Operations Guide

HP 9000 rp3410 and HP 9000 rp3440

hp ®

i n v e n t

Manufacturing Part Number: A7137-96003

Second Edition

April 2005

U.S.A.

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Preface

This preface contains the following sections:

- Intended Audience
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Intended Audience

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

What's New?

- The layout of this document was changed to improve usability.

Notational Conventions

The following notational conventions are used in this publication.

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

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

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

- `Commands and options` are represented using `this font`.

- **`Text that you type exactly as shown`** is represented using **`this font`**.

- *`Text to be replaced with text that you supply`* is represented using *`this font`*.

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

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

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

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

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

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

Reader Comments and Feedback

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

Related Information

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

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

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

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

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

Windows Operating System Information

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

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

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

Diagnostics and Event Monitoring: Hardware Support Tools

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

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

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

Books about HP-UX Published by Prentice Hall

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

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

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

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

Printing History

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

Second Edition	July 2004
Third Edition	April 2005

1 Controls, Ports, and Indicators

This chapter describes the controls, ports, and indicators found on the front panel and rear panel locations of the HP 9000 rp3410 or HP 9000 rp3440 server. The HP 9000 rp3410 and HP 9000 rp3440 servers are designed to be rack or pedestal mounted.

Control Panel

The control panel of the HP 9000 rp3410 and HP 9000 rp3440 servers provide the controls and indicators commonly used for operation.
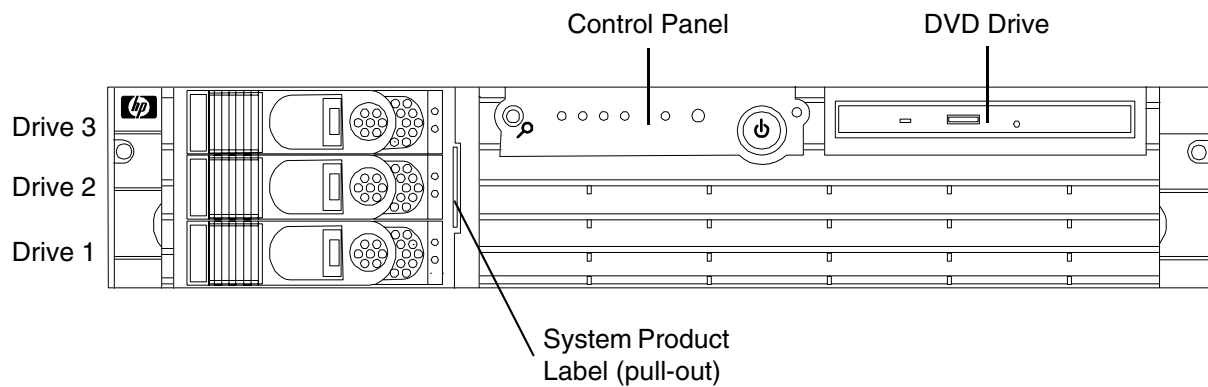
Figure 1-1   **Front View**

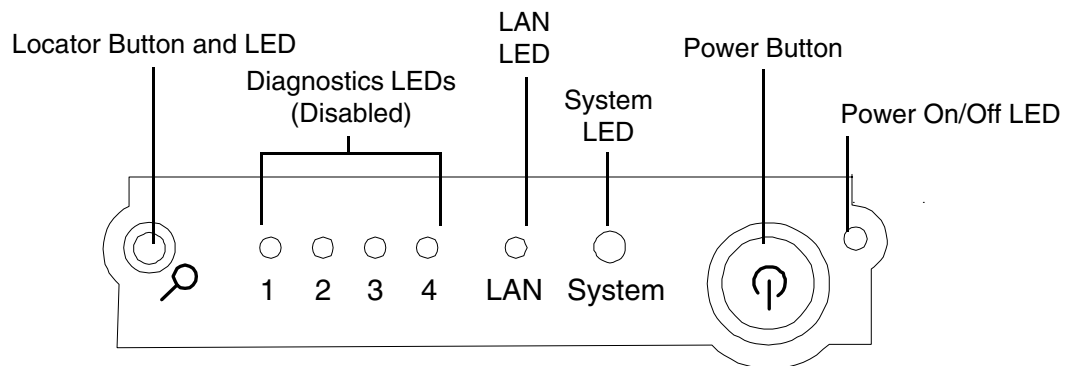**Figure 1-2**   **Control Panel**

Table 1-1   Control Panel LEDs and Switches

Name	Function
Power on/off LED	The green on/off LED is illuminated when the power is on.
Power button	Controls the power supply (turns system power on/off) if power is available to the power supply. (Controls both power supplies if two are installed). If power is off but power is available to the power supplies, pressing the Power button: Momentarily (less than 1 second) turns on the power supplies and applies power to server circuits. For more than 1 second and then released, has no effect. If power is on and the system is at ISL, pressing the Power button: Momentarily (less than 1 second) has no effect. For more than 1 second, but less than 5 seconds—do not use. This selection initiates e-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers. For more than 5 seconds (and then released) causes an immediate/hard power down. If power is on and the system is at BCH, pressing the Power button: Momentarily (less than 1 second) causes a immediate/hard power down. For more than 1 second, but less than 5 seconds—do not use. This selection initiates e-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers. For more than 5 seconds (and then released) causes an immediate/hard power down. If power is on but the OS has been shut down, pressing the Power button: Momentarily (less than 1 second) has no effect. For more than 1 second, but less than 5 seconds—do not use. This selection initiates e-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers. For more than 5 seconds (and then released) causes an immediate/hard power down. If the OS is running, pressing the Power button: Momentarily (less than 1 second) has no effect. For more than 1 second, but less than 5 seconds—do not use. This selection initiates e-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers. For more than 5 seconds (and then released) causes an immediate/hard power down.
System LED	The System LED provides information about the system status. When operation is normal, the LED is green. When there is a system warning, the LED is flashing yellow. When there is a system fault, the LED is flashing red.[a]
LAN LED	The LAN LED provides status information about the LAN interface. When the LAN LED is flashing, there is activity on the LAN.

Table 1-1   Control Panel LEDs and Switches (Continued)

Name	Function
Locator button and LED	The locator button and LED are used to help locate this server within a rack of servers. When the button is engaged, the blue LED illuminates and an additional blue LED on the rear panel of the server illuminates. This function may be remotely activated.

a. See Chapter 4, "Troubleshooting," for information provided by the System LEDs.

Additional Controls and Indicators

The HP 9000 rp3410 and HP 9000 rp3440 servers can have up to three low-voltage differential (LVD), 3.5-inch form factor hot-pluggable disk drives installed. These disk drives have LEDs that provide status and activity information.

Hot-Plug Disk Drive Indicators

The hot-plug disk drives have two LEDs per drive, as described below.

- Status LED—The drive status LED is red when power is applied to drive circuits.
- Activity LED—The Drive Activity LED is flashing green and indicates disk drive activity. This LED is directly controlled by the disk drive and turns on when a drive is accessed.

Figure 1-3   Hot-Plug Disk Drive LED Indicators
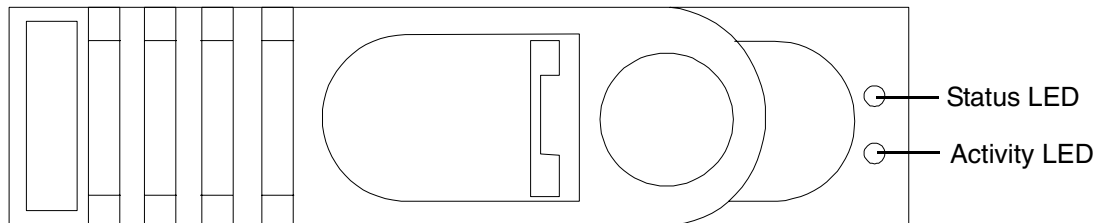
Table 1-2   Hot-Plug Disk Drive LED Definitions

LED	State	Description
Status LED	Red	Drive fault
Activity LED	Flashing green	Reading/scanning hard drive

Optional Removable Media Drive

The HP 9000 rp3410 and HP 9000 rp3440 servers are delivered without a removable media drive. Either a DVD-ROM or CD-RW/DVD-ROM drive may be added. Each of these optional devices has one activity LED.

Figure 1-4   DVD–ROM
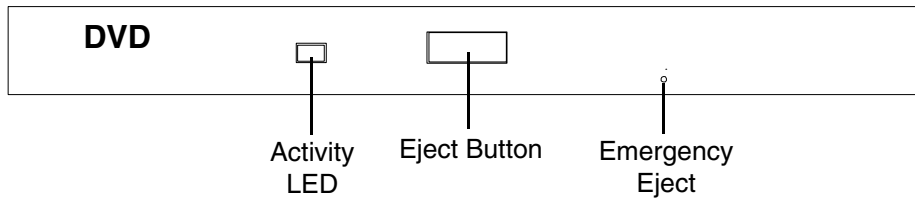
Table 1-3   DVD Drive LED Definitions

LED	State	Description
Activity LED	Flashing green	Drive is active

Rear Panel

The HP 9000 rp3410 and HP 9000 rp3440 server rear panels include communication ports, I/O ports, AC power connector, and the locator LED/button. Additional LEDs located on the rear panel of the HP 9000 rp3410 and HP 9000 rp3440 servers signal the operational status of:

- 10/100/1000 Base-T Ethernet LAN

- iLO manageability card LAN

Figure 1-5   Rear View
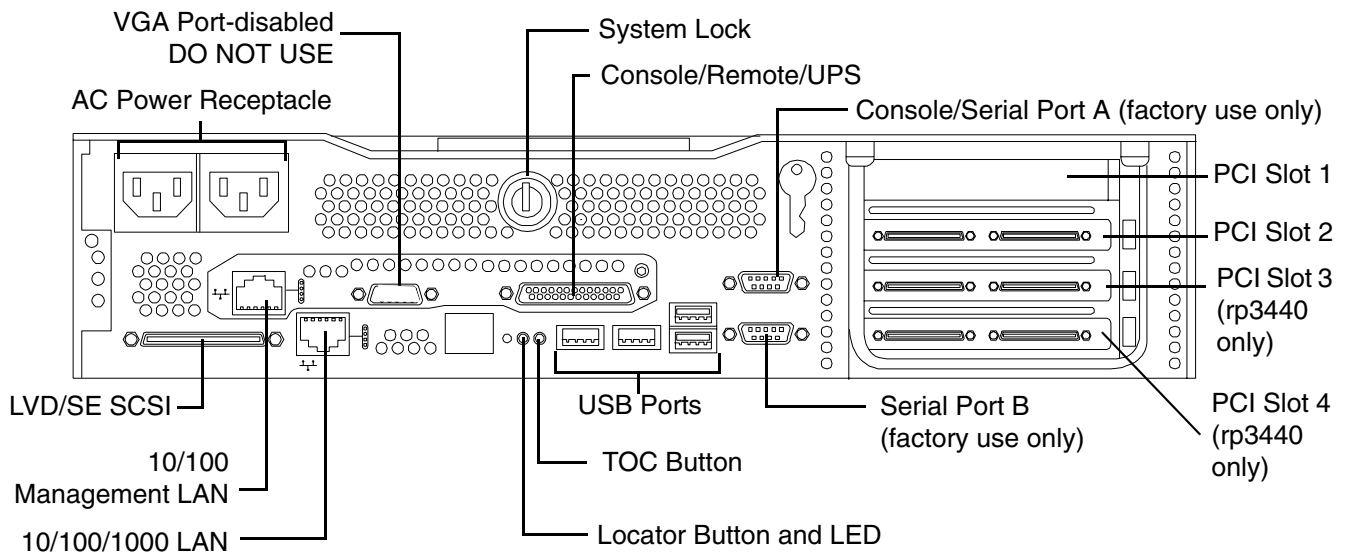
Table 1-4   Rear Panel Connectors and Switches

Connector/Switch	Function
AC power	Primary power connection for the server.
LVD/SE SCSI	68-pin, low-voltage differential, single-ended U160 SCSI. This connector provides external SCSI connection on SCSI Channel B.
(1 GB) 10/100/1000 LAN	10/100/1000 base-T ethernet LAN connector.
Serial A (console) and Serial B	9-pin male serial connectors—factory use only.
USB	Four universal serial bus (USB 2.0) connectors.
TOC	Transfer of control button. Halts all system processing and I/O activity and restarts system.

Table 1-4   **Rear Panel Connectors and Switches (Continued)**

Connector/Switch	Function
Locator button and LED	The locator button and LED are used to help locate a server within a rack of servers. When the button is engaged, the blue LED illuminates and an additional blue LED on the front panel of the server illuminates. This function may be remotely activated.
Video (not used)	15-pin female video connector. DISABLED—DO NOT USE. To enable video capability you must obtain the supported A6150 video PCI card. See enclosed ReadMe, A6150-90001.
Console/remote/UPS	25-pin female serial data bus connector for the iLO manageability card.
10/100 MP LAN	10 Mb/100 Mb LAN connector for the management processor.

10/100/1000 Base-T Ethernet LAN Connector

The rear panel 10/100/1000 base-T ethernet LAN connector has the following status and activity LEDs.

Figure 1-6   **10/100/1000 Base-T Ethernet LAN Connector LEDs**
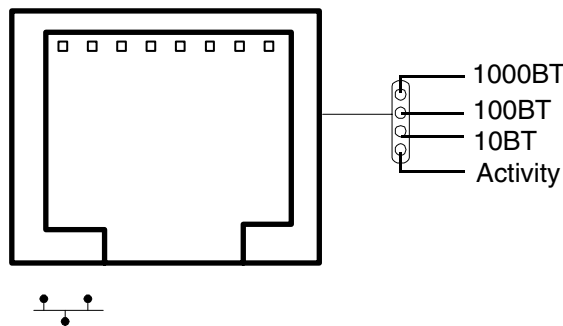
Table 1-5   **10/100/1000 Base-T Ethernet LAN Connector LEDs**

LED	Description
1000BT	Blinking green—the 1000 MHz with ethernet protocol and twisted-pair wiring is enabled, off—no link.
100BT	Blinking green—the 100 MHz with ethernet protocol and twisted-pair wiring is enabled, off—no link.
10BT	Blinking green—the 10 MHz with ethernet protocol and twisted-pair wiring is enabled, off—no link.
Activity	Blinking green—LAN activity.

iLO Manageability Card LAN LEDs

The iLO manageability card LAN uses an RJ-45 type connector. This connector has four LEDs that signal status and activity.

Figure 1-7   **iLO Manageability Card LAN LEDs**
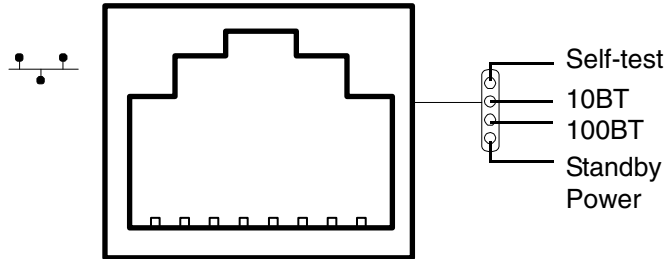
Table 1-6   **iLO Manageability Card LAN LEDs**

LED	Description
Self-test	Yellow—MP is running self-test or error detected.
10BT	Green—10BT link established, blinking green—10BT link activity, off—no link.
100BT	Green—100BT link established, blinking green—100BT link activity, off—no link.
Standby power	Green—Standby power on, off—standby power off.

2 External Connectors

This chapter describes the external connectors provided on the HP 9000 rp3410 and HP 9000 rp3440 servers.

Connector Pinouts

The following ports and connectors are found on the rear panel of the HP 9000 rp3410 and HP 9000 rp3440 servers.

- Dual USB 2.0

- Serial A (console) and Serial B (factory use only)

- 68-pin LVD, SE U160 SCSI

- 10/100 Management LAN

- 10/100/1000 LAN

Figure 2-1   Rear View of Server
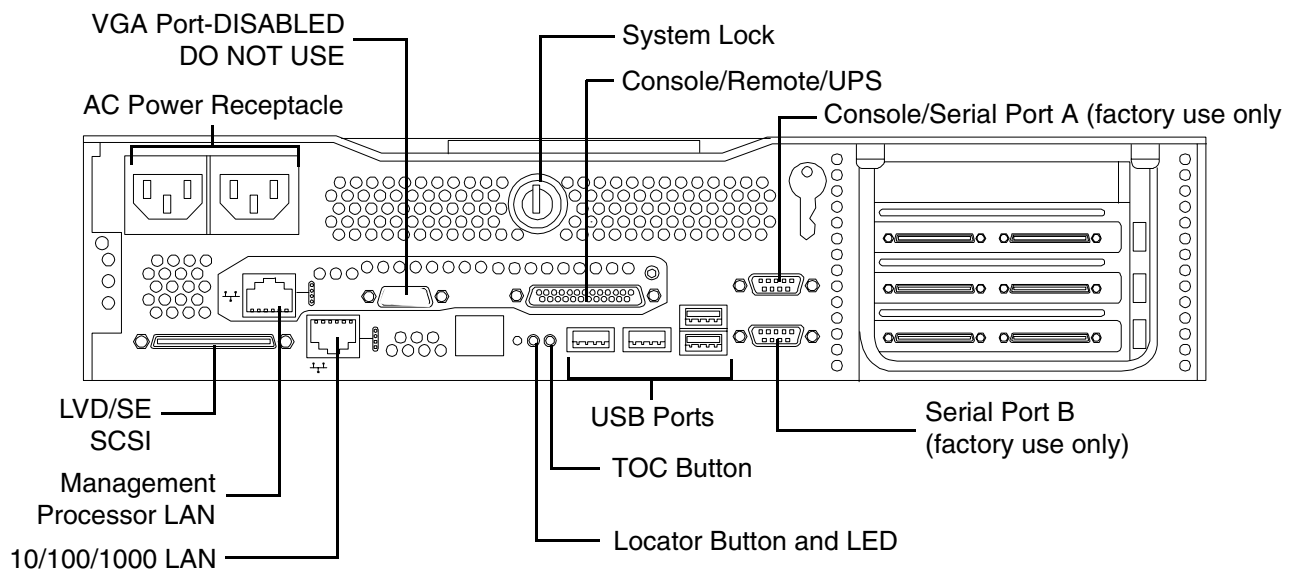
Universal Serial Bus (USB 2.0) Ports

Figure 2-2   **Dual USB Port Connector**
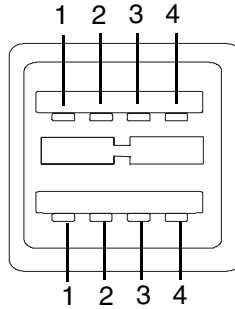
Figure 2-3   **Single USB Port**
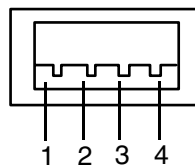
Table 2-1   **USB Pinouts**

Pin Number	Signal Description
1	+5 VDC
2	MR
3	PR
4	Ground

SCSI Port, Ultra 3, 68-Pin

A single, Ultra 3, 68 pin SCSI connector is located at the rear panel of the server. The external connector supports SCSI channel "B."

Figure 2-4   SCSI Port, Ultra 3, 68-Pin
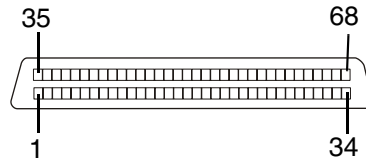
Table 2-2   SCSI Port Pinouts

Pin Number	Signal Description	Pin Number	Signal Description
1	S1 (+DB 12)	35	S35 (–DB 12)
2	S2 (+DB 13)	36	S36 (–DB 13)
3	S3 (+DB 14)	37	S37 (–DB 14)
4	S4 (+DB 15)	38	S38 (–DB 15)
5	S5 (+DB P1)	39	S39 (–DB P1)
6	S6 (+DB 0)	40	S40 (–DB 0)
7	S7 (+DB 1)	41	S41 (–DB 1)
8	S8 (+DB 2)	42	S42 (–DB 2)
9	S9 (+DB 3)	43	S43 (–DB 3)
10	S10 (+DB 4)	44	S44 (–DB 4)
11	S11 (+DB 5)	45	S45 (–DB 5)
12	S12 (+DB 6)	46	S46 (–DB 6)
13	S13 (+DB 7)	47	S47 (–DB 7)
14	S14 (+DB P)	48	S48 (–DB P)
15	S15	49	S49
16	S16 (DIFFSENS)	50	S50
17	S17 (TERMPWR)	51	S51 (TERMPWR)
18	S18 (TERMPWR)	52	S52 (TERMPWR)
19	S19 (RESERVED)	53	S53 (RESERVED)

Table 2-2   SCSI Port Pinouts (Continued)

Pin Number	Signal Description	Pin Number	Signal Description
20	S20	54	S54
21	S21 (+ATN)	55	S55 (–ATN)
22	S22	56	S56
23	S23 (+BSY)	57	S57 (–BSY)
24	S24 (+ACK)	58	S58 (–ACK)
25	S25 (+RST)	59	S59 (–RST)
26	S26 (+MSG)	60	S60 (–MSG)
27	S27 (+SEL)	61	S61 (–SEL)
28	S28 (+C/D)	62	S62 (–C/D)
29	S29 (+REQ)	63	S63 (–REQ)
30	S30 (+I/O)	64	S64 (–I/O)
31	S31 (+DB 8)	65	S65 (–DB 8)
32	S32 (+DB 9)	66	S66 (–DB 9)
33	S33 (+DB 10)	67	S67 (–DB 10)
34	S34 (+DB 11)	68	S68 (–DB 11)

10/100/1000 LAN Connector

Figure 2-5   10/100/1000 LAN Connector
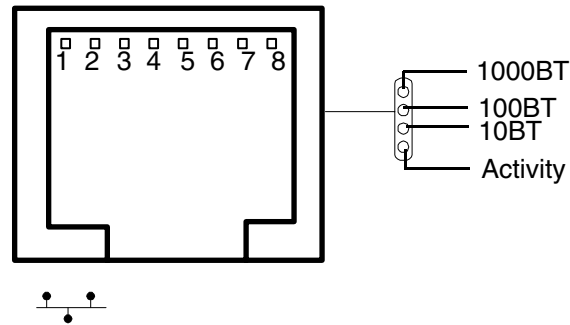
Table 2-3   10/100/1000 LAN Connector Pinouts

Pin Number	Signal Description
1	TXP
2	TXN
3	RXP
4	Not used
5	Not used
6	RXN
7	Not used
8	Not used

iLO Manageability Card LAN

The iLO Manageability LAN uses an RJ-45 type connector.

Figure 2-6   **iLO Manageability Card LAN Connector**
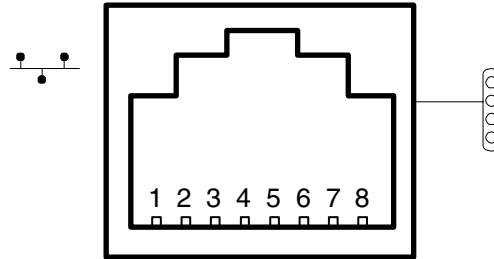
Table 2-4   **iLO Manageability Card LAN Connector Pinouts**

Pin Number	Signal Description
1	TXP
2	TXN
3	RXP
4	Not used
5	Not used
6	RXN
7	Not used
8	Not used

3 Utilities

Boot Console Handler (BCH)

The boot console handler (BCH) is separate code in processor dependent code (PDC). It has two purposes:

- It lets the bootstrap code know which path to boot from

- It allows you to interact with PDC to view and/or modify a set of specific system parameters

Booting is accomplished in the standard PA RISC manner but may be transparent (depending on the state of the autoflags [boot, search, and start]). If the autoflags are clear and you override autobooting, a boot sequence will end up in the interactive portion of BCH where modification and/or viewing of some system parameters is possible.

NOTE   When the `autostart` flag is off, autoboots will be interrupted if a configuration change occurs which causes reduced performance; thus requiring you to intervene prior to booting to the internal system loader (ISL).

The auto boot will halt at the BCH prompt and you may continue booting by entering `boot`.

BCH Commands

In the interactive portion of BCH there is a Main Menu and five submenus.

Table 3-1   BCH Commands

Submenu	Description
BOot [PRI|ALT|<path>]	Boot from a specified path
DIsplay	Redisplay the current menu
HElp [<menu>|<command.>	Display help for specified command or menu
RESET	Restart the system
MAin	Return to the Main Menu

Table 3-2   Boot Paths

Boot Source	Boot Path
Bottom disk (Slot 0)	0/1/1/0.0.0
Middle disk (Slot 1)	0/1/1/0.1.0
Top disk (Slot 2)	0/1/1/1.2.0
DVD	0/0/2/0.0.0

Main Menu

The following commands are available in the Main Menu:

```
---- Main Menu ---------------------------------------------------------


     Command                         Description

     -------                         -----------

     BOot [PRI|ALT|<path>]           Boot from specified path

  ** PAth [PRI|ALT|CON|KEY] [<path>]  Display or modify a path

     SEArch [DIsplay|IPL] [<path>]   Search for boot devices


     COnfiguration menu              Displays or sets boot values

     INformation menu                Displays hardware information

     SERvice menu                    Displays service commands

   * DeBug menu                      Displays debug commands




     DIsplay                         Redisplay the current menu

     HElp [<menu>|<command>]         Display help for menu or command

     RESET                           Restart the system

----

Main Menu: Enter command or menu >
```

* Not accessible to user.

** You cannot modify the keyboard path.

Configuration Menu

The following commands are available in the configuration menu:

```
Main Menu: Enter command or menu > co


---- Configuration Menu --------------------------------------------------


     Command                         Description

     -------                         -----------

     AUto [BOot|SEArch|STart] [ON|OFF] Display or set specified flag

     BootID [<proc>] [<bootid>]      Display or set Boot Identifier

     BootINfo                        Display boot-related information
```

```
        BootTimer [0 - 200]            Seconds allowed for boot attempt

        CPUconfig [<proc>] [ON|OFF]    Config/Deconfig processor

        DEfault                        Set the system to predefined values

        FAn [HI|NORmal]                Display or change fan speed

        FastBoot [ON|OFF]              Display or set boot tests execution

        PAth [PRI|ALT] [<path>]        Display or modify a path

        SEArch [DIsplay|IPL] [<path>]  Search for boot devices

        TIme [c:y:m:d:h:m:[s]]         Read or set the real time clock in GMT


        BOot [PRI|ALT|<path>]          Boot from specified path

        DIsplay                        Redisplay the current menu

        HElp [<command>]               Display help for specified command

        RESET                          Restart the system

        MAin                           Return to Main Menu

----

Configuration Menu: Enter command >
```

The configuration default command sets the following values:

```
 Primary boot path:     0/0/1/0.0

   Alternate boot path:  0/0/2/0

   Console path:         0/0/1/0.0

   Keyboard path:        0/0/4/0.0

   Autoboot:             ON

   Autosearch:           ON

   Autostart:            OFF

   BootTimer             0
```

Information Menu

The following commands are available from the information menu:

```
Main Menu: Enter command or menu > in


---- Information Menu -----------------------------------------------------
```

```
    Command                         Description

    -------                         -----------

    ALL                             Display all system information

    BootINfo                        Display boot-related information

    CAche                           Display cache information

    ChipRevisions                   Display revisions of major VLSI

    COprocessor                     Display coprocessor information

    FRU                             Display FRU information

    FwrVersion                      Display firmware version

  * IO                              Display I/O interface information

    LanAddress                      Display Core LAN station address

    MEmory                          Display memory information

 ** PRocessor                       Display processor information

*** WArnings                        Display selftest warning messages


    BOot [PRI|ALT|<path>]           Boot from specified path

    DIsplay                         Redisplay the current menu

    HElp [<command>]                Display help for specified command

    RESET                           Restart the system

    MAin                            Return to Main Menu

----

Information Menu: Enter command >
```

* The PCI device information displayed here will include description, path, vendorID, deviceID, slot#, and bus#.

** Processor command displays system model string

***Warnings displayed are:

- System serial number not set.
- Support bus controller initialization failure.
- WARNING: Card in unsupported PCI slot for rp3410 system.
- WARNING: Too many cpus for a rp3410 system. System will not boot.
- WARNING: Too much memory for a rp3410 system.
- WARNING: A fatal error has occurred—system cannot boot. Review warning messages in the information menu.

Info PR Example This command displays processor information on the console.

```
Main Menu: Enter command or menu > in pr

Model: hp server . (model string 9000/800/rp3410)

PROCESSOR INFORMATION

HVERSION SVERSION Processor

Processor Speed Model Model/Op CVERSION State

--------- -------- -------- -------- -------- -------------

0 900 MHz 0x0886 0x0491 3.0 Active

1 900 MHz 0x0886 0x0491 0.0 Unknown

Central Bus Speed (in MHz) : 200

Software ID (dec) : 4468297807722676169

Software ID (hex) : 0x3e02952e9bf77fc9

Software Capability : 0x01f0
```

Service Menu

The following commands are available from the service menu:

```
Main Menu: Enter command or menu > ser


---- Service Menu ------------------------------------------------------------


    Command                      Description

    -------                      -----------

    CLEARPIM                     Clear (zero) the contents of PIM

    SCSI [option] [<path>] [<val>]   Display or set SCSI controller values

    MemRead <address> [<len>]    Read memory and I/O locations

    PDT [CLEAR]                  Display or clear the PDT

    PIM [<proc>] [HPMC|LPMC|TOC]  Display PIM information

    ProductNum <O|C> [<number>]  Display or set Product Number

    ScRoll [ON|OFF]              Display or change scrolling ability

    SELftests [ON|OFF]           Enable/disable self test execution


    BOot [PRI|ALT|<path>]        Boot from specified path

    DIsplay                      Redisplay the current menu
```

```
    HElp [<command>]                  Display help for specified command

    RESET                             Restart the system

    MAin                              Return to Main Menu

----

Service Menu: Enter command > e
```

The `ProductNum` command is for setting up the original and/or current product number. The Software Identification (SWID) doesn't get updated automatically on change of the original product number but it can be generated by executing the default command from the configuration submenu.

The `SCSI` command is for displaying/setting the SCSI controller parameters like initiator ID and speed. These parameters are used by the OS device drivers to program the controller(s).

Management Processor (MP)

Integrated Lights-Out (iLO) offers remote server management through an independent management processor (MP). It provides a way for you to connect to a server and perform administration or monitoring tasks for the server hardware. iLO is available whenever the system is connected to a power source, even if the server main power switch is in the off position.

iLO controls power, reset, and Transfer of Control (TOC) capabilities; provides console access; displays and records system events; and can display detailed information about the various internal subsystems. iLO also provides a virtual front panel that you can use to monitor system status and see the state of front panel LEDs. All iLO functions are available through the server LAN and the local RS-232 and remote RS-232 ports. Access to local and remote ports, telnet, and secure shell (SSH) is through the iLO text interface, while Web access is through a graphical user interface (GUI).

iLO was introduced into most Integrity Entry Class servers in late 2004. Prior to that, embedded remote server management was referred to as MP functionality. All legacy MP functionality has been carried forward and combined with new features, all under the heading of "iLO". Therefore, "iLO" and "MP" mean the same thing for Entry Class servers.

Once you update the firmware to version E.03.13, the following features in the Integrated Lights-Out MP are activated:

- Always-on capability: iLO is active as long as the power cord is plugged in
- Multiple access methods: Local, remote, telnet, and SSH use the iLO text interface. Web access uses a GUI.
  - Local Serial Port: Use a terminal or laptop computer for direct connection.
  - Remote/Modem Serial Port: Use a dedicated modem RS-232 port and external modem.
  - LAN: Use telnet, Web, or SSH to access iLO LAN.
- Remote power cycle; power on or power off; reset
- Mirrored console: The system console output stream is reflected to all connected console users, and any user can provide input.
- Independent, non mirrored sessions (from local and modem ports)
  - Direct session with OS using the MP command `SE`
  - Connection to another iLO using the MP command `CSP`
- Display of information about various internal subsystems
  - Field replaceable unit (FRU) information
  - System power state, temperature information, and fan status
  - Status of processors
- Logging, display, and keyword search of:
  - System console history
  - System events
- User access control
- DHCP and DNS support

- IPMI over LAN

- Licensing

- iLO Advanced Pack features, such as SSH access, group actions capability, and LDAP

NOTE   A complete description of the MP is provided in the *HP Integrity and HP 9000 Integrated Lights-Out Management Processor Operations Guide*.

Configuring the MP LAN Port IP Address

By connecting the MP LAN port to an active network, you have two options for configuring an IP address. The first option is to use a DHCP server, which automatically assigns an IP address, and the other is to use the ping command from another host on the same subnet to set a static IP address for the MP. After the IP address has been set, you can establish a telnet session to configure additional parameters.

If you are using a DHCP server, and it provides the Domain Name, and if the primary DNS server accepts dynamic DNS (DDNS) updates or has been configured through the DHCP server, then you can use a default host name to connect to the MP through telnet. The default host name is 14 characters long, consisting of the letters "mp" followed by the 12 characters of the Media Access Protocol (MAC). See "Configure an IP Address" on page 33 to determine the MAC address. If no DNS access is available, the telnet session can use the assigned IP address.

If you are using DHCP, proceed to "Accessing the Management Processor" on page 33. For more information on configuring DHCP, see "Configuring the Management Processor LAN Information" on page 35. For a non-DHCP implementation, perform the following steps to configure a static IP address.

Configuring a Static IP Address (Non-DHCP)

To configure a static IP address for the MP LAN port, follow these steps:

1. Set up local terminal access.

2. Configure the IP address.

Set Up Local Terminal Access After powering on the terminal, ensure the communications settings are as follows:

- 8/none (parity)

- 9600 baud

- None (receive)

- None (transmit)

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

Step 1. From the Reflection 1 Main screen, pull down the Connection menu and choose **Connection Setup**.

Step 2. Choose **Serial Port**.

Step 3. Choose **Com1**.

Step 4. Check the settings and change, if required.

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

Step 5. Click **OK** to close the Connection Setup window.

Step 6. Pull down the Setup menu and choose **Terminal** (under the Emulation tab).

Step 7. Choose a supported terminal type.

The preferred type is VT100.

Step 8. Click **Apply**.

This option is not highlighted if the terminal type you want is already selected.

Step 9. Click **OK**.

Configure an IP Address To configure the MP LAN static IP address, perform the following steps:

Step 1. Determine the Media Access Control (MAC) address of the MP LAN interface by viewing the label located at the rear of the server.

Step 2. Connect a LAN cable on your local subnet to the core I/O LAN port.

Step 3. Add an Address Resolution Protocol (ARP) table entry to another host located on your local subnet. This ARP table entry maps the MAC address of the core I/O LAN interface to the IP address chosen for that interface.

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

Step 4. Use the `ping` command from the host that has the new ARP table entry. The destination address is the IP address that is mapped to the MAC address of the MP. The MP LAN port should now be configured with the appropriate IP address.

Step 5. Use the `telnet` command to connect to the MP from a host on the local subnet.

Accessing the Management Processor

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

- The local serial port using a local terminal
- The remote Customer Service Modem (CSM) port using external modem (dial-up) access, if remote modem access is configured
- The MP LAN port using the Web interface, telnet, or SSH, if login access through the MP LAN is enabled

Local Terminal Access to the Management Processor

You establish communication with the MP by connecting a terminal to the local CSM I/O serial port.

You can establish a terminal session using a standalone terminal or using terminal emulation software, such as HyperTerm, Putty, or Reflection 1 running on a PC.

During installation, communicating with the MP enables such tasks as:

- Verifying that the components are present and installed correctly
- Configuring the LAN port

Interacting with the Management Processor

To interact with the MP command line interface, perform the following steps:

NOTE   On initial system installation, the MP has two default user accounts:

- All Rights (Administrator) level user; login = Admin, password = Admin (both are case sensitive).

- Console Rights (Operator) level user; login = Oper, password = Oper (both are case sensitive).

For security reasons, HP recommends that you use the UC command during the initial logon session to modify default passwords (enter **CM** at the MP> prompt, and enter **UC** at the MP:CM> prompt).

IMPORTANT   Deleting default users such as Admin prevents you from using the HP Systems Insight Manager group actions feature.

Step 1. Log in using your MP user account name and password.

NOTE   If you are logged in, the MP Main Menu displays. To follow this procedure, make sure you are at the MP Main Menu. Use **Ctrl-B** to return to the MP Main Menu.

Step 2. Use the MP menus and commands as needed. Main Menu commands are shown in "MP Main Menu". You can access commands not displayed in the MP Main Menu in command mode by first using the CM command at the MP prompt. You can display a list of available commands using the MP help function. Invoke the help function from either the MP Main Menu or the Command Menu prompts by entering **HE** followed by **LI**. You can return to the MP Main Menu by pressing **Ctrl-B**.

Step 3. Log out using the X command (enter **X** at the MP> prompt) after returning to the MP Main Menu.

MP Main Menu

Following are the MP Main Menu commands:

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

NOTE   The previous example shows the Main Menu screen accessed through the local serial or remote modem ports. The list of commands displayed might be different and depends on your method of access to the MP.

Configuring the Management Processor LAN Information

LAN information includes the management processor network name, IP address information, and configuring DHCP and DNS service information.

To configure the management processor LAN IP address:

Step 1. At the MP Main Menu prompt (MP>), enter **CM** to choose command mode.

Step 2. At the command mode prompt (MP:CM>), enter **LC** (for LAN configuration).

The screen displays the default values and asks if you want to modify them. It is good practice to write down the information, because you might need it for future troubleshooting. See "The LC Command Screen" on page 36.

NOTE The default value in the "IP address" field is set at the factory. You must configure the actual MP LAN IP address.

Step 3. The screen displays the current LC data. When prompted to enter a parameter name, A to modify All, or Q to Quit, enter **A** to choose all parameters.

Step 4. The screen displays the current DHCP status. If DHCP is used to acquire IP address information, enter **E** to enable, **D** to disable, or **Q** unless you are using the local serial port.

To disable DHCP from the local serial port:

a. Use the **LC** command to disable DHCP.

b. Commit the DHCP change.

c. Use the **LC** command again to set network parameters.

CAUTION Modifying the DHCP, IP address, gateway IP address, or subnet mask parameters will drop all present LAN and Web connections.

NOTE Changing DHCP status to Enabled or Disabled resets IP address, gateway IP address, and subnet mask parameters to factory default values.

NOTE If the IP address, gateway IP address, and subnet mask are obtained through DHCP, you cannot change them without first disabling DHCP.

Step 5. The screen displays the current IP address. When prompted to enter a new value or Q, enter the new IP address.

Step 6. The screen displays the current host name. When prompted to enter a new value or Q, enter the new MP network name.

This is the host name for the MP LAN displayed at the command prompt. It is also used to identify the MP LAN interface in a DNS database. The name can be up to 64 characters in length, and must start with a letter, end with a letter or number, and contain only letters, numbers, or dashes.

NOTE	The host name is not case sensitive.

Step 7. The screen displays the current subnet mask name. When prompted to enter a new value or Q, enter the new subnet mask name.

Step 8. The screen displays the current gateway address. When prompted to enter a new value or Q, enter the new gateway address.

Step 9. The screen displays the current link state information. When prompted to enter a new value or Q, press **enter**. The message `-> Current Link State has been retained` displays.

Step 10. The screen displays the current Web console port number. When prompted to enter a new value or Q, press **enter**. The message `-> Current Web Console Port Number has been retained` displays.

Step 11. The screen displays the current SSH console port number. When prompted to enter a new value or Q, press **enter**. The message `-> Current SSH Console Port Number has been retained` displays.

NOTE	SSH settings will not display if you do not have Integrated Lights-Out Advanced Pack licensing.

Step 12. The screen displays a new LC listing, including the values entered in the preceding steps. Verify that the desired values have been accepted. When prompted to enter a parameter for revision, Y to confirm, or Q to Quit, enter **Y** to confirm all parameters.

```
> LAN Configuration has been updated

-> Reset MP (XD command option 'R') for configuration to take effect.

MP Host Name: mpserver
```

Step 13. Enter **XD -reset** to reset the MP.

Step 14. After the MP resets, log in to the MP again. Then enter the MP command mode (enter **CM** at the MP: prompt).

Step 15. At the MP:CM> prompt, enter **LS** to confirm the new LAN settings.

Step 16. Enter **SA** to enable or disable Web console and telnet access after the MP has been reset.

The LC Command Screen

The following screen shows LC command output:

```
MP:CM> LC -nc

Current LAN Configuration:

    MAC Address          : 0x0060b0f54c51

    DHCP Status          : Enabled

    IP Address           : 127.1.1.1

    MP Host Name         : maestro

    Subnet Mask          : 255.255.248.0

    Gateway Address      : 127.1.1.1

    Link State           : Auto Negotiate
```

```
      Web Console Port Number : 2023

      SSH Access Port Number  : 22

      IPMI/LAN Port Number    : 626

LAN status: UP and RUNNING

-> Command successful.

MP:CM>
```

NOTE	The SSH console port number does not display if you do not have Integrated Lights-Out Advanced Pack licensing.

MP Command Reference

There are two menus from which commands are executed: the MP Main Menu and the Command Menu. You access the Command Menu by first using the CM command at the MP> prompt.

The following tables provide a reference for commands available through the command line interface.

MP Main Menu Commands

Commands are listed in Table 3-3.

Table 3-3   MP Main Menu Commands and Descriptions

Command	Description
CL	View console log
CM	Enter command mode
CO	Select console mode
CSP	Connect to another service processor
HE	Display help for menu or command
SE	Enter OS session
SL	Show event logs
VFP	Display virtual front panel
X	Exit

Command Menu Commands

Commands are listed in Table 3-4.

Table 3-4   Command Menu Commands and Descriptions

Command	Description
BP	Reset BMC passwords
CA	Configure async or serial ports
DATE	Display the current date
DC	Default configuration
DF	Display field replaceable unit (FRU) information
DI	Disconnect remote or LAN console
DNS	Set DNS configuration
FW	Upgrade MP firmware
HE	Display help for menu or command
ID	Display or modify system information

Table 3-4   Command Menu Commands and Descriptions (Continued)

Command	Description
IT	Modify MP inactivity timers
LC	LAN configuration
LDAP	LDAP configuration
LM	License management
LOC	Display and configure locator LED
LS	LAN status
MR	Modem reset
MS	Modem status
PC	Remote power control
PG	Paging parameter setup
PR	Power restore
PS	Power management module status
RB	Reset BMC
RS	Reset system through RST signal
SA	Set access options
SO	Configure security options
SS	Display system processor status
SYSREV	Display all firmware revisions
TC	Reset via transfer of control (TOC)
TE	Tell (send a message to other users)
UC	User configuration
VDP	Display virtual diagnostic panel LEDs
WHO	Display connected management processor users
XD	Diagnostics or reset of management processor

4 Troubleshooting

This chapter provides troubleshooting instructions for maintaining your HP 9000 rp3410 or HP 9000 rp3440 server.

Information to Collect Before You Contact Support

Before you contact HP support, you should:

Step 1. Check information on troubleshooting and attempt to solve the problem.

- Note failure symptoms and error indications (LEDs and messages) by checking the SEL and FPL logs

- Try to determine precisely what did or did not happen

Step 2. Collect the following information:

- The model number of your server (for example, rp3410)

- The product number of your server. This can be found on the identification label, which is found at the front of the unit (typically A7136A or A7137A, and so on)

- The serial number of your server. This can be found on the identification label

Step 3. Become familiar with your system configuration:

- Are you using the LAN, RS232, or web interface to monitor the server?

- How many processors, DIMMs, and PCI cards have been installed?

- What versions of processor, memory, and PCI cards are used and where are they installed?

- What accessories are installed?

Step 4. Determine the following:

- Which firmware versions are in use?

- When did the problem start?

- Have recent changes been made to the system?

- Which operating system and version is in use?

Troubleshooting Methodology

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

> **Voltages are present at various locations within the server whenever an AC power source is connected. This voltage is present even when the main power switch is in the off position.**
>
> **Failure to observe this warning could result in personal injury or damage to equipment.**

CAUTION   Do not operate the HP server for more than 5 minutes with any cover (including disk drives) removed. If you are hot-swapping a fan, reinstall the cover within 5 minutes to prevent overheating. Damage to system components may result due to improper cooling airflow.

To troubleshoot your server with online diagnostic tools, you must be familiar with the HP-UX operating system. You should also be familiar with the Offline Diagnostics Environment (ODE). Install both online and offline troubleshooting programs on your system before trouble is suspected. Descriptions and user information about offline troubleshooting tools are available at http://docs.hp.com.

Use the online diagnostic tools if you can boot your system. Online troubleshooting programs area available on the HP-UX operating system CD.

If you can not boot your system, run offline troubleshooting tool from the ODE CD that ships with your server. ODE CDs are platform-specific for Integrity and PA-RISC servers.

Using the Front Panel Power Button

The server power button on the front panel operates differently, depending on how long the button is held in and on what the system is doing when the button is pressed. You must be aware of its uses to properly troubleshoot the system. Power button functions are described in the following table.

Table 4-1   Power Button Functions

System State	Switch Pressed Time	Result
Power connected to power supplies—system power off	1 second or less More than 1 second	System power on No effect
System at ISL	Less than 1 second More than 1 second but less than 5 seconds More than 5 seconds	No effect Not used. This selection initiates E-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers Hard shutdown
System at BCH	Less than 1 second More than 1 second but less than 5 seconds More than 5 seconds	Hard shutdown Not used. This selection initiates E-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers Hard shutdown

Table 4-1   Power Button Functions (Continued)

System State	Switch Pressed Time	Result
Power on—OS shut down	Less than 1 second More than 1 second but less than 5 seconds More than 5 seconds	No effect Not used. This selection initiates E-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers Hard shutdown
OS running	Less than 1 second More than 1 second but less than 5 seconds More than 5 seconds	No effect Not used. This selection initiates E-buzzer functions that are not supported in the HP 9000 rp3410 and HP 9000 rp3440 servers Hard shutdown

Operating System Will Boot

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

- Support Tools Manager (STM)

- Event Monitoring Service (EMS)

- Management Processor (MP)

Support Tools Manager

Support Tools Manager (STM) is available in three user interfaces:

- Graphical interface for X-based terminals (XSTM)

- Menu interface for ASCII terminals (MSTM)

- Command line interface for all ASCII terminals (CSTM)

You can use the graphical and menu interfaces intuitively and you can use the command line interface to drive STM using scripts.

You can use diagnostics to thoroughly test a device and isolate failures down to the suspected Field Replaceable Unit (FRU).

For complete documentation on how to access and use STM go to http://docs.hp.com. Under Topics menu go to Diagnostics and look for Support Tools Manager.

Event Monitoring Service

Event Monitoring Service (EMS) is the framework for monitoring hardware and reporting events. You can use EMS to eliminate most undetected hardware failures that cause data loss or interruptions of system operation. You can monitor a hardware device (such as a disk) for the occurrence of any unusual activity (called an event). When an event occurs, it is reported by a variety of notification methods such as e-mail. Event detections are handled automatically with minimal involvement on your part.

The following monitors are available:

- CMC monitor

- UPS monitor

- FC hub monitor

- FC switch monitor

- Peripheral status monitor

- Memory monitor

EMS comes with your HP-UX operating system. To bring up the event monitoring Main Menu, execute the following command at the shell prompt:

```
/etc/opt/resmon/lbin/monconfig
```

From the list of Main Menu selections, choose:

```
(E) Enable Monitoring
```

Management Processor

The management processor (MP) interface provides access to the baseboard management controller system information and provides some configuration capabilities. By viewing the system logs by way of the MP you can identify and solve problems affecting your server. To access your MP interface and system logs, perform the following steps:

NOTE   The MP interface must be accessed from a terminal console that is attached to the MP via the MP LAN or MP remote serial connector. The MP is always available for troubleshooting, regardless of the state of your system, as long as there is AC power applied to your computer.

A description of the MP is provided in the Utilities chapter of this guide and in the *HP Integrity and HP 9000 Integrated Lights Out Operations Guide*. Check the HP website for the latest revision.

Step 1. If necessary, press **CTRL+B** to access the MP interface.

Step 2. Log in with proper user name and password.

Step 3. Enter `cl` to display the console logs. This log displays console history from oldest to newest.

Step 4. Enter `sl` to display the system logs. The system logs consist of:

- System event

- Forward progress

- Current boot

- Previous boot

- Live events

- Clear SEL/FPL logs

Step 5. For a complete explanation of the management processor and all commands, refer to Chapter 3, "Utilities."

System Event Logs (SEL)

Step 1. Access the management processor command prompt.

Step 2. Run the `sl` command. The Event Log Viewer menu will display:

```
SL

Event Log Viewer:


Log Name            Entries    % Full        Latest Entry

-----------------------------------------------------------------

E - System Event          9         1 %      29 Oct 2002 19:15:05

F - Forward Progress    129         3 %

B - Current Boot         82
```

```
P - Previous Boot           0

L - Live Events

C - Clear All Logs



Enter your choice or [Q] to Quit:
```

Step 3. Select **e** to review the events. The Event Log Navigation menu will display:

```
Set up alert filter options on this buffer? (Y/[N])

(N)

       Log Name            Entries    % Full        Latest Entry

------------------------------------------------------------------

E - System Event          410        47 %       18 Feb 2003 09:38:10



Event Log Navigation Help:



    +        View next block     (forward in time,  e.g. from 3 to 4)

    -        View previous block (backward in time, e.g. from 3 to 2)

    <CR>     Continue to the next or previous block

    D        Dump the entire log for capture and analysis

    F        First entry

    L        Last entry

    J        Jump to entry number

    V        View mode configuration (text, keyword, hex)

    ?        Display this Help menu

    Ctrl-B   Quit and return to the Main Menu
```

Step 4. Select **v**, then **t** to change the display to text mode:

```
Display Mode Configuration:

            H - Hex mode

   Current -> K - Keyword mode

            T - Text mode

Enter new value, or [Q] to Quit:

T
```

Step 5. To decode the blinking state of System LED, review the entire SEL and look at events with alert level 3 and above.

For example:

```
Log Entry 24: 14 Feb 2003 15:27:02

Alert Level 3: Warning

Keyword: Type-02 1b0800 1771520

Hot Swap Cage: SCSI cable removed

Logged by: BMC;  Sensor: Cable / Interconnect - SCSI ChExt Cable

Data1: Device Removed/Device Absent

0x203E4D0AC6020220 FFFF0008F61B0300


Log Entry 73: 00:00:12

Alert Level 3: Warning

Keyword: Type-02 050301 328449

The server's built-in sensors have detected an open chassis door.

Logged by: BMC;  Sensor: Physical Security - Chassis Open

Data1: State Asserted

0x200000000C020570 FFFF010302050300
```

Operating System Will Not Boot

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

- Offline Diagnostic Environment (ODE)

Offline Diagnostic Environment (ODE)

ODE is used to evaluate specific hardware components via a command line interface. To access ODE from your *ODE CD*, perform the following steps:

Step 1. Power on your HP server and insert the *ODE CD*.

Step 2. Boot the system to the PDC (BOOTADMIN, BCH, etc.) prompt. PDC prompts may differ on some computer models.

```
Main Menu: Enter command or menu>
```

Step 3. List the bootable devices by entering search: `search`.

Step 4. Select the CD device that contains the *ODE CD*, for example: `p3`

Step 5. Boot from that device by entering boot p3: `boot p3`.

Step 6. You are asked to interact with the Initial System Loader (ISL) prompt. Enter yes: `y`.

Step 7. From the ISL prompt, start the Offline Diagnostics Environment by entering ODE: `ODE`.

The following commands are available at the ODE prompt:

Table 4-2   ODE Commands

Command	Description
`help`	To display a list and description of the available commands
`help` *<command>*	To display the additional information
`help` *<var>*	To display the additional information
`ls`	To list the ODE modules that will run on your computer
<module_name>	To run an ODE module interactively
`run` *<module_name>*	To run an ODE module non-interactively

Identifying and Diagnosing Hardware Problems

Should a hardware failure occur, the system LEDs and the System Event Log (SEL) will help you identify the problem:

*   LEDs. The lights on the front bezel of the server change color and blink in different patterns to help identify specific hardware problems. LEDs on the rear panel of the server display LAN status.

*   The System Event Log (SEL) provides detailed information about the errors identified by the LEDs. The SEL can be viewed using the MP.

Troubleshooting Using LEDs

If you suspect a hardware failure, the power and system LEDs, located on the control panel of the system, will help you identify the problem. The following sections describe their functions. Additional diagnostic LEDs are provided on the system board. (See "System Board Diagnostic LEDs" on page 52.)

If your server has no Extended Core I/O (ECI) card installed, the four diagnostic LEDs on the front panel warn of impending failures and allow you to take preventive action. For example, you may want to back up your data or replace a component before it fails.

*   If no ECI card is installed, the boot progress is monitored by diagnostic LEDs 1 through 4. During boot-up the LEDs will turn on in sequence until the BCH prompt is reached.

*   If an ECI card is installed, the boot process will be monitored by the management processor (MP). The four diagnostic LEDs will be disabled (always off). You can monitor server operation from a console using the MP.

Figure 4-1   Control Panel LEDs
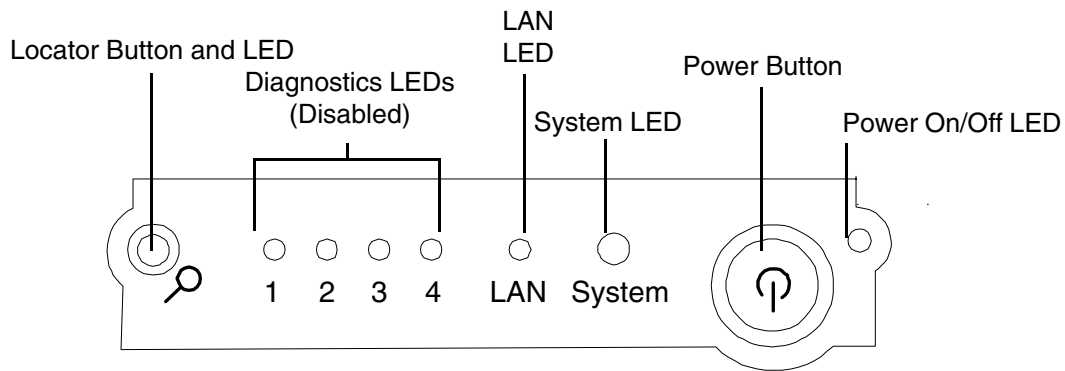
Power and System LEDs

The power and system LED indicate the state of the system. When the system LED is blinking yellow or red, a problem exists.

Table 4-3   System LED States

System LED	State
Off	AC power off if power LED is off.
Solid green	Running OS.

Table 4-3   System LED States (Continued)

System LED	State
Blinking green	Booting or running BCH.
Blinking yellow (1/sec.)	Attention: Alerts of levels 3-5 detected in the management processor logs The LED will turn off once the event log has been read.
Blinking red (2/sec.)	Fault: System Alert 7 Detected, LED will blink until the problem is resolved and the system boots successfully Fatal hardware error detected by BMC, LED will blink until problem is corrected.

For system alerts of levels 3-5, the attention condition on the LED can be cleared by accessing the logs using the `sl` command available in the management processor command mode.

The fault condition for system alerts of level 7 can be cleared by resolving the problem and cycling power. Refer to the SL error logs for additional error information.

NOTE	Always check the management processor status logs in the case of a blinking yellow or red system LED before replacing any hardware.

LAN LEDs

The front panel LAN LED indicates the system is communicating over the Gigabit or system management LAN:

• Blinking green—The system is communicating over the LAN

• Solid green—LAN link is established, no current LAN activity

• Not green—No LAN cable attached, LAN network dead or the system is off

10/100/1000 LAN LEDs are on the rear panel:

Table 4-4   10/100/1000 Base-T Ethernet LAN Connector LEDs

LED	Description
1000BT	Blinking green—the 1000 MHz with ethernet protocol and twisted-pair wiring is enabled, off—no link
100BT	Blinking green—the 100 MHz with ethernet protocol and twisted-pair wiring is enabled, off—no link
10BT	Blinking green—the 10 MHz with ethernet protocol and twisted-pair wiring is enabled, off—no link
Activity	Blinking green—LAN activity

One System Management 10/100 LAN port on the rear panel provides the following LEDs:

Four management processor LAN LEDs are also on the rear panel:

Table 4-5   iLO Manageability Card LAN LEDs

LAN LED	Location	Color	State
Self-test	Top	Yellow	Management processor running selftest or error
		Off	Management processor has booted
10BT	2nd from top	Green	10BT link established
		Blinking green	10BT activity
		Off	No link or 100BT link
100BT	2nd from bottom	Green	100BT link established
		Blinking green	100BT activity
		Off	No link or 10BT link
Standby power	Bottom	Green	Standby power on
		Off	Standby power off

System Board Diagnostic LEDs

There are three additional LEDs that can help when troubleshooting the system. These LEDs are located on the system board close to the back of the system and can be viewed through the small cooling holes in the system case.

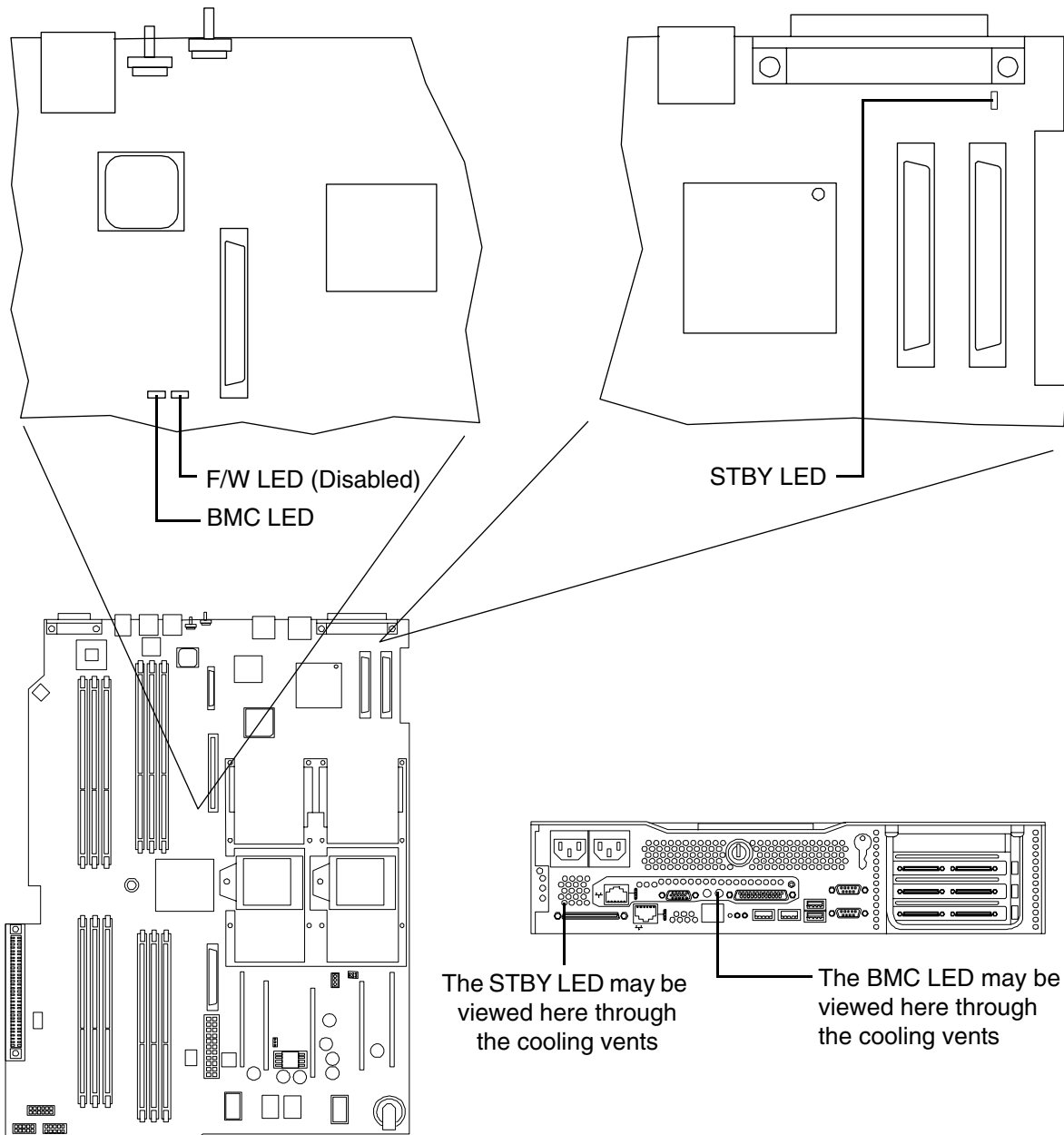**Figure 4-2   Location of the STBY and BMC LEDs**

F/W LED (Disabled)

BMC LED

STBY LED

The STBY LED may be viewed here through the cooling vents

The BMC LED may be viewed here through the cooling vents

Table 4-6   System Board LEDs

LED	Cleaning Procedure
STBY	This standby LED comes on as soon as the system's power cord is plugged in. If this light is off when you plug it in, reseat the power supply, and if this does not work, replace the power supply
BMC	A few seconds after the system is plugged in this LED starts blinking, which means that the Baseboard Management Controller (BMC) is alive

Cleaning Procedures

Refer to the following table for cleaning procedures for this HP 9000 rp3410 or HP 9000 rp3440 server. Be sure to turn off power to the server when cleaning it.

Table 4-7   Cleaning

Component	Time Frame	Cleaning Procedure
Keyboard	Regularly	Dust with damp, lint-free cloth
Monitor screen	Regularly	Use the HP Video Screen Cleaning Solution found in 92193M Master Clean Kit
Mouse	Regularly	Refer to the mouse's manual for mouse maintenance procedures
Cooling fans and grills	6 Months	Check functions of cooling fans and clean the intake openings on the chassis of dust, lint, and other obstructions to airflow

CAUTION   DO NOT use petroleum-based cleaners (such as lighter fluid) or cleaners containing benzene, trichlorethylene, ammonia, dilute ammonia, or acetone. These chemicals could damage all plastic and painted surfaces.

Where to Get Help

HP customer care will help you solve server problems and, if necessary, initiate appropriate service procedures.

Support is available on the web and by phone.

For information on contacting the HP IT Resource Center (ITRC) near you, go to http://www.itrc.hp.com.

Information to Collect Before you Contact Support

Before you contact HP support, you should:

Step 1. Check the previous sections of this chapter and attempt to solve the problem.

 • Note failure symptoms and error indications (LEDs and messages) by checking the SEL and FPL logs

 • Try to determine precisely what did or did not happen

Step 2. Collect the following information:

 • The model number of your server (for example, rp3410)

 • The product number of your server. This can be found on the identification label, which is found at the front of the unit. (typically A7137A A7136B, and so on)

 • The serial number of your server. This can be found on the identification label

Step 3. Be familiar with your system configuration.

 • Are you using the LAN, RS232, or web interface to monitor the server?

 • How many processors, DIMMs, and PCI cards have been installed?

 • What versions of processor, memory, and PCI cards are used and where are they installed?

 • What accessories are installed?

Step 4. Determine the following:

 • Which firmware versions are in use?

 • When did the problem start?

 • Have recent changes been made to the system?

 • Which operating system and version is in use?

Online Support

To contact HP Customer Support online, refer to the *Worldwide Limited Warranty and Technical Support Guide* or visit us at http://www.hp.com/go/bizsupport. On our web page, enter the server model number (rp3410) and search the field.

The following information is available on this web site:

 • Software and firmware updates

- The latest drivers and utilities

- Additional documentation

Phone Support

To contact HP customer support by phone, go to the HP IT Resource Center (ITRC) near you, at http://www.itrc.hp.com. Local phone numbers are listed in your native language for help.

5 Specifications

Introduction

This chapter provides the hardware specifications of the HP 9000 rp3410 and HP 9000 rp3440 server. The following tables provide the specifications required for normal operation of the HP 9000 rp3410 or HP 9000 rp3440 server.

Hardware Specifications

Table 5-1   Hardware Specifications

Component	rp3410	rp3440
Microprocessors	One or two PA RISC 800 MHz/1.5 MB cache	Two or four PA RISC 800 MHz/32 MB cache 1 GHz/32 MB cache
Memory	Supports up to 12 double data rate (DDR) registered ECC memory, in PC2100 DIMMs. Supported DDR DIMM sizes: 256 MB, 512 MB and 1 GB	Supports up to 12 double data rate (DDR) registered ECC Memory, in PC2100 DIMMs. Maximum memory capacity is 32 GB if 4 GB DIMMs are used. Supported DDR DIMM sizes: 256 MB, 512 MB, 1 GB, 2 GB, and 4 GB
Disk drives	Three 36 GB, 15K RPM Ultra320 SCSI hot-plug disks or Three 73 GB, 15K RPM Ultra320 SCSI hot-plug disks or Three 146 GB, 10K RPM Ultra320 SCSI hot-plug disks	Three 36 GB, 15K RPM Ultra320 SCSI hot-plug disks or Three 73 GB, 15K RPM Ultra320 SCSI hot-plug disks or Three 146 GB, 10K RPM Ultra320 SCSI hot-plug disks
Video	A6150 PCI card (optional)	A6150 PCI card (optional)
SCSI	Integrated Ultra-3 SCSI dual channel controller; 80 Mb/s transfer rate with one internal 68-pin connector and one external 68-pin connector	Integrated Ultra-3 SCSI dual channel controller; 80 Mb/s transfer rate with one internal 68-pin connector and one external 68-pin connector
LAN	PCI Gigabyte, fast ethernet controller	PCI Gigabyte, fast ethernet controller
PCI slots	Two 64-bit PCI-X slots, 133 MHz, 3.3V slots	Four 64-bit PCI-X slots, 133 MHz, 3.3V slots

Table 5-1   Hardware Specifications (Continued)

Component	rp3410	rp3440
Core I/O	One serial port, four USB 2.0 ports, integrated RJ-45 LAN on iLO manageability card	One serial ports, four USB 2.0 ports, integrated RJ-45 LAN on iLO manageability card
DVD-ROM	None	IDE interface; 48x speed
External storage	Optional	Optional
Power supply	One 650W power supply. (A second 650W power supply can be installed to provide a N+1 configuration)	One 650W power supply. (A second 650W power supply can be installed to provide a N+1 configuration)

Server Dimensions and Weights

This section provides dimensions and weights of HP 9000 rp3410 and HP 9000 rp3440 server components.

Component Dimensions

Table 5-2   Server Component Dimensions

Dimension	Value
Rack dimensions (depth x width x height)	67.9 cm (26.8 in.) maximum x 48.3 cm (19.0 in.) x 8.6 cm (3.4 in.)
Tower dimensions (depth x width x height)	67.5 cm (26.6 in.) x 29.5 cm (11.6 in.) x 49.4 cm (19.5 in.)
Rack weight	Min: 17.5 kg (38.6 lb.) Max: 22.2 kg (49.0 lb.)
Tower weight	Min: 22.4 kg (49.4 lb.) Max: 25.5 kg (56.3 lb.)
Tower footprint	0.2 m2 (2.1 sq. ft.)
Rack units	2U

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