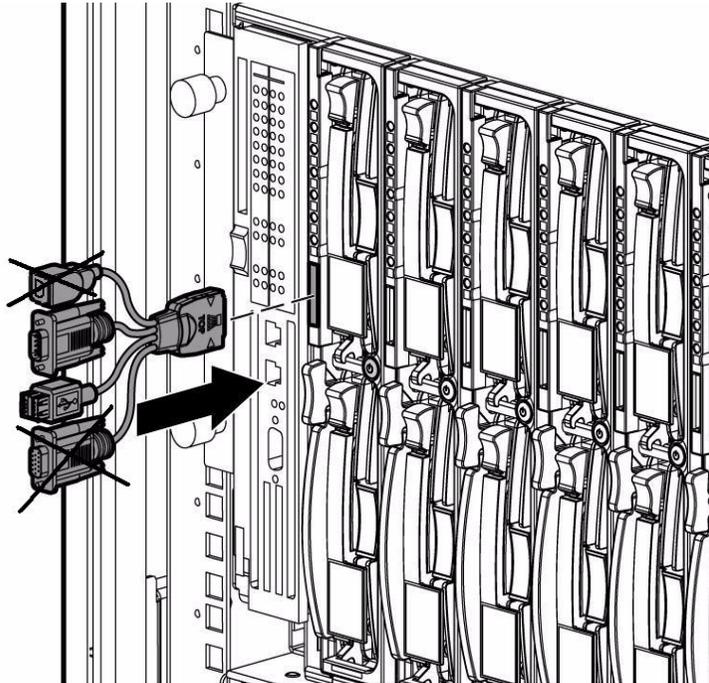
**Step 2.** Insert the local I/O cable into the I/O cable port. See Figure 5-1.

---

**CAUTION** Disconnect the local I/O cable from the port when not in use. The port and connector are not intended to provide a permanent connection.

---

**Figure 5-1**      **Connecting the Local I/O Cable to the Server Blade**



---

**CAUTION**      On the local I/O cable, locking buttons are located on the sides of the server blade connector. Always be sure to squeeze the locking buttons on the local I/O cable connector before disconnecting the cable from the I/O port. Failure to do so can result in damage to the port.

---

### **Connecting a Terminal to the Server Blade**

Use the following procedure to establish a connection from your server to your terminal (or emulator device).

---

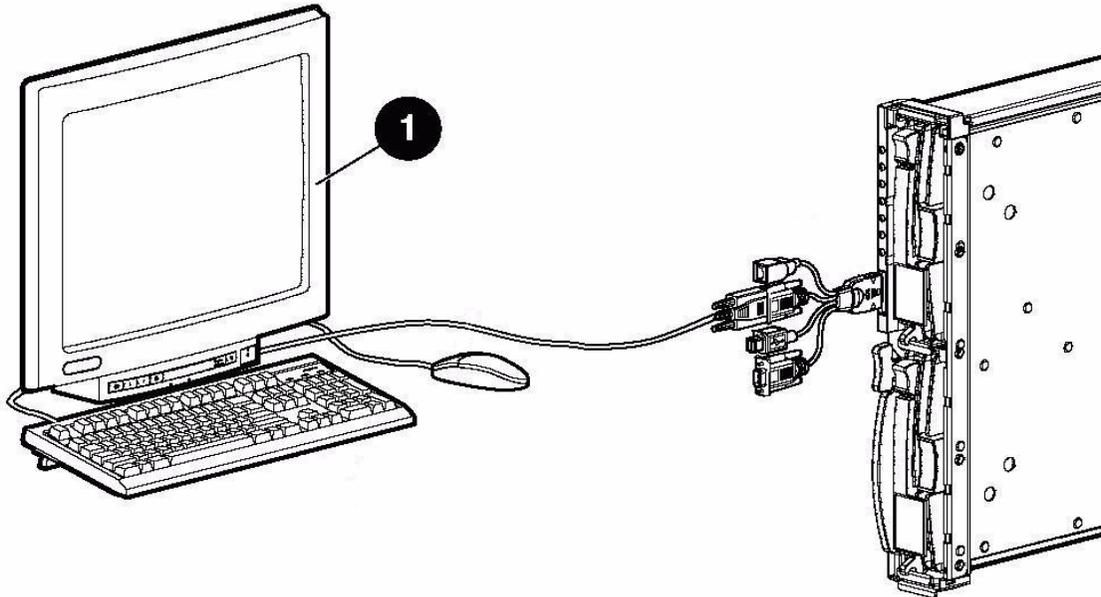
**CAUTION**      Disconnect the local I/O cable from the port when not in use. The port and connector are not intended to provide a permanent connection.

---

**Step 1.** Connect the standard DB9 RS-232 cable to the RS232 port on the I/O cable. See Figure 5-2

**Step 2.** Connect the other end of the RS232 cable to your terminal device (1).

**Figure 5-2 Connecting a Terminal to the Server Blade**



---

**NOTE** For more information about iLO MP functions, see the *HP Integrity BL60p Server Blade User Service Guide*.

---

**Step 3.** Verify the parameters for RS-232 serial port communication are set to the following values on your terminal or emulator device:

- VT 100 protocol
- 8/none (parity)
- 9600 baud
- None (receive)
- None (transmit)

**Step 4.** Click OK to set the parameters.

**Step 5.** If running an emulator, launch it now. You should be at the MP prompt. Proceed to Chapter 6, “Accessing iLO MP,” on page 57.

---

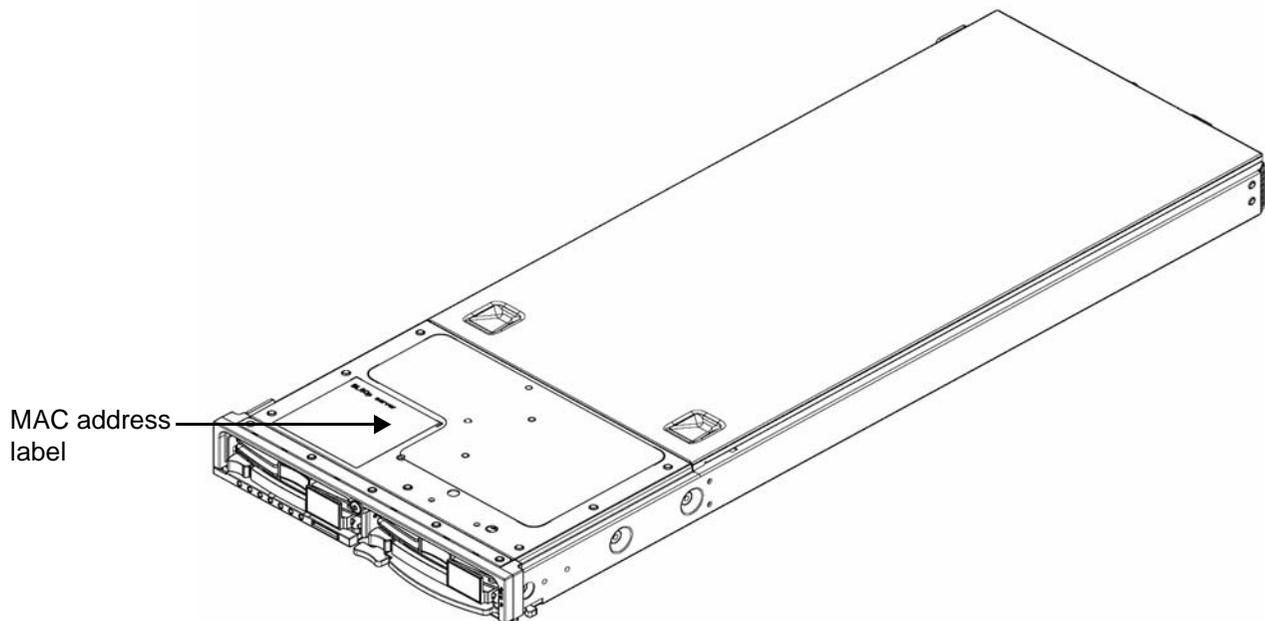
## Configuring ARP Ping to Enable iLO MP Access

This procedure details how to configure ARP ping to enable iLO MP access. Use the ARP ping method to configure an IP address. You can configure the IP address using the ARP ping method remotely.

To configure the iLO MP LAN static IP address using the ARP ping method, perform the following steps:

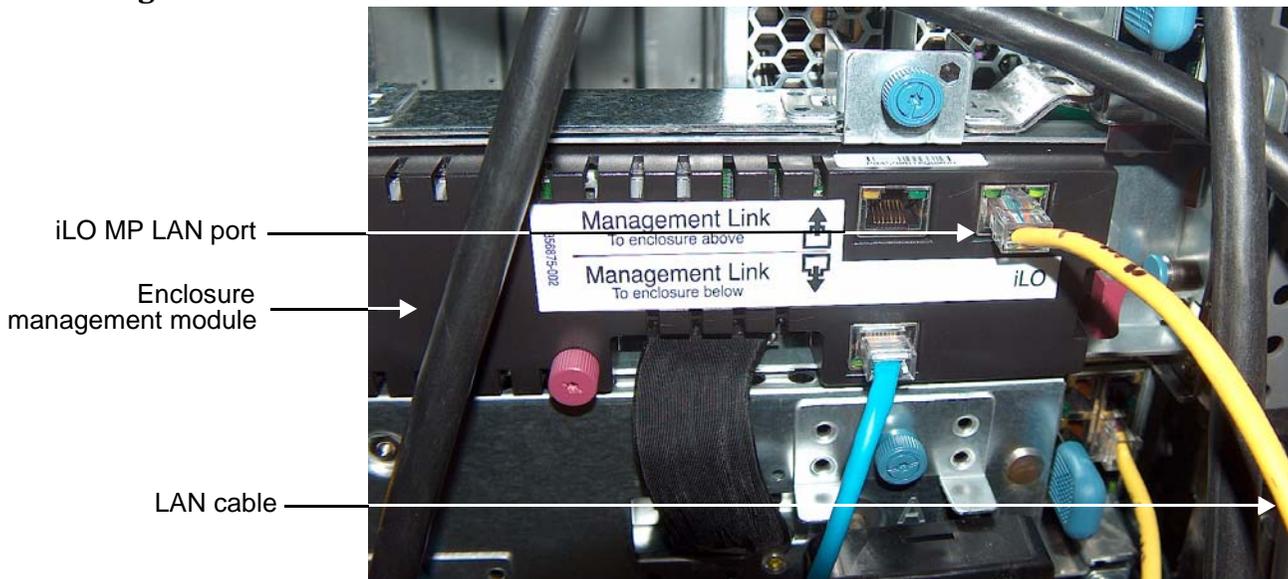
- Step 1.** Obtain the Media Access Control (MAC) address of the iLO MP LAN interface from the label located on the top of the server. See Figure 5-3. You should already have MAC address written down from an earlier step in the install process (see “Installing the Server Blade into the Enclosure” on page 48).

**Figure 5-3 MAC Address Location**



- Step 2.** Connect a LAN cable on your local subnet to the core iLO MP LAN port on the rear of the server blade enclosure (if not already connected). See Figure 5-4.

**Figure 5-4 iLO MP LAN Port**



- Step 3.** Locate a UNIX or PC node on the same LAN segment.
- Step 4.** Add a route to MP using the `route add` command.
- Step 5.** Add an Address Resolution Protocol (ARP) table entry for IP address of MP using the `arp` command to another host located on your local subnet. This ARP table entry maps the MAC address of the core iLO MP 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. Consult your operating system documentation for more information.

---

- Step 6.** 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 MP. The MP LAN port should now be configured with the appropriate IP address.

Example:

```
C:\>route add 15.255.144.1 15.255.148.76
C:\>arp -s 15.255.144.1 00-00-0c-07-ac-00
C:\>ping 15.255.144.1
```

- Step 7.** Use Web or Telnet access to connect to the MP from a host on the local subnet and complete the rest of the LAN parameter (gateway, subnet) and user setup. You should now be at the MP prompt. Proceed to Chapter 6, “Accessing iLO MP,” on page 57.

---

## 6 Accessing iLO MP

Use this procedure to continue with the server configuration process after establishing a connection to iLO MP using one of the three methods discussed in Chapter 5, “Configuring iLO MP Access.” This chapter also includes important security considerations when configuring your server blade for remote access.

This chapter addresses the following topics:

- “Accessing iLO MP After Establishing a Connection to the Server Blade” on page 58
- “Remote Access Security Requirements” on page 58

## Accessing iLO MP After Establishing a Connection to the Server Blade

You should be at the MP prompt.

**Step 1.** Log in to MP by using the following default values for the login ID and password (case sensitive):

Login: **Admin**

Password: **Admin**

You are now at the MP Main Menu screen.

---

## Remote Access Security Requirements

Depending on how you are setting up your server blade, there are security concerns regarding whether you allow remote access to the server blade.

---

**NOTE** It is highly recommended that you allow remote access to the server blade. Remote access allows for system event log analysis, troubleshooting, and general system administration.

---

During the login process, a warning message displays (if logging on through a terminal, an ASCII message scrolls by; if logging on through the web, a pop-up window displays, requiring a response. Click OK). The warning message is as follows:

---

**WARNING iLO ACCESS IS NOT SECURE**

**Default iLO users are currently configured and remote access is enabled.  
Modify default users passwords or delete users (see the user Administration page)  
or  
Disable all types of remote access (see the Access Settings page)**

---

Regardless of how you plan to access iLO MP in the future, it is highly recommended that you change the default MP password.

If you are allowing remote access, proceed with “Allowing Remote Access to the Server Blade” on page 59. If you are not allowing remote access, proceed with “Disabling Remote Access to the Server Blade” on page 59.

## Allowing Remote Access to the Server Blade

If you choose to configure your iLO MP remote access using DHCP or ARP ping, use the following steps to secure remote access to your server blade. To secure remote access you need to change your MP password. Perform the following steps to change your MP password:

**Step 1.** From the MP Main Menu, enter `CM` to get to the Command Menu.

The Command Menu displays.

**Step 2.** From the Command Menu, enter `UC` to get to the User Configuration Menu.

The User Configuration Menu displays.

**Step 3.** From the User Configuration Menu, enter `C` to get to the Change Current User options.

**Step 4.** Change 1-Admin by entering `1`.

A list of options available to change displays.

**Step 5.** Change your password by entering `P`.

Enter your new password in the dialog box.

Your password must be between 8 and 24 characters.

## Disabling Remote Access to the Server Blade

Use the following steps to disable remote access to your server blade.

**Step 1.** From the MP Main Menu, enter the `CM` command to get to the MP Command Menu screen.

**Step 2.** Enter the `LC` command to get to the LAN Configuration Menu screen. The following displays:

At each prompt you may type `DEFAULT` to set default configuration or `Q` to Quit

Default LAN Configuration:

```
- - MAC Address           :0x00110aa50058
D - DHCP status          :Enabled
I - IP Address           :127.0.0.1
M - MP Host Name         :mp00110aa50058
S - Subnet Mask          :255.255.255.0
G - Gateway Address      :127.0.0.1
L - Link Status          :Auto Negotiate
W - Web Console Port Number :2023
- - SSH Access Port Number :- (MP Feature Not Licensed)
- - IPMI / LAN Port Number :623
```

Enter parameter(s) to change. A to modify All. Or (Q) to Quit:

**Step 3.** From the LAN Configuration Menu, enter `D` to get to the DHCP Status screen.

**Step 4.** Follow the onscreen instructions to change the DHCP status from Enabled to Disabled.

**Step 5.** From the LAN Configuration Menu, enter `SA` to get to the System Administration menu.

**Step 6.** Disable Telnet, SSH, and web access by following the on-screen instructions.

**Step 7.** Confirm the changes have been made by entering `LC`, and viewing the configuration screen.

If the above steps were done using a LAN connection, your connection will be lost since you have just disabled remote access to the server blade.

---

**NOTE** If you have disabled remote access, the only way access the server blade is through a direct connection. This is done using the RS-232 port on the local I/O cable (with an emulator device). See “Configuring the RS-232 Port to Enable iLO MP Access” on page 52 on how to directly connect to the server blade.

---

---

# 7 Accessing EFI or OS from iLO MP

Use this procedure to access EFI or the OS from iLO MP. You should be at the MP Main Menu screen, and your security parameters have been set regarding remote access.

This chapter addresses the following topics:

- “Accessing EFI or the OS from iLO MP” on page 62
- “LAN Ports on the Server Blade Enclosure” on page 63

## Accessing EFI or the OS from iLO MP

Use this procedure to access EFI or the OS from iLO MP.

**Step 1.** From the MP Main Menu, enter `CO` to access the Console Menu.

Depending on how the server blade was configured from the factory, and if the OS is installed at the time of purchase, you should be in one of two places at this point in the configuration process:

- EFI Boot Manager Menu; or
- HP-UX login prompt

If you are at the EFI Boot Manager Menu, go to “EFI Boot Manager” on page 62.

If you are at the HP-UX login prompt, go to “HP-UX Login Prompt” on page 63.

### EFI Boot Manager

If you are at the EFI Boot Manager, use the following procedure to continue your server blade set up.

---

**NOTE** There are other EFI settings you may want to configure at this time. See Appendix A, “EFI Configuration Settings,” on page 81 for more high-level information, or the “Utilities” section in the *HP Integrity BL60p Server Blade User Service Guide* for more EFI configuration options.

Once your EFI settings are configured, save your configuration settings in case of server blade failure.

---

### Saving EFI Configuration Settings

Use the NVRAM backup utility to save EFI and other server blade settings. See Appendix B, “NVRAM Configuration Utility,” on page 85.

### Bootting and Installing the Operating System

From the EFI Boot Manager prompt, there are two ways to proceed depending on if the OS is preloaded onto the server blade.

- If your OS is preloaded onto your server blade, go to “OS is Preloaded onto the Server Blade” on page 62.
- If the OS is not installed onto your server blade, see “OS is Not Preloaded onto the Server Blade” on page 63.

### OS is Preloaded onto the Server Blade

If the OS is preloaded on your server blade, Autoboot is the default setting. The server blade boots to the OS.

- Use your standard OS logon procedures, or see your OS documentation to log on to your OS.

## OS is Not Preloaded onto the Server Blade

There are two options on how to load the OS if it is not preloaded onto your server blade. Option one is to load the OS from a DVD/CD. See “Installing the OS onto the Server Blade” in Chapter 8 to do this. Option two is to load the OS using HP-UX Ignite. see “Loading the OS Using HP-UX Ignite” on page 63.

### Loading the OS Using HP-UX Ignite

To install the OS using HP-UX Ignite, see: <http://docs.hp.com/en/IUX/>.

---

**NOTE** See “LAN Ports on the Server Blade Enclosure” on page 63 for EFI or HP-UX LAN configuration information.

---

### HP-UX Login Prompt

If your server blade is at the HP-UX login prompt after you have established a connection to the server blade, use your standard OS log in procedures, or see your OS documentation for next steps.

---

## LAN Ports on the Server Blade Enclosure

This section shows the location of the RJ-45 LAN ports on the back of the server blade enclosure, and how they correspond with the Network Interface Controller (NIC) LEDs on the front of the server blade.

### LAN / NIC Configuration

Table 7-1 shows how the EFI and HP-UX LAN ports and front panel NIC numbers match up on the server blade enclosure.

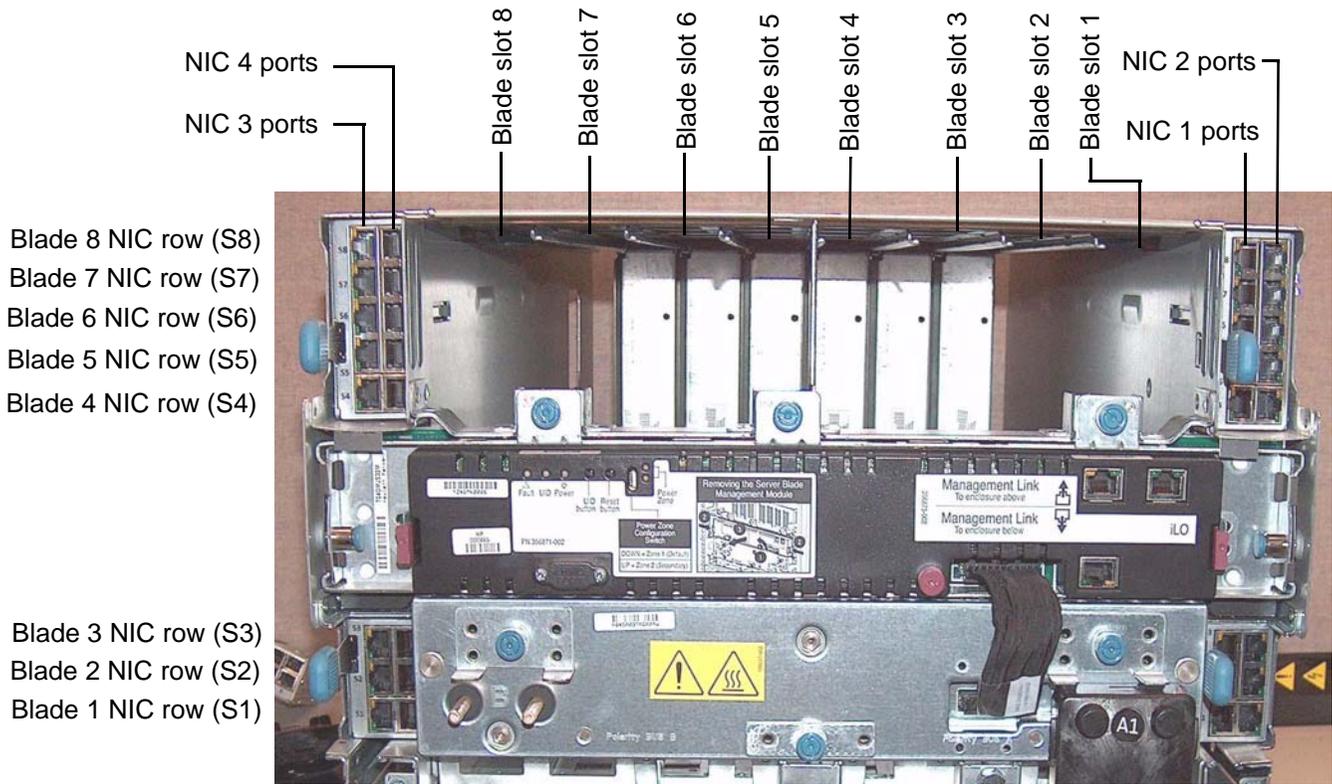
**Table 7-1 LAN / NIC Server Blade Enclosure Configuration**

Front Panel NIC #	EFI LAN #	HP-UX LAN#
NIC 1	A1	LAN0
NIC 2	A2	LAN1
NIC 3	B1	LAN2
NIC 4	B2	LAN3

### Port Locations on the Rear of the Server Blade Enclosure

The sever blade enclosure has eight rows of RJ-45 LAN ports. The rows correspond with the eight blade slots of the enclosure. Each row has four ports (two on each side of the enclosure). The rows correspond with the four NIC ports per server. See Figure 7-1 for the port locations.

**Figure 7-1 Port Locations on the Rear of the Server Blade Enclosure**



---

# 8 Installing and Booting the Operating System

If you purchased your server blade without an OS installed, you need to install it onto your BL60p server blade. There are two ways to install your OS; using a USB DVD/CD, or using HP-UX Ignite. Use this procedure to install the OS to your server blade using an external USB DVD/CD drive, or HP-UX Ignite. This chapter also includes procedures on how to boot and shut down your OS once it is installed.

This chapter addresses the following topics:

- “Installing the OS onto the Server Blade” on page 66
- “Operating System Boot and Shutdown” on page 68

---

## Installing the OS onto the Server Blade

These are generalized operating system (OS) installation procedures. For more specific details regarding OS installation, see your OS documentation, or see “Operating System Boot and Shutdown” on page 68.

There are two ways to install the OS onto your server blade:

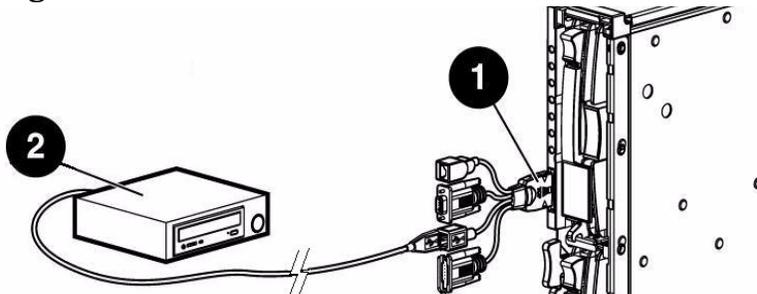
- Using an external USB DVD/CD
- Using HP-UX Ignite

### Connecting an External USB DVD/CD Device to the Server Blade

Before you can install the OS from a DVD/CD disk, you must connect an external USB DVD/CD device. To install the OS onto the server blade from a USB DVD/CD, do the following:

**Step 1.** Connect the Integrity local I/O cable to the front of the server blade (1).

**Figure 8-1 Connecting a USB DVD/CD Drive to the Server Blade**



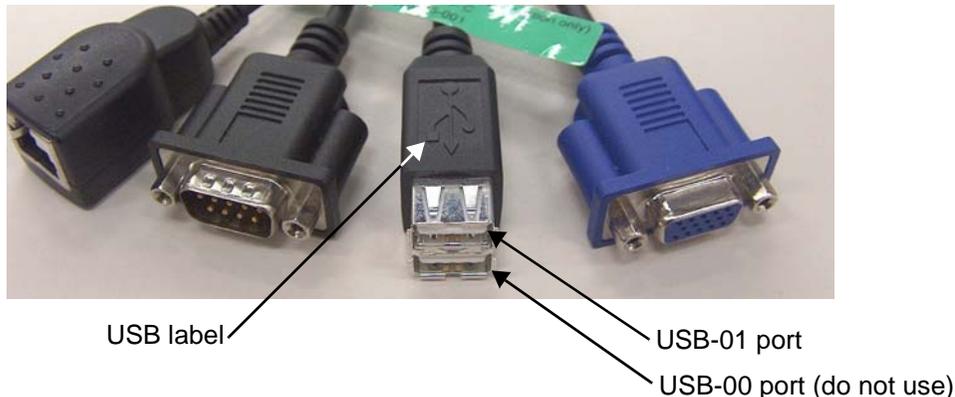
**Step 2.** Connect the USB DVD/CD USB cable to the USB-01 port on the local I/O cable (2). See Figure 8-2 for the correct port on the local I/O cable.

---

**IMPORTANT** Make sure to use the USB-01 port on the local I/O cable when connecting an external USB DVD/CD device for an OS install. If you use the lower connector (USB-00), the OS will not load properly. See Figure 8-2 for the correct port.

---

**Figure 8-2 USB Ports on the Local I/O Cable**



**Step 3.** Turn on the external USB DVD/CD device.

## Installing the OS from the External USB DVD/CD Device

Perform the following steps to install the OS from an external USB DVD/CD device.

- Step 1.** Insert the CD with the OS into the external USB DVD/CD drive.
- Step 2.** Use the EFI Boot Manager menu and boot to the drive that contains the CD with the OS.
- Step 3.** From the boot menu, select `EFI Shell (Built In)`.
- Step 4.** At the EFI shell prompt, specify the device name (for example, `fs1:`) for the DVD/CD and enter the EFI install command, as in the following example.

If the device is not automatically selected, select the device name for the DVD/CD and execute `install`. For example, from the EFI shell prompt you see something similar to this:

```
Shell> fs1:
fs1:\> install
```

If you do not see the USB DVD/CD drive, use the `EFI Map` command to list all the device names from the EFI shell prompt. The list of devices displays automatically, and the install process selects the device for you. The `Map` command displays the following (this may not match completely):

Seg #	Bus #	Dev #	Fnc #	Vendor ID	Device ID	Slot #	Path
00	00	02	01	0x103C	0x1048	XX	Acpi(HWP0002,0)/Pci(2 1)# MP - rope 0
00	00	01	00	0x1033	0x0035	XX	Acpi(HWP0002,0)/Pci(1 0)# USB - rope 0
<b>00</b>	<b>00</b>	<b>01</b>	<b>01</b>	<b>0x1033</b>	<b>0x0035</b>	<b>XX</b>	<b>Acpi(HWP0002,0)/Pci(1 1)# USB - rope 0</b>
00	00	01	02	0x1033	0x00E0	XX	Acpi(HWP0002,0)/Pci(1 2)# USB - rope 0
00	00	02	00	0x103C	0x1290	XX	Acpi(HWP0002,0)/Pci(2 0)# MP - rope 0
00	20	01	00	0x1000	0x0030	XX	Acpi(HWP0002,100)/Pci(1  ) # SCSI- rope 1
00	40	01	00	0x1077	0x2312	XX	Acpi(HWP0002,200)/Pci(1 0) # FC - rope 2
00	40	01	01	0x1077	0x2312	XX	Acpi(HWP0002,200)/Pci(1 1) # FC - rope 2
00	80	01	00	0x14E4	0x1648	XX	Acpi(HWP0002,400)/Pci(1 0) # LAN - rope 4
00	80	01	01	0x14E4	0x1648	XX	Acpi(HWP0002,400)/Pci(1 1) # LAN - rope 4
00	80	03	00	0x14E4	0x1648	XX	Acpi(HWP0002,400)/Pci(3 0) # LAN - rope 4
00	80	03	01	0x14E4	0x1648	XX	Acpi(HWP0002,400)/Pci(3 1) # LAN - rope 4

The USB DVD/C device is the one shown in bold above.

## Installing the OS Using HP-UX Ignite

To install the OS onto the server blade using HP-UX Ignite, see the following documentation:

<http://docs.hp.com/en/IUX/>.

---

**NOTE** Once the OS is loaded, make sure to save your non-volatile memory settings to preserve boot entries in case of blade failure.

---

## Operating System Boot and Shutdown

This section covers procedures for booting and shutting down the operating system on the server blade. The operating system that runs on the server blade is HP-UX 11i Version 2 (B.11.23).

The following sections are included in this chapter:

- “Operating Systems Supported on the Server Blade”
- “Bootting and Shutting Down HP-UX”

### Operating Systems Supported on the Server Blade

HP supports the following operating systems on the server blade.

- **HP-UX 11i Version 2 (B.11.23)**

For details see “Bootting and Shutting Down HP-UX” on page 68.

### Bootting and Shutting Down HP-UX

This section covers bootting and shutting down HP-UX on entry-class HP Integrity servers.

- To add an HP-UX entry to the boot options list, see “Adding HP-UX to the Boot Options List” on page 83.
- To boot HP-UX, use the following procedures:
  - “Standard HP-UX Bootting” on page 68 describes the standard ways to boot HP-UX. Typically this results in bootting HP-UX in multi-user mode.
  - “Single-User Mode HP-UX Bootting” on page 70 describes how to boot HP-UX in single-user mode.
  - “Bootting HP-UX in LVM-Maintenance Mode” on page 71 describes how to boot HP-UX in LVM-maintenance mode.
- To shut down the HP-UX operating system, see “Shutting Down HP-UX” on page 72.

#### Standard HP-UX Bootting

Use either of the following procedures to boot HP-UX:

- “Bootting HP-UX (EFI Boot Manager)” on page 68
- “Bootting HP-UX (EFI Shell)” on page 69

##### Bootting HP-UX (EFI Boot Manager)

From the EFI Boot Manager menu, choose an item from the boot options list to boot HP-UX.

**Step 1.** Access the EFI Boot Manager menu for the system on which you want to boot HP-UX.

Log in to the MP and enter `CO` to choose the system console.

When accessing the console, confirm that you are at the EFI Boot Manager menu (the main EFI menu). If you are at another EFI menu, choose the **Exit** option from the submenus until you return to the screen with the EFI Boot Manager heading.

**Step 2.** At the EFI Boot Manager menu, choose an item from the boot options list.

Each item in the boot options list references a specific boot device and provides a specific set of boot options or arguments you use when booting the device.

**Step 3.** Press **Enter** to initiate booting using the chosen boot option.

**Step 4.** Exit the console and MP interfaces when finished using them.

Press **^B (Control-B)** to exit the system console and return to the MP Main Menu. To exit the MP, type **x** at the Main Menu.

### Booting HP-UX (EFI Shell)

From the EFI Shell environment, boot HP-UX on a device by first accessing the EFI System Partition (for example `fs0:`) for the root device, then entering **HPUX** to initiate the loader.

**Step 1.** Access the EFI Shell environment for the system on which you want to boot HP-UX.

Log in to the MP and enter `CO` to choose the system console.

When accessing the console, confirm that you are at the EFI Boot Manager menu (the main EFI menu). If you are at another EFI menu, choose the **Exit** option from the submenus until you return to the screen with the EFI Boot Manager heading.

From the EFI Boot Manager menu, choose the **EFI Shell** menu option to access the EFI Shell environment.

**Step 2.** At the EFI Shell environment, issue the **map** command to list all currently mapped bootable devices.

The bootable file systems of interest typically are listed as `fs0:`, `fs1:`, and so on.

**Step 3.** Access the EFI System Partition (`fsX:` where *X* is the file system number) for the device from which you want to boot HP-UX.

For example, enter `fs2:` to access the EFI System Partition for the bootable file system number 2. The EFI Shell prompt changes to reflect the file system currently accessed.

The file system number might change each time it is mapped (for example, when the system boots, or when the `map -r` command is issued).

**Step 4.** When accessing the EFI System Partition for the desired boot device, issue the **HPUX** command to initiate the HP-UX EFI loader on the device you are accessing.

The full path for the loader is `\EFI\HPUX\HPUX.EFI`. When initiated, the loader references the `\EFI\HPUX\AUTO` file and proceeds to boot HP-UX using the default boot behavior specified in the `AUTO` file.

You have 10 seconds to interrupt the automatic booting of the default boot behavior. Pressing any key during this 10-second period stops the HP-UX boot process and enables you to interact with the HP-UX EFI loader. To exit the loader (the `HPUX>` prompt) enter `exit` (this returns you to the EFI Shell).

To boot the HP-UX operating system, do not type anything during the 10-second period given for stopping at the HP-UX .EFI loader.

```
Shell> map
Device mapping table
  fs0  : Acpi(000222F0,269)/Pci(0|0)/Scsi(Pun8,Lun0)/HD(Part1,Sig72550000)
  blk0 : Acpi(000222F0,269)/Pci(0|0)/Scsi(Pun8,Lun0)/HD(Part1,Sig72550000)
  blk1 : Acpi(000222F0,269)/Pci(0|0)/Scsi(Pun8,Lun0)/HD(Part1,Sig72550000)
  blk2 : Acpi(000222F0,269)/Pci(0|0)/Scsi(Pun8,Lun0)/HD(Part2,Sig72550000)
  blk3 : Acpi(000222F0,2A8)/Pci(0|0)/Scsi(Pun8,Lun0)
  blk4 : Acpi(000222F0,2A8)/Pci(0|1)/Scsi(Pun2,Lun0)

Shell> fs0:

fs0:\> hpux

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HP-UX Boot Loader for IA64 Revision 1.723

Press Any Key to interrupt Autoboot
\efi\hpux\AUTO ==> boot vmunix
Seconds left till autoboot - 9
```

**Step 5.** Exit the console and MP interfaces when finished using them.

Press **^B (Control-B)** to exit the system console and return to the MP Main Menu. To exit the MP, type **x** at the Main Menu.

### Single-User Mode HP-UX Booting

Use the following procedure to boot HP-UX in single-user mode.

#### Booting HP-UX in Single-User Mode (EFI Shell)

From the EFI Shell environment, boot in single-user mode by stopping the boot process at the HP-UX .EFI interface (the HP-UX Boot Loader prompt, HP-UX>) and entering the `boot -is vmunix` command.

**Step 1.** Access the EFI Shell environment for the system on which you want to boot HP-UX in single-user mode.

Log in to the MP and enter `CO` to choose the system console.

When accessing the console, confirm that you are at the EFI Boot Manager menu (the main EFI menu). If you are at another EFI menu, choose the **Exit** option from the submenus until you return to the screen with the EFI Boot Manager heading.

From the EFI Boot Manager menu, choose the **EFI Shell** menu option to access the EFI Shell environment.

**Step 2.** Access the EFI System Partition (`fsX:` where *X* is the file system number) for the device from which you want to boot HP-UX.

**Step 3.** When accessing the EFI System Partition for the desired boot device, issue the **HP-UX** command to initiate the `\EFI\HP-UX\HP-UX .EFI` loader on the device you are accessing.

**Step 4.** Boot to the HP-UX Boot Loader prompt (HP-UX>) by pressing any key within the 10 seconds given for interrupting the HP-UX boot process. Use the HP-UX .EFI loader to boot HP-UX in single-user mode in the next step.

After you press a key, the HPUX.EFI interface (the HP-UX Boot Loader prompt, HPUX>) launches. For help using the HPUX.EFI loader, enter the `help` command. To return to the EFI Shell, enter `exit`.

```
fs0:\> hpux

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All rights reserved

HP-UX Boot Loader for IA64  Revision 1.723

Press Any Key to interrupt Autoboot
\efi\hpux\AUTO ==> boot vmunix
Seconds left till autoboot - 9
```

**[User Types A Key to Stop the HP-UX Boot Process and Access the HPUX.EFI Loader ]**

Type 'help' for help

HPUX>

- Step 5.** At the HPUX.EFI interface (the HP-UX Boot Loader prompt, HPUX>) enter the `boot -is vmunix` command to boot HP-UX (the `/stand/vmunix` kernel) in single-user (`-is`) mode.

```
HPUX> boot -is vmunix
> System Memory = 4063 MB
loading section 0
..... (complete)
loading section 1
..... (complete)
loading symbol table
loading System Directory(boot.sys) to MFS
....
loading MFSFILES Directory(bootfs) to MFS
.....
Launching /stand/vmunix
SIZE: Text:25953K + Data:3715K + BSS:3637K = Total:33306K

Console is on a Serial Device
Booting kernel...
```

- Step 6.** Exit the console and MP interfaces when finished using them.

Press **^B (Control-B)** to exit the system console and return to the MP Main Menu. To exit the MP, type `X` at the Main Menu.

### Booting HP-UX in LVM-Maintenance Mode

Use the following procedure to boot HP-UX in LVM-maintenance mode.

#### Booting HP-UX in LVM-Maintenance Mode (EFI Shell)

From the EFI Shell environment, boot in LVM-maintenance mode by stopping the boot process at the HPUX.EFI interface (the HP-UX Boot Loader prompt, HPUX>) and entering the `boot -lm vmunix` command.

- Step 1.** Access the EFI Shell environment for the system on which you want to boot HP-UX in LVM-maintenance mode.

Log in to the MP and enter `CO` to choose the system console.

When accessing the console, confirm that you are at the EFI Boot Manager menu (the main EFI menu). If you are at another EFI menu, choose the **Exit** option from the submenus until you return to the screen with the EFI Boot Manager heading.

From the EFI Boot Manager menu, choose the **EFI Shell** menu option to access the EFI Shell environment.

- Step 2.** Access the EFI System Partition (`fsX:` where *X* is the file system number) for the device from which you want to boot HP-UX.
- Step 3.** When accessing the EFI System Partition for the desired boot device, issue the **HPUX** command to initiate the `\EFI\HPUX\HPUX.EFI` loader on the device you are accessing.
- Step 4.** Type any key within the 10 seconds given for interrupting the HP-UX boot process. This stops the boot process at the `HPUX.EFI` interface (the HP-UX Boot Loader prompt, `HPUX>`).
- Step 5.** At the `HPUX.EFI` interface, enter the **boot -lm vmunix** command to boot HP-UX (the `/stand/vmunix` kernel) in LVM-maintenance (`-lm`) mode.
- Step 6.** Exit the console and MP interfaces when finished using them.

Press **^B (Control-B)** to exit the system console and return to the MP Main Menu. To exit the MP, type `x` at the Main Menu.

### Shutting Down HP-UX

To shut down HP-UX running on a system, use the `shutdown` command. You have the following options when shutting down HP-UX:

- To shut down and reboot an HP-UX system, use the **shutdown -r** command.
- To shut down and halt (power off) an HP-UX system, use the **shutdown -h** command.

For details, see the *Shutdown* (1M) manpage and the following procedure:

#### Shutting Down HP-UX (`/sbin/shutdown` Command)

From the HP-UX command line, issue the **shutdown** command to shut down the HP-UX operating system.

- Step 1.** Log in to HP-UX running on the system that you want to shut down.

You should log in to the MP for the server and use the Console menu to access the system console. Accessing the console through the MP enables you to maintain console access to the system after HP-UX has shut down.

- Step 2.** Issue the **shutdown** command with the appropriate command-line options.

The command-line options you specify dictate the way in which HP-UX shuts down, and whether the system is rebooted.

Use the following list to choose an HP-UX shutdown option for your system:

- To shut down HP-UX and halt (power off) the system, issue the **shutdown -h** command.  
To reboot a halted system you must power on the system using the `PC` command at the MP Command menu.
- To shut down HP-UX and reboot the system, issue the **shutdown -r** command.

---

## 9 Download and Install Latest Firmware

HP makes every effort to provide you with the most current version of firmware. However, there might be instances when this is not the case.

To ensure that you have the latest version of firmware running on your server, you need to download the latest version of firmware from the Web and create a CD to install the firmware on the server. To install the firmware onto your server blade, you must have an external USB DVD/CD drive attached to the server blade. See “Connecting an External USB DVD/CD Device to the Server Blade” on page 66 to install an external DVD/CD drive to your server blade.

This chapter addresses the following topics:

- “Download Latest Version of Firmware” on page 74”
- “Install Latest Version of Firmware on Server” on page 74

## Download Latest Version of Firmware

To download the latest version of firmware from the Web:

- Step 1.** Go to <http://www.hp.com/go/bizsupport>.
- Step 2.** Choose download drivers and software.
- Step 3.** Choose Itanium-based servers from the Server category.
- Step 4.** Choose your product from the servers listed.
- Step 5.** Choose the operating system.
- Step 6.** Choose the firmware category you want to download.
- Step 7.** Download the firmware to a CD.

---

**NOTE** For more information regarding firmware updates, see the *HP Integrity BL60p Server Blade User Service Guide*.

---

## Install Latest Version of Firmware on Server

To install the firmware on the server:

- Step 1.** Connect to the server console (see “Configuring iLO MP Access” on page 51).
- Step 2.** Make sure the external USB DVD/CD drive is connected and turned on (see “Connecting an External USB DVD/CD Device to the Server Blade” on page 66).
- Step 3.** Insert the CD with the copy of the latest version of firmware into the external DVD/CD drive.
- Step 4.** Use the EFI Boot Manager menu and boot to the drive that contains the CD with the updated firmware.
- Step 5.** Follow the instructions to update the firmware.

---

**NOTE** For more information regarding firmware updates, see the *HP Integrity BL60p Server Blade User Service Guide*.

---

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# 10 Troubleshooting

This chapter provides basic server blade troubleshooting information. It is designed to help you diagnose common issues that might occur during server blade installation. For more advanced troubleshooting tools and procedures, see the *HP Integrity BL60p Server Blade User Service Guide*.

This chapter addresses the following topics:

- “Troubleshooting Methodology” on page 76
- “Server Does Not Power On” on page 79
- “EFI Menu Is Not Available” on page 80
- “Operating System Does Not Boot” on page 80
- “Operating System Boots” on page 80
- “Intermittent Server Problems” on page 80

## Troubleshooting Methodology

If you encounter a problem during initial operation, follow these general procedures before using the other tools and procedures described in this chapter:

- Remove any add-in or optional components
- Retest the server: boot to the operating system to verify basic server operation
- Continue to retest the server as you reinstall the add-in or optional components

---

**IMPORTANT** Verify basic server operation before configuring software and hardware for your server.

---

Troubleshooting is based on observation of server status indications and error messages, and by checking system event logs. LED indicators on the front and rear of the server show server status. Error messages display on local and remote consoles. Console logs, event logs, and history logs are provided through the integrated Lights Out Management Processor (iLO MP); you access them through a server console.

Offline troubleshooting programs are available on the Offline Diagnostics Environment (ODE) resource CD that ships with your HP server. To troubleshoot your server blade, you must be familiar with the ODE which runs in the Extensible Firmware Interface (EFI). You can find descriptions and user information about offline troubleshooting tools at <http://docs.hp.com>. The offline tools are also available for download at <http://www.hp.com/go/softwaredepot>.

For more advanced troubleshooting information and methods, see the *HP Integrity BL60p Server Blade User Service Guide*.

## Troubleshooting LEDs

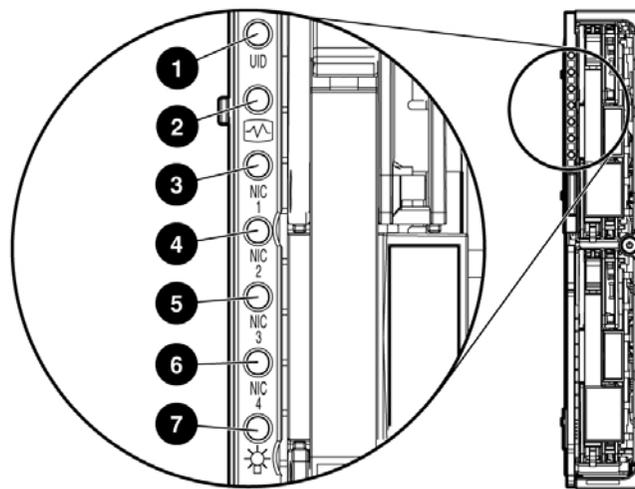
The HP Integrity BL60p server blade has troubleshooting LEDs on the front panel. They are the front panel LEDs, and the hard disk drive LEDs.

### Front Panel LEDs

The server blade contains seven LEDs on the front panel that indicate the server status.

Use Figure 10-1 and Table 10-1 to identify LED locations and functions.

**Figure 10-1 Integrity BL60p Server Blade Front Panel LEDs**



**Table 10-1 Integrity BL60p Server Blade Front Panel LEDs**

Item	LED Description	Status
1	Unit identification (UID)	Blue = Flagged Off = Not flagged
2	Health	Off = Power is off Green = Power is on Flashing amber = System is degraded (power is on or off) Flashing red = System critical (power is on or off)
3	NIC 1	Green = Linked to network Green flashing = Network activity Off = No activity
4	NIC 2	Green = Linked to network Green flashing = Network activity Off = No activity
5	NIC 3	Green = Linked to network Green flashing = Network activity Off = No activity

**Table 10-1 Integrity BL60p Server Blade Front Panel LEDs (Continued)**

Item	LED Description	Status
6	NIC 4	Green = Linked to network Green flashing = Network activity Off = No activity
7	Power	Green = On Amber = Standby power (main power off, iLO MP power on) Off = Unit off (no power coming from enclosure)

**SCSI Hard Disk Drive LEDs**

The two SCSI hard disk drives on the BL60p server blade have identical LEDs that show the status of the hard disk drives. See Figure 10-2 for locations of the hard disk drive LEDs.

**Figure 10-2 SCSI Hard Disk Drive LEDs**

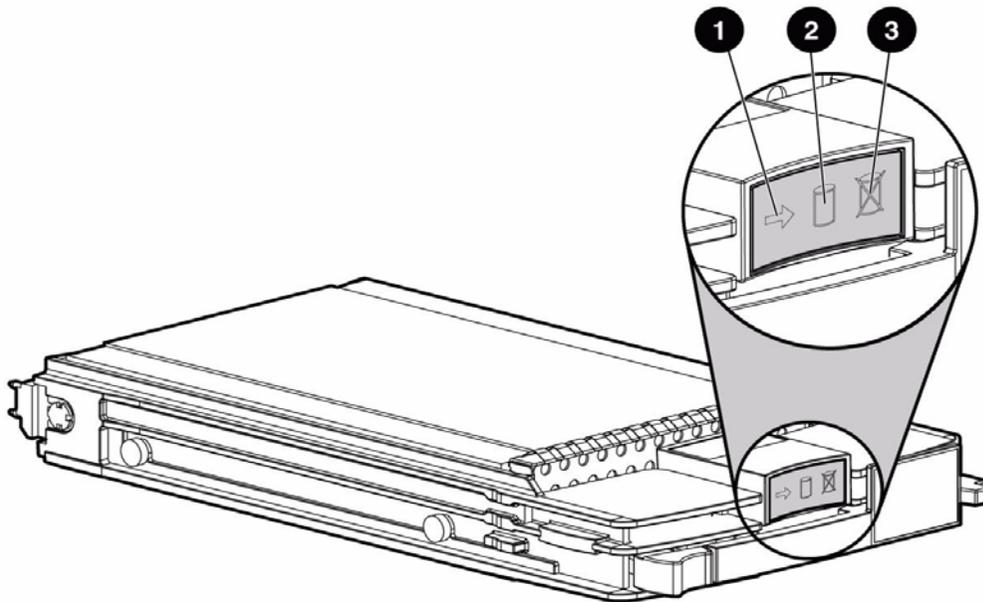


Table 10-2 describes the functions of the hard disk drive LEDs

**Table 10-2 Hot-plug SCSI Hard Drive LEDs**

1 - Activity	2 - Online	3 - Fault	4 - Means
On	Off	Off	Do not remove the drive. Removing a drive during this process causes data loss.  The drive is being accessed and is not configured as part of an array.

**Table 10-2 Hot-plug SCSI Hard Drive LEDs (Continued)**

1 - Activity	2 - Online	3 - Fault	4 - Means
On	Flashing	Off	Do not remove the drive. Removing a drive during this process causes data loss. The drive is rebuilding or undergoing capacity expansion.
Flashing	Flashing	Flashing	Do not remove the drive. Removing a drive during this process causes data loss. The drive is part of an array being selected by the Array Configuration Utility. -or- The Options ROMPaq is upgrading the drive.
Off	Off	Off	OK to replace the drive online if a predictive failure alert is received and the drive is attached to an array controller. The drive is not configured as part of an array. -or- If this drive is part of an array, a powered-on controller is not accessing the drive. -or- The drive is configured as an online spare.
Off	Off	On	OK to replace the drive online. The drive has failed and has been placed offline.
Off	On	Off	OK to replace the drive online if a predictive failure alert is received, provided that the array is configured for fault tolerance and all other drives in the array are online. The drive is online and configured as part of an array.
On or flashing	On	Off	OK to replace the drive online if a predictive failure alert is received, provided that the array is configured for fault tolerance and all other drives in the array are online. The drive is online and being accessed.

---

## Server Does Not Power On

If your server does not power up, check the LED indicators front panel. Perform the following:

- If no LEDs are lit on your server blade, there may not be enough power available from the server blade enclosure.

## EFI Menu Is Not Available

If it is not possible to reach the EFI menu (from either the main disk partition or CD), you must use the following tools to help solve your problem:

- Front panel LEDs
  - iLO MP
    - Console messages
    - System event logs
- 

## Operating System Does Not Boot

If your operating system does not boot, but you are able to reach the EFI (from either the main disk partition or CD), use the following offline tools to help solve your problem:

- Use the EFI shell to check the system logs and analyze any error messages
  - Use ODE, which is included on a special CD that ships with the server.
- 

## Operating System Boots

If your operating system is running and you are experiencing problems, use the following tools to help solve your problem.

- LEDs
  - Error messages and event logs
- 

## Intermittent Server Problems

You can usually trace intermittent problems to a loose connector, to power source problems, or to some other hardware problem. If you are experiencing intermittent problems, proceed as follows:

- Check system logs and analyze the problem. Determine if there is more than one symptom and if the problem is random
  - Reseat rear chassis connectors
  - Reseat fans and power supplies
  - Reseat memory DIMMs
  - Reseat internal connectors (cable harness and board connectors)
-

---

# A EFI Configuration Settings

This appendix details some of the EFI configuration settings that you can configure on your BL60p server blade. For a more comprehensive listing of the available EFI settings, see the *HP Integrity BL60p Server Blade User Service Guide*.

This appendix addresses the following topics:

- “Configuring EFI Boot Options” on page 82
- “Adding HP-UX to the Boot Options List” on page 83

## Configuring EFI Boot Options

This section discusses the system boot options you can configure on entry-class HP Integrity servers, including the boot options list and the autoboot setting for the server.

- **Boot Options List**

The boot options list is a list of loadable items available for you to choose from the EFI Boot Manager menu. Ordinarily the boot options list includes the EFI Shell and one or more operating system loaders.

The following example includes boot options for HP OpenVMS, Microsoft Windows, HP-UX, and the EFI Shell. The final item in the EFI Boot Manager menu, the Boot Configuration menu, is not a boot option. The Boot Configuration menu allows system configuration through a maintenance menu.

```
EFI Boot Manager ver 1.10 [14.61] Please select a boot option

EFI Shell [Built-in]
HP-UX Primary Boot: 4/0/1/1/0.2.0
Boot Option Maintenance Menu

Use ^ and v to change option(s). Use Enter to select an option
```

---

**NOTE** In some versions of EFI, the **Boot Configuration** menu is listed as the **Boot Option Maintenance Menu**.

---

To manage the boot options list for each system, use the EFI Shell, the EFI **Boot Configuration** menu, or operating system utilities.

At the EFI Shell, the `bcfg` command supports listing and managing the boot options list for HP-UX.

The EFI **Boot Configuration** menu provides the **Add a Boot Option**, **Delete Boot Option(s)**, and **Change Boot Order** menu items (use this method if you must add an EFI Shell entry to the boot options list).

Operating system utilities for managing the boot options list include the HP-UX `setboot` command.

See the following sections for details:

— Setting HP-UX boot options (see “Adding HP-UX to the Boot Options List” on page 83)

- **Autoboot Setting**

The `autoboot` setting determines, at startup, whether a system automatically loads the first item in the boot options list, or remains at the EFI Boot Manager menu. When autoboot is enabled, EFI loads the first item in the boot options list after a designated timeout period.

Configure the autoboot setting for an HP Integrity system using either the `autoboot` EFI Shell command, or the **Set Auto Boot TimeOut** menu item from the EFI **Boot Configuration** menu.

For example, from the EFI Shell to disable autoboot issue the `autoboot off` command. To enable autoboot with the default timeout value issue the `autoboot on` command. To enable autoboot with a timeout of 60 seconds issue the `autoboot time 60` command.

Set autoboot from HP-UX using the `setboot` command. Enable autoboot from HP-UX using the `setboot -b on` command. Disable autoboot using the `setboot -b off` command.

---

## Adding HP-UX to the Boot Options List

This section describes how to add an HP-UX entry to the system boot options list.

You can add the `\EFI\HPUX\HPUX.EFI` loader to the boot options list from the EFI Shell or EFI Boot Configuration menu (or in some versions of EFI, the Boot Option Maintenance Menu).

---

**NOTE** On HP Integrity servers, the operating system installer automatically adds an entry to the boot options list.

---

### Adding an HP-UX Boot Option

This procedure adds an HP-UX item to the boot options list from the EFI Shell.

To add an HP-UX boot option when logged in to HP-UX, use the `setboot` command. For details see the *setboot* (1M) manpage.

**Step 1.** Access the EFI Shell environment.

Log in to the iLO MP and enter `CO` to access the system console.

When accessing the console, confirm that you are at the EFI Boot Manager menu (the main EFI menu). If you are at another EFI menu, choose the **Exit** option from the submenus until you return to the screen with the EFI Boot Manager heading.

From the EFI Boot Manager menu, choose the **EFI Shell** menu option to access the EFI Shell environment.

**Step 2.** Access the EFI System Partition (`fsX`: where *X* is the file system number) for the device from which you want to boot HP-UX.

For example, enter `fs2`: to access the EFI System Partition for the bootable file system number 2. The EFI Shell prompt changes to reflect the file system currently accessed.

The full path for the HP-UX loader is `\EFI\HPUX\HPUX.EFI` and it should be on the device you are accessing.

**Step 3.** At the EFI Shell environment, use the `bcfg` command to manage the boot options list.

The `bcfg` command includes the following options for managing the boot options list:

- `bcfg boot dump` — Display all items in the boot options list for the server blade.
- `bcfg boot rm #` — Remove the item number specified by `#` from the boot options list.
- `bcfg boot mv #a #b` — Move the item number specified by `#a` to the position specified by `#b` in the boot options list.
- `bcfg boot add # file.efi "Description"` — Add a new boot option to the position in the boot options list specified by `#`. The new boot option references `file.efi` and is listed with the title specified by `Description`.

For example, `bcfg boot add 1 \EFI\HPUX\HPUX.EFI "HP-UX 11i"` adds an HP-UX 11i item as the first entry in the boot options list.

See the `help bcfg` command for details.

**Step 4.** Exit the console and MP interfaces if you are finished using them.

Press **^B (Control-B)** to exit the system console and return to the MP Main Menu. To exit the MP, type **x** at the Main Menu.

---

## **B NVRAM Configuration Utility**

The HP Integrity Non-Volatile RAM (NVRAM) configuration utility provides the capability to store and restore critical server blade settings and EFI Boot Manager options on the HP Integrity BL60p server blade. This utility is available as an offline EFI application.

This appendix addresses the following topics:

- “Downloading and Installing the NVRAM Backup Utility” on page 86
- “Using the NVRAM Backup Utility” on page 86

---

## Downloading and Installing the NVRAM Backup Utility

The HP Integrity Non-Volatile RAM (NVRAM) configuration backup utility provides the capability to store and restore critical system settings and EFI Boot Manager options on the HP Integrity BL60p server blade. This utility is available as an offline EFI application.

---

**NOTE** The NVRAM backup utility restores the UUID and product number, and prompts for the system serial number on the server blade only when the server blade FRU has been replaced. The replacement server blade FRU NVRAM values are set to factory defaults.

This utility functionality is specific to the HP Integrity BL60p server blade only, not any of the other HP Integrity servers.

---

Use the following procedures to download and install the NVRAM backup utility onto your server blade.

- Step 1.** Connect to the HP Support & Drivers home pages at:  
<http://welcome.hp.com/country/us/en/support.html>.
- Step 2.** Select **Download drivers and software**.
- Step 3.** Enter the server model number (**BL60p**) and click >> to begin the search.
- Step 4.** Select the configuration of your server.
- Step 5.** Select the operating system (**HP-UX 11.x**).
- Step 6.** Select **Utility** from the Quick jump list.
- Step 7.** Select the following utility in the list:  
**hp Integrity Non-Volatile RAM Configuration Backup Utility**.
- Step 8.** Select the **Release Notes** tab to view the release notes with the installation instructions.
- Step 9.** Click **Download**, then **Save**, and select a directory to save the utility package to. The utility package downloads to the directory you selected.

---

## Using the NVRAM Backup Utility

The following shows the options you can enter when using the NVRAM backup utility.

### Syntax

```
nvrmbkp [-h|-b|-r <archivedb>|-a <archivedb>|-o|-n|-v|-i|-l <log>]
```

### Parameters

- |                |   |
|----------------|---|
| -h             | Displays help text  |
| -b             | Enables paging text (only allowed with -h)                    |
| -r <archivedb> | Restores all non-volatile settings from the archived database |

- a <archivedb> Archives all non-volatile settings to the archive database
- o Restores EFI Boot Manager options only (use only with -r)
- n Non-interactive mode, no user prompt
- v Validates the database that used on the server
- i Database information
- l <log> Creates a log file

### Example B-1 nvrmbkp -h

Hewlett-Packard (R) IPF Non-Volatile Configuration Back-up Utility  
Version 01.00.00

Copyright (C) Hewlett-Packard. All rights reserved.

Usage:

Purpose:

The application provides the capability to archive & restore critical system settings.

Options:

- h - Display the help text
- b - Enable paging text [Only works with -h]
- r - Restore all the Non-Volatile settings from the <restore database>  
The -r option is not allowed with -a option
- a - Archive all the Non-Volatile settings to the <archive database>  
The -a option is not allowed with -r option
- o - Restore the EFI Boot Manager options only  
The -o option is only allowed with -r option
- n - Non-interactive mode; User will not be prompted
- v - Validate that the database can be used on the system
- i - Information about the database
- l - Log file

Help:

nvrmbkp -h

Archive:

nvrmbkp [-n] [-a <archive database>] [-l <log file>]

Restore All:

nvrmbkp [-n] [-r <restore database>] [-l <log file>]

Restore Boot-Options Only:

nvrmbkp -o [-n] [-r <restore database>] [-l <log file>]

Restore Database Validate:

nvrmbkp -v [-r <restore database>] [-l <log file>]

Restore Database Information:

nvrmbkp -i [-r <restore database>] [-l <log file>]



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