

hp Integrity rx4640 Operations Guide

Regulatory Model Number: RSVLA-0201

Version 2.0



**Manufacturing Part Number: rx4640_op
November 2004**

U.S.A.

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The CD will autorun when you insert it into a Windows® workstation, or, point your browser at the index.htm file located under the **Start** directory of the CD. All users, including UNIX®/Linux, can access a manual set by viewing the directory **manuals**. The manuals are in Adobe® Acrobat® Reader (pdf) format.

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1 About This Document

This document describes how to operate your hp Integrity rx4640 Server, Regulatory Model Number: RSVLA-0201.

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

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What's in This Document

The *hp Integrity rx4640 Operations Guide* contains these chapters:

- **Chapter 2, “Controls, Ports, and Indicators.”** Use this chapter to learn about the front panel controls, rear panel ports and connectors, and all system LED locations and functions.
- **Chapter 3, “External Connectors.”** Use this chapter to learn about all external connectors, plugs, and their pinouts.
- **Chapter 4, “Utilities.”** Use this chapter to learn how to navigate in the EFI and management processor environments.
- **Chapter 5, “Troubleshooting.”** Use this chapter to learn how to perform minimal troubleshooting of your system
- **Chapter 6, “Specifications.”** Use this chapter to learn the basic mechanical specifications of your HP Server.

Typographical Conventions

This document uses the following conventions.

<i>Title</i>	The title of a document or a CD.
KeyCap	The name of a keyboard key. Note that Return and Enter both refer to the same key.
<i>Emphasis</i>	Text that is emphasized.
Bold	Text that is strongly emphasized, such as the summary text in bulleted paragraphs.
ComputerOut	Text displayed by the computer.
UserInput	Commands and other text that you type.
Command	A command name or qualified command phrase.

Related Documents

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

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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. See the *hp Integrity rx4640 Installation Guide*.
- 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, rx4640).

- The product number of your server. This can be found on the identification label, which is found at the front of the unit (typically A6837B A6838B, 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?

2 Controls, Ports, and Indicators

Introduction

This chapter describes the controls, ports, and indicators found on the front panel, rear panel, and internal locations of the hp Integrity rx4640 Server. The hp Integrity rx4640 Server comes in either rack mount or pedestal configurations.

Front Panel

The front panel of the hp Integrity rx4640 Server provides the controls and indicators commonly used for operation.

Figure 2-1 Front View with Bezel

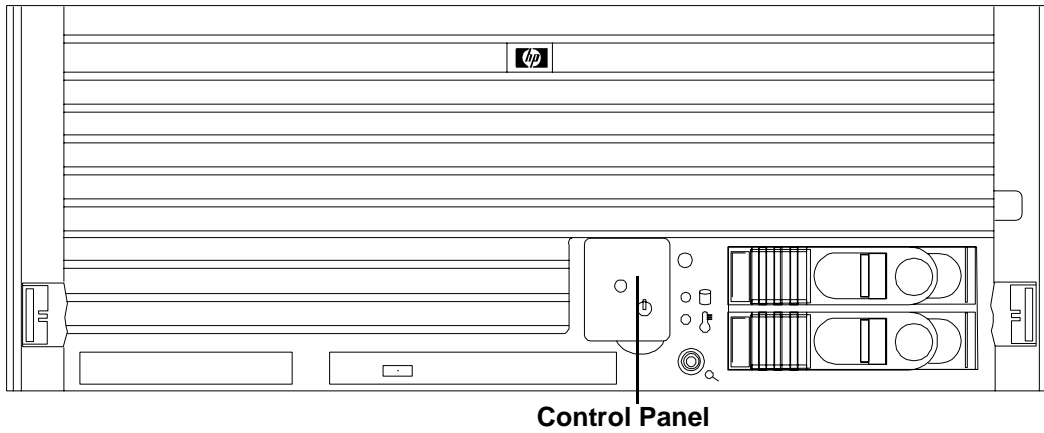


Figure 2-2 Accessing the Control Panel

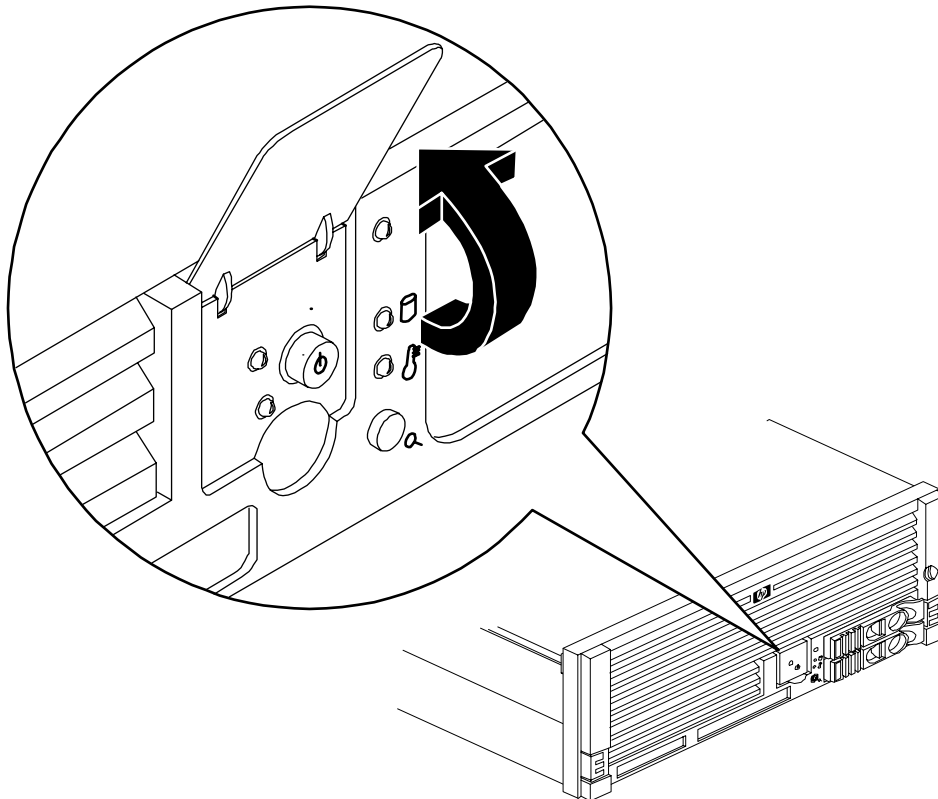


Figure 2-3 Control Panel

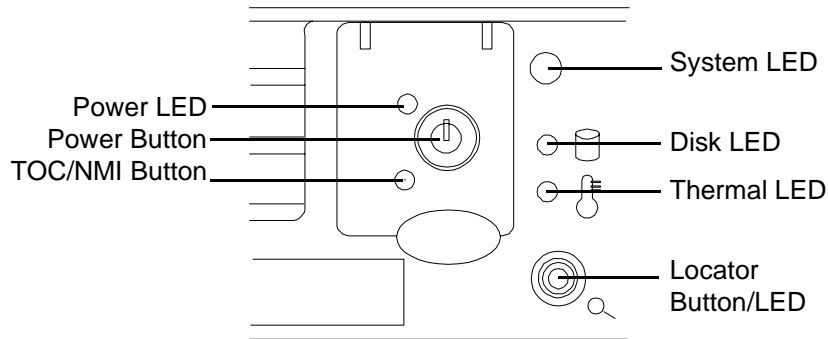


Table 2-1 Control Panel LED Definitions

LED/ Button	State	Flash Rate	Color	Description
System	Running	Steady	Green	Green: System normal—OS up and running
System	Booting	Flashing at 0.5Hz	Green	Flashing Green: OS booting or at EFI
System	Attention	Flashing at 1 Hz	Yellow	Flashing Yellow: Warning-system needs attention. Redundancy lost, component failure pending.
System	Fault	Flashing at 2 Hz	Red	Flashing Red: Hard fault. system halted
System	Off	Off	N/A	Off: System off
Power	On	Steady	Green	Green: Power normal
Power	On	Steady	Yellow	Flashing Yellow: Housekeeping voltage present
Power	Off	Off	Off	Off: Power off
Disk LED		Flashing at rate of disk activity	Green	Flashing Green: Disk activity
Thermal LED	OK	Steady	Green	Green: Thermal OK
Thermal LED	Warning	Flashing at 1 Hz	Yellow	Flashing Yellow: Thermal warning
Locator LED/Button		Flashing at 1 Hz	Blue	Flashing Blue: System locator LED may be remotely or locally activated/deactivated

Switch/Button and Front Control Panel LED Definitions

Table 2-2 Switch/Button LED Definitions

Button/Switch	Description
Power Button	The power switch turns the HP Server power on or off. If sleep states are available, it also transitions between power-on and sleep states. Sleep states are NOS dependent and only available if your NOS supports power management based on the ACPI (Advanced Configuration and Power Interface) standard.
NMI Button (Paper clip may be used to depress button.)	Press the nonmaskable interrupt (NMI) switch before restarting the system after a hung condition occurs. NMI provides crash dump capture capability. Obtain a system hardware status dump to use in root cause analysis and debugging.

Additional Controls and Indicators

Storage devices have additional LEDs showing their status.

Hot-Plug Disk Drive Indicators

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

- Drive Status LED - The drive status LED is tri-color and may display green, amber, or yellow at any given time. These colors indicate a normal, warning, or failure condition.
- Drive Activity LED - The drive activity LED is green and indicates disk drive activity. This LED is controlled by the disk drive directly and turns on when a drive is accessed.

Figure 2-4 Hot-Swap Disk Drive LED Indicators

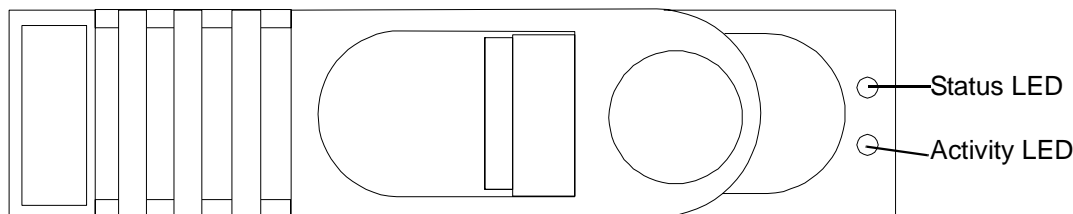


Table 2-3 Hot-Swap Disk Drive LED Definitions

LED	Color	Description
Activity LED	Flashing green	Drive access under hard drive control.

Table 2-3 Hot-Swap Disk Drive LED Definitions (Continued)

LED	Color	Description
Status LED	Solid Amber	Drive fault.
	Amber	Missing management board or jumper cable. For all HDD on SCSI bus A and/or B.
	Green	Drive/Slot normal (drive present).
	Blank	Pass through mode.

DVD-ROM/DVD-R/DVD-RW Drives

The HP Server is delivered with one DVD-ROM drive (DVD-R and DVD-RW optional). Each of these devices has one activity LED.

Figure 2-5 DVD-ROM Drive

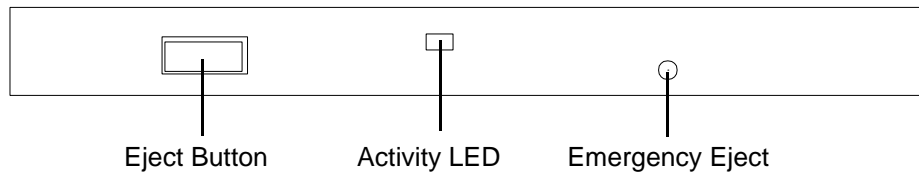


Table 2-4 DVD Drive LED Definitions

LED	Color	Description
Activity LED	Flashing green	Drive access under hard drive control.

QuickFind Diagnostic Panel

The QuickFind diagnostic panel has 27 single color LEDs and one multi-color LED for temperature. The LEDs are normally off. The appropriate LED is turned on when an error is detected or a replacement part is required.

Accessing the QuickFind Diagnostic Panel

You can access the QuickFind diagnostic panel by removing the top cover (refer to the *hp Integrity rx4640 Installation Guide*). You can use the QuickFind diagnostic panel as an aid in troubleshooting. For a complete description of QuickFind diagnostic LED states, see the *hp Integrity rx4640 Installation Guide*.

Figure 2-6 QuickFind Diagnostic Panel

Refer to Reference Label for Additional Information				
	0	1	2	3
Processor	○	○	○	○
Subsystem	○	○	○	○
I/O VRM	○	○	○	○
CPU VRM	○	○	○	○
Fan	○	○	○	○
	A	B	C	D
Memory Bank 0	○	○	○	○
Memory Bank 1	○	○	○	○
Memory Bank 2	○	○	○	○
Memory Bank 3	○	○	○	○
Memory Bank 4	○	○	○	○
Memory Bank 5	○	○	○	○
Memory Bank 6	○	○	○	○
Memory Bank 7	○	○	○	○
Power Supply				○
Memory Config Error				○
Processor Config Error				○
Missing Component				○
System Temperature				○
Check Event Log				○

○ Marks unused LED positions covered by the label

Table 2-5 QuickFind Diagnostic Panel LEDs

Item	LED 0	LED 1	LED 2	LED 3	Details
Processor	Socket 0	Socket 1	Socket 2	Socket 3	<p>If the System LED (on front panel) is in the attention or fault state and the processor LED is lit, then the processor or voltage regulator has failed—the processor module in the specified socket needs to be replaced.</p> <p>If the thermal LED is in the warning or critical state and the processor LED is lit, then the processor exceeded the warning or critical level.</p>

Table 2-5 QuickFind Diagnostic Panel LEDs (Continued)

Item	LED 0	LED 1	LED 2	LED 3	Details
Subsystem	CPU board	Memory board	I/O board	n/a	A soldered voltage regulator has failed—the specified board must be replaced.
I/O VRM	12 volt	5 volt	3 volt	n/a	A plug-in voltage regulator has failed—specific VRM must be replaced.
CPU VRM	n/a	n/a	n/a	n/a	n/a
Fan Module	0	1	2	n/a	One or both fans in a fan module has failed—the module must be replaced. Fan 2 is in front of the power supplies.
Memory Bank X (0-7)	DIMM xA	DIMM xB	DIMM xC	DIMM xD	The specified DIMM has failed—the DIMM must be replaced. If all the LEDs for a rank (0-7) are lit and the Memory Config Error LED is lit then the DIMMs in the specified rank are mismatched—replace mismatched DIMM.
Check Power Supply	n/a	n/a	n/a		One of the power supply or power supply fans has failed—replace the power supply. The faulty power supply LED (located on power supply) will be lit.
Memory Config Error	n/a	n/a	n/a		The DIMMs in a rank are mismatched. All the DIMMs in the specified rank (0-7) will be lit.
Processor Config Error	n/a	n/a	n/a		The processors are mismatched—replace mismatched processor.
Missing Component	n/a	n/a	n/a		A required component(s) is not installed in the system and thus preventing power up.
System Temp	n/a	n/a	n/a		The internal temperature of the server has exceeded the warning or critical level.
Check Event Log	n/a	n/a	n/a		An event has occurred that requires attention.

I/O Baseboard LED Indicators

Various LEDs, sensors, reset, and attention buttons are found on the I/O baseboard.

Figure 2-7 I/O Baseboard LEDs, Buttons, and Sensors

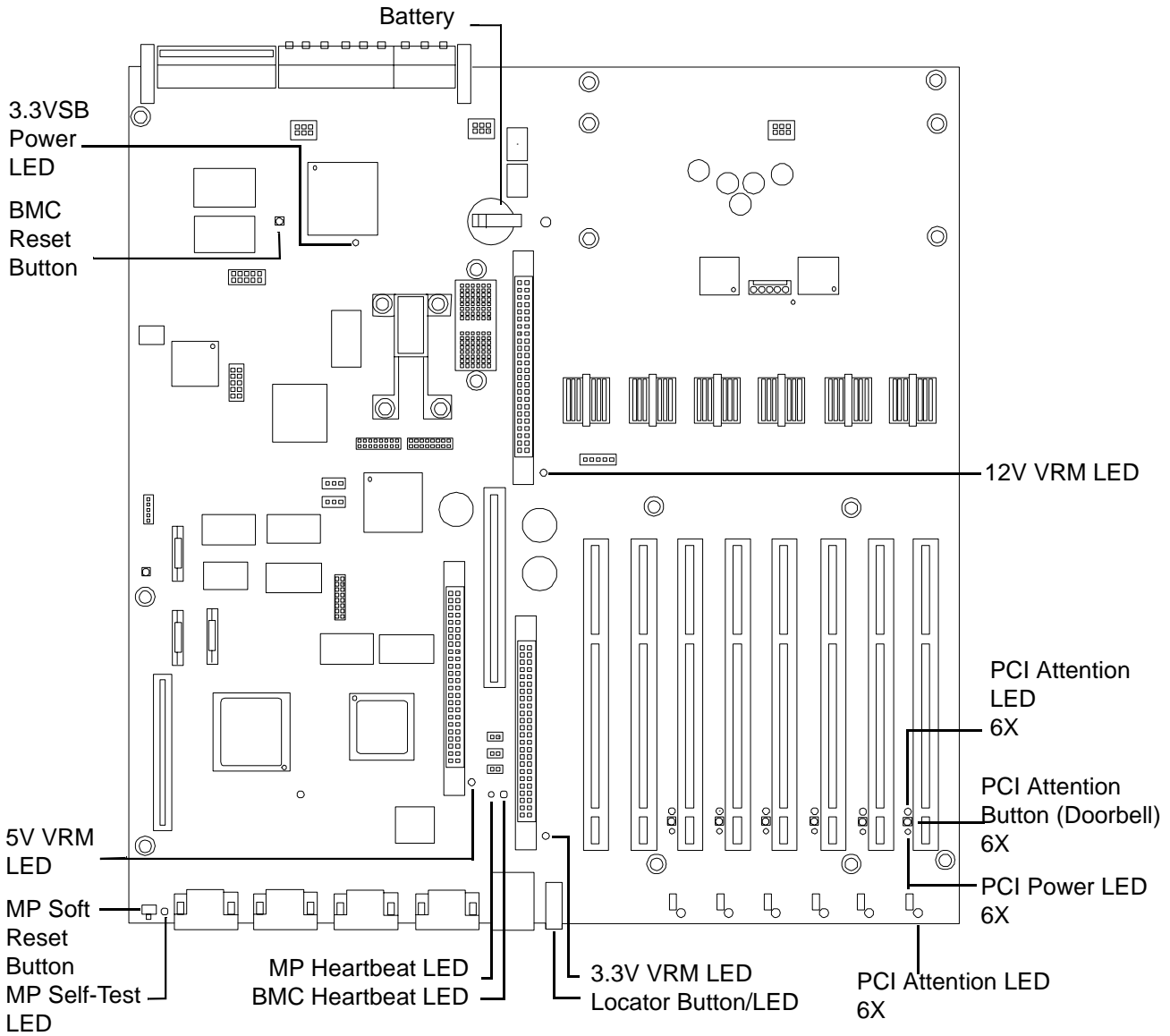


Table 2-6 I/O Baseboard LEDs, Buttons, and Sensors

LED/Button	Color	Status	Condition
12V VRM Power LED	Green	On	12V VRM is functioning.
5V VRM Power LED	Green	On	5V VRM is functioning.

Table 2-6 I/O Baseboard LEDs, Buttons, and Sensors (Continued)

LED/Button	Color	Status	Condition
3.3V VRM Power LED	Green	On	3.3V VRM is functioning.
MP Heartbeat	Green	Blinking	The management processor is functioning correctly.
MP Self Test LED	Amber	On	The management processor is executing the internal self test.
		Off	The management processor has passed the internal self test.
BMC Heartbeat	Green	Blinking	The baseboard management controller is functioning correctly.
3.3VSB Power LED	Green	On	Standby power is available.
MP Soft Reset Button	N/A	Press	Resets the management processor values.

Rear Panel

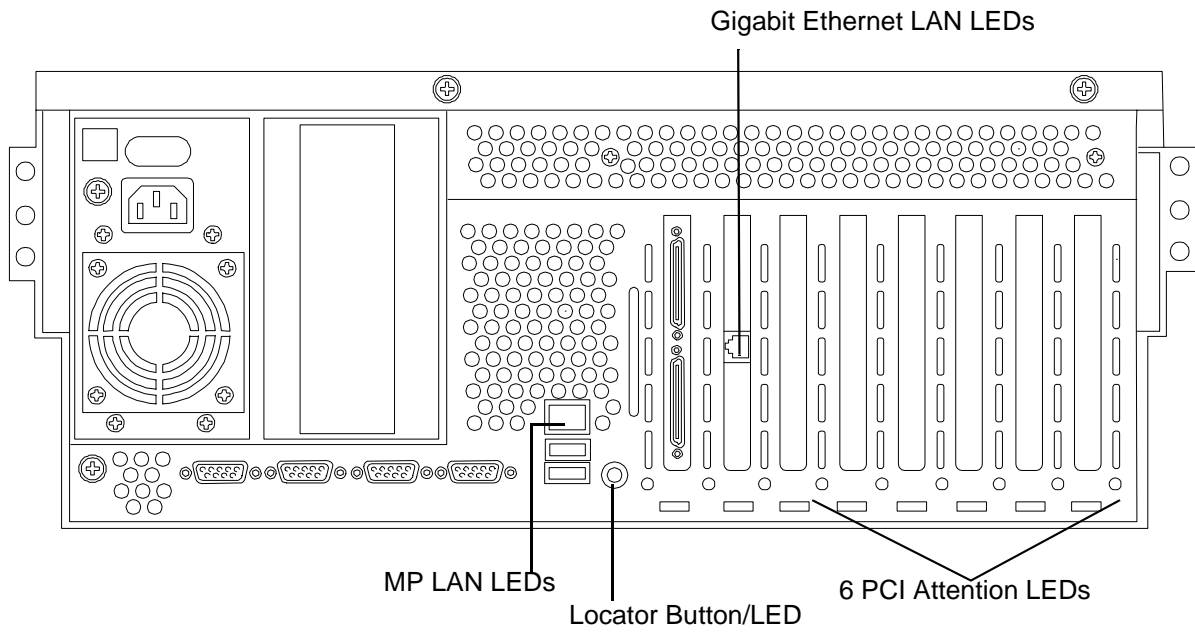
The HP Server rear panel includes communication ports, I/O ports, AC power connectors, two power supply bays, attention LED indicators for the hot-plug PCI boards, and the locator LED/button. LEDs located on the rear panel of the HP Server signal the operational status of:

- Power supplies
- Management processor LAN
- 2 Port Gigabit Ethernet card LAN

Rear Panel

- PCI slots 3-8

Figure 2-8 Rack Mount and Pedestal Rear View



Power Supply Status LEDs

Each 200-240 VAC power supply unit has three status LEDs located on the power supply rear side. Consolidated status of all power supplies is reported by the front control panel by the power status LED.

Figure 2-9 Power Supply Status LED

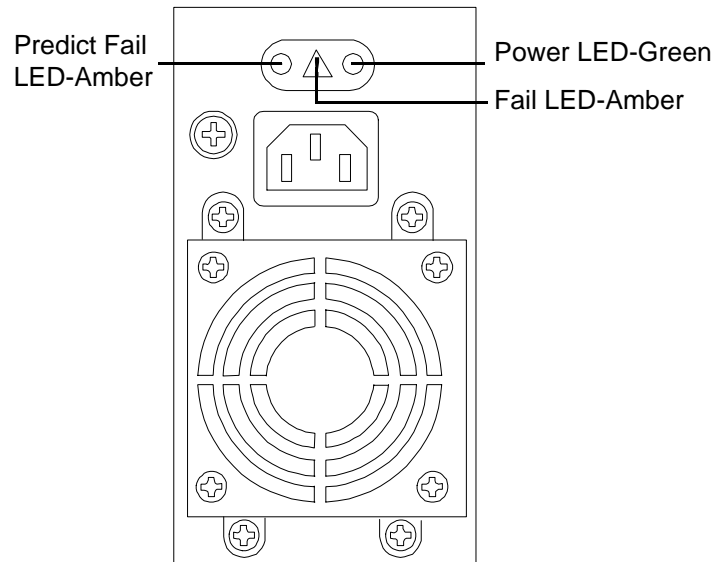


Table 2-7 Power Supply Status LED

Power LED-Green	Predict Fail LED-Amber	Fail LED-Amber	Status
Off	Off	Off	No AC power applied to all PSUs.
Off	Off	On	No AC power applied to this PSU only.
Blinking	Off	Off	AC present/standby outputs on.
On	Off	Off	PSU DC outputs on and OK.
Off	Off	On	Power supply failure.
On	Blinking	Off	Predictive failure—PSU about to fail because of poorly performing fan.
On	Off	Blinking	Current limit on 48 VDC output.

Management Processor LAN LEDs

The internal management processor (MP) LAN uses an RJ-45 type connector. This connector has two LEDs (LAN link and LAN activity) that signal status and activity.

Figure 2-10 MP LAN LEDs

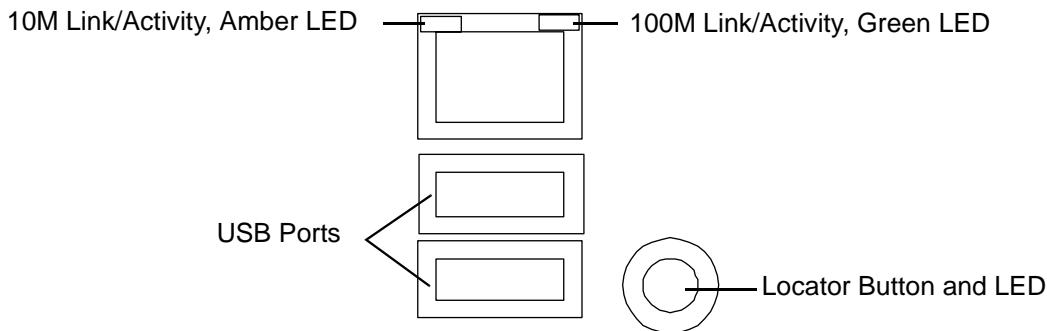


Table 2-8 MP LED Status Descriptions

LED	Condition	Status
10M amber	On	Linked at 10MBps—no activity
10M amber	Blinking	Linked at 10MBps—activity present
100M green	On	Linked at 100MBps—no activity
100M green	Blinking	Linked at 100MBps—activity present

Locator LED and Button

An LED and button is provided on the rear panel of the server. Another single blue LED and button is on the front control panel that enables/disables the locator function. See Figure 2-10, “MP LAN LEDs.”

Gigabit Ethernet Card LAN LEDs

(Core I/O)

The 2-Port core I/O Gigabit Ethernet card uses an RJ-45 LAN connector. This connector has 4 LEDs (3 LAN link and 1 LAN activity) that signal link speed and activity.

Figure 2-11 Core I/O LAN Port LEDs

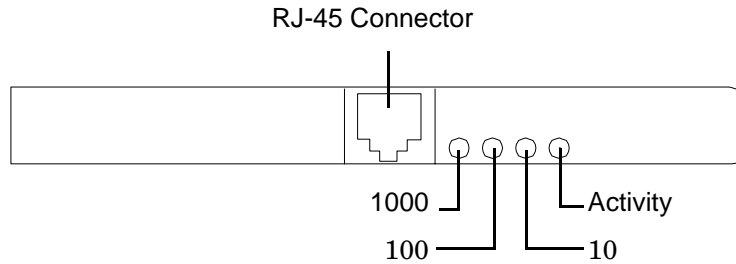


Table 2-9 Core LED Status Descriptions

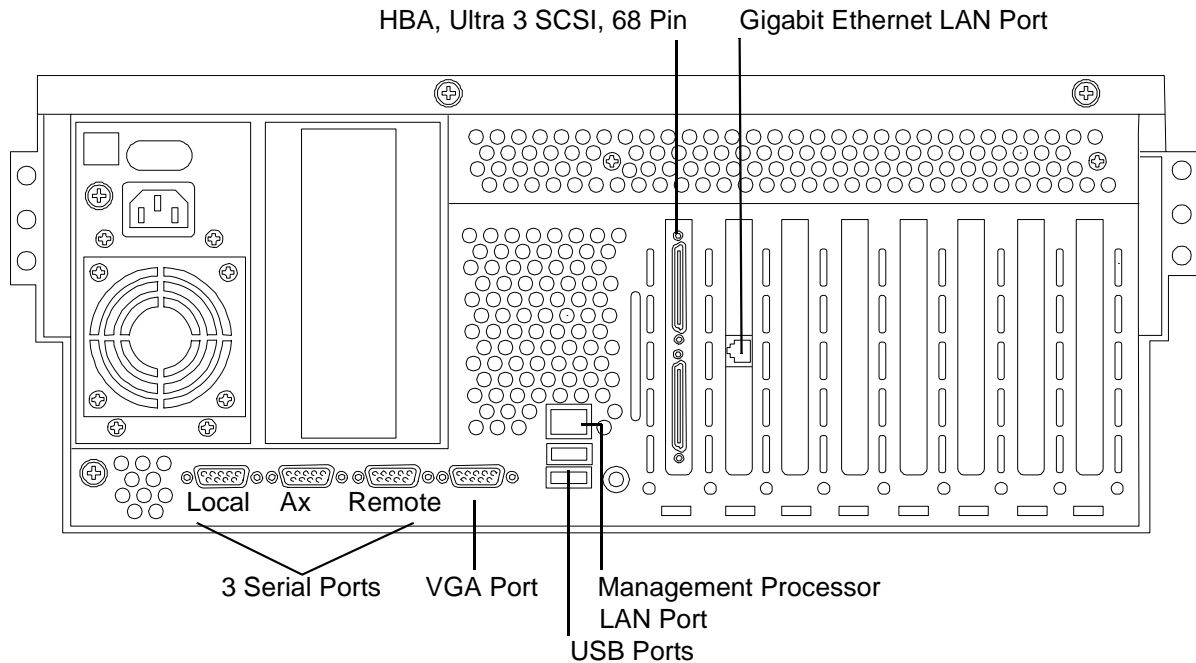
LED	Condition	Status
Activity	Green—on	Linked—no activity
Activity	Green—off	No link
Activity	Green—blinking	Linked—activity present
1000	Green—on	Link speed—1000 MBps
100	Green—on	Link speed—100 MBps
10	Green—on	Link speed—10 MBps

3 External Connectors

Connector Pinouts

The following ports and connectors are found on the rear panel of the hp Integrity rx4640 Server. The SCSI Host Bus Adapter card in slot 1 and the Gigabit Ethernet card in slot 2 are factory installed.

Figure 3-1 Rear View



Universal Serial Bus (USB) Ports

Figure 3-2 USB Port Connector

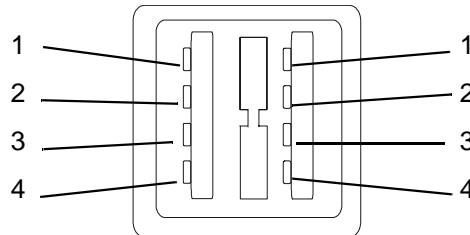


Table 3-1 USB Pinouts

Pin Number	Signal Description
1	+5VDC
2	MR

Table 3-1 USB Pinouts (Continued)

Pin Number	Signal Description
3	PR
4	Ground

VGA Port

Figure 3-3 Video Port Connector

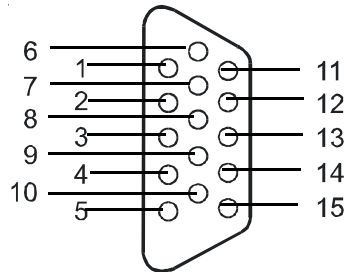


Table 3-2 Video Connector Pinouts

Pin Number	Signal Description	Pin Number	Signal Description
1	Red	9	+5VDC
2	Green	10	Sync return (ground)
3	Blue	11	Not used
4	Not used	12	Monitor ID bit 1
5	Video Self Test (ground)	13	Horizontal sync (+)
6	Red return (ground)	14	Vertical sync (-)
7	Green return (ground)	15	Video ID bit 2
8	Blue return (ground)		

Serial Ports

Figure 3-4 Serial Port Connector

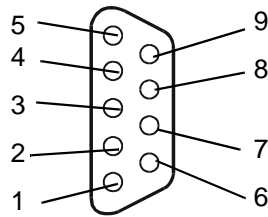


Table 3-3 Serial Port Pinouts

Pin Number	Signal Description
1	Data carrier detect
2	Receive data
3	Transmit data
4	Data Term ready
5	Ground
6	Data set ready
7	Request to send
8	Clear to send
9	Ring indicator

Management Processor LAN Port

Figure 3-5 Management Processor Port

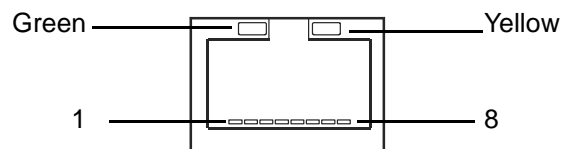


Table 3-4 Management Processor LAN Port Pinouts

Pin Number	Signal Description
1	TXP
2	TXN
3	RXP

Table 3-4 Management Processor LAN Port Pinouts (Continued)

Pin Number	Signal Description
4	Not used
5	Not used
6	RXN
7	Not used
8	Not used

Additional Ports on Accessory Boards

Gigabit Ethernet (LAN) Port

Figure 3-6 LAN Port

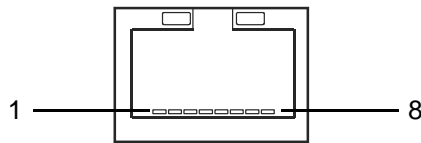


Table 3-5 LAN Port Pinouts

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

SCSI Port, Ultra 3, 68-Pin

Two Ultra 3, 68-pin SCSI connectors are located on the host bus adapter (HBA) located in PCI slot 1. The upper connector supports SCSI channel A and the lower connector supports SCSI channel B.

Figure 3-7 SCSI Port, Ultra 3, 68-Pin

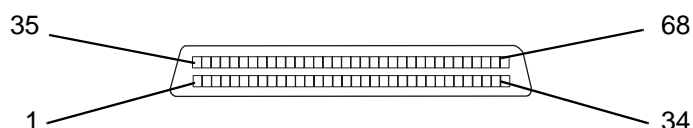


Table 3-6 SCSI Port Pinouts

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 (+DB5)	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)
20	S20	54	S54

Table 3-6 SCSI Port Pinouts (Continued)

Pin Number	Signal Description	Pin Number	Signal Description
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)

4 Utilities

Extensible Firmware Interface (EFI) Boot Manager

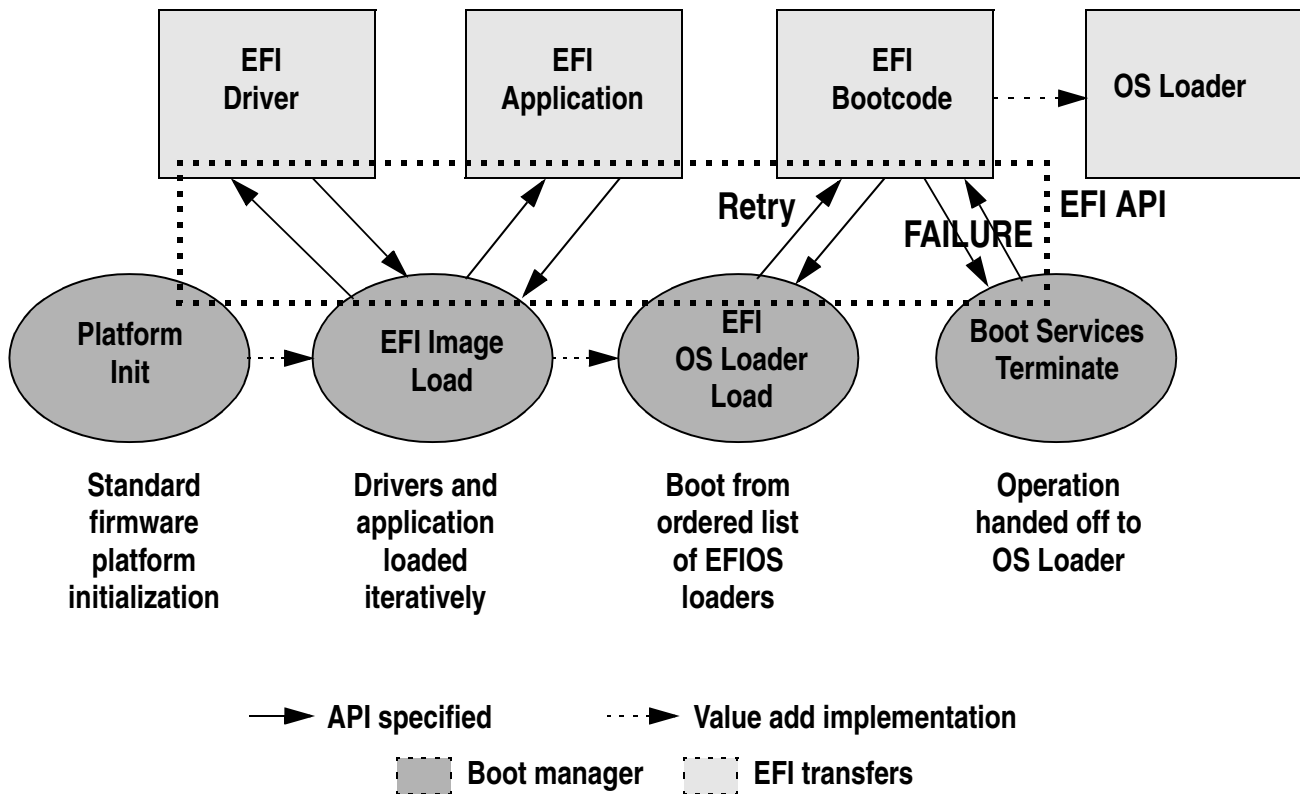
EFI (Extensible Firmware Interface) is an OS and platform-independent boot and preboot interface. EFI lies between the OS and platform firmware, allowing the OS to boot without having details about the underlying hardware and firmware. EFI supports boot devices; uses a flat memory model; and hides platform and firmware details from the OS.

NOTE EFI and Pre-OS System Environment (POSSE) are similar. EFI is an Intel specification, whereas POSSE is the HP implementation that aids HP support.

EFI consolidates boot utilities found in PA-RISC based systems, such as the Boot Console Handler (BCH), and platform firmware into a single platform firmware. EFI allows the selection of any EFI OS loader from any boot medium that is supported by EFI boot services. An EFI OS loader supports multiple options on the user interface.

EFI supports booting from media that contain an EFI OS loader or an EFI-defined System Partition. An EFI-defined System Partition is required by EFI to boot from a block device.

Figure 4-1 EFI Boot Sequence



Extensible Firmware Interface (EFI) Boot Manager

The EFI boot manager loads EFI applications (including OS first stage loader) and EFI drivers from an EFI-defined file system or image loading service. NVRAM variables point to the file to be loaded. These variables contain application-specific data that is passed directly to the EFI application. EFI variables provides system firmware a boot menu that points to all the operating systems, even multiple versions of the same operating systems.

The EFI boot manager allows you to control the server's booting environment. Depending on how you have configured the boot options, after the server is powered up the boot manager presents you with different ways to bring up the system. For example, you can boot to the EFI shell, to an operating system located on the network or residing on media in the server, or the Boot Maintenance menu.

- *Boot from a File*—Automatically adds EFI applications as boot options or allows you to boot from a specific file. When you choose this option, the system searches for an EFI directory. If the EFI directory is found, then it looks in each of the subdirectories below EFI. In each of those subdirectories, it looks for the first file that is an executable EFI application. Each of the EFI applications that meet this criterion can be automatically added as a boot option. In addition, legacy boot options for A: and C: are also added if those devices are present. You can also launch a specific application without adding it as a boot option. In this case the EFI boot manager searches the root directories and the \EFI\TOOLS directories of all of the EFI system partitions present in the system for the specified EFI application.
- *Add a Boot Option*—Adds a boot option to the EFI boot manager. You specify the option by providing the name of the EFI application. Along with the name you can also provide either ASCII or UNICODE arguments the file might use. Given the EFI application name and any options, the EFI boot manager searches for the executable file in the same directories as described in “Boot from a File” option. When the file is found, it is executed.
- *Delete Boot Options*—Deletes a specific boot option or all boot options
- *Change Boot Order*—Controls the relative order in which the EFI boot manager attempts boot options. For help on the control key sequences you need for this option, refer to the help menu.
- *Manage BootNext Setting*—Selects a boot option to use one time (the next boot operation)
- *Set Automatic Boot Timeout*—Defines the value in seconds that pass before the system automatically boots without user intervention. Setting this value to zero disables the timeout feature.
- *Exit*—Returns control to the EFI boot manager main menu. This displays the active boot devices, including a possible integrated shell (if the implementation is so constructed).

EFI Commands

Table 4-1 lists EFI commands for the hp Integrity rx4640 Server. The equivalent BCH commands found in PA-RISC based systems are also listed.

Table 4-1 **EFI Commands**

EFI Shell Command	BCH Command Equivalent	BCH Command Parameters	Definition
These commands are found in all other menus			
info boot	Boot	[PRI HAA ALT <path>]	Boot from specified path
help <command>	HElp	[<menu> <command>]	Display help for specified command or menu

Table 4-1 **EFI Commands (Continued)**

EFI Shell Command	BCH Command Equivalent	BCH Command Parameters	Definition
reset	RESET		Reset the system (to allow reconfiguration of complex
exit (at EFI shell)	MAin		Return to the main menu
MAin			
EFI boot manager “change boot order”	PAth	[PRI HAA ALT CON KEY <path>]	Display or modify a path
bcfg	SEArch	[ALL]	Search for boot devices
bcfg	SEArch	[DISplay IPL] [<path>]	Search for boot devices
many commands offer a [-b] parameter to cause 25 line breaks	ScRoll	[ON OFF]	Display or change scrolling capability
COnfiguration			
autoboot	AUto	[BObt SEArch SStart] [ON OFF]	Display or set the auto start flag
info boot	BootID	[<processor #>[<bootid #>]]	Display or set processor boot identifier
EFI boot manager	Boot info		Display boot-related information
autoboot	BootTimer	[0-200]	Seconds allowed for boot attempt
cpuconfig	CPUconfig	[<proc>][ON OFF]	Config/deconfig processor
boottest	FastBoot	[ON OFF] or [test] [RUN SKIP]	Display or set boot tests execution
date	Time	[cn:yr:mo:dy:hr:mn[:ss]]	Read or set the date
time	Time	[cn:yr:mo:dy:hr:mn[:ss]]	Read or set the real time clock
INformation			
info all	ALL		Display all system information
info boot	BootINfo		Display boot-related information

Table 4-1 **EFI Commands (Continued)**

EFI Shell Command	BCH Command Equivalent	BCH Command Parameters	Definition
info cpu	CAche		Display cache information
info chiprev	ChipRevisions		Display revision number of major VLSI
MP command <df>	FRU		Display FRU information
info fw	FwrVersion		Display firmware version for PDC, ICM, and complex
info io	IO		Display firmware version for PDC, ICM, and complex
LanAddress	LanAddress		Display core LAN station address
info mem	Memory		Display memory information
info cpu	PRocessor		Display processor information
SERvice			
errdump clear	CLEARPIM		Clear (zero) the contents of PIM
mm	MemRead	<addr> [<len>] [<type>]	Read memory locations scope of page deallocation
PDT	PDT		Display or clear the page deallocation table
errdump mca errdump cmc errdump init	PIM	[<proc>] [HPMC LPMC TOC ASIC]]	Display PIM information (processor internal memory)

EFI/POSSE Commands

This section describes the EFI/POSSE commands developed for the server.

NOTE EFI and Pre-OS System Environment (POSSE) are similar. EFI is an Intel specification, whereas POSSE is the HP implementation that aids HP support.

help

Provides information on the EFI shell commands. It also has an additional feature to aid those familiar with the BCH menus to adjust to their equivalent functions in EFI.

Syntax

```
help [-b] <category>
help [-b] <cmd>
help [-b] bch <bchmenu> <bchcmd>
```

Parameters

-b	Enable page breaking
category	Category of commands to view help on commands
cmd	Shell command name on which to provide verbose information
bch	Display the list of BCH commands and their corresponding EFI
bchmenu	BCH menu name taken from the top level of the BCH menu
bchcmd	BCH command on which to display information

Operation

If help is invoked with no parameters, it displays a list of shell command categories. To list all of the commands within a category, the user should type **help <category>** (see examples). If invoked with the **-b** switch, any output longer than one page pauses after each page is displayed. If a shell command name is used as a parameter, verbose help is displayed for that command.

If help is invoked with the **bch** option, it displays a list of BCH commands and their corresponding EFI/POSSE commands. It instructs the user to repeat the command line followed by a menu name for more information on that menu. If help is invoked followed by **bch** and a menu name, it displays a list of commands that appear under that BCH menu. The user may then invoke help followed by **bch**, the menu name, and a BCH command name to display information on that command. This would point the user to the command that has taken the place of that BCH functionality, or will inform the user that the functionality no longer exists. As a shortcut, the user may enter help followed by **bch** and a BCH command name to go straight to that command.

Example 4-1 help Command

```
Shell> help
List of classes of commands:

boot          -- Booting options and disk-related commands
configuration -- Changing and retrieving system information
devices       -- Getting device, driver and handle information
memory        -- Memory related commands
shell         -- Basic shell navigation and customization
```

scripts -- EFI shell-script commandsType "help" followed by a class name for a list of commands in that class

Type "help" followed by command name for full documentation

Example 4-2 help configuration Command

```
Shell> help configuration
Configuration commands:
```

```
cpuconfig -- Deconfigure or reconfigure cpus
date      -- Display or set date
err       -- Display or set error level
esiproc   -- Make an ESI call
errdump   -- View/Clear logs
info      -- Display hardware information
monarch   -- View or set the monarch processor
palproc   -- Make a PAL call
salproc   -- Make a SAL call
time      -- Display or set time
ver       -- Displays version info
```

Type "help" followed by command name for full documentation on that command.

Type "help -a" to display a list of all commands.

Example 4-3 help cpuconfig Command

```
Shell> help cpuconfig
```

```
CPUCONFIG [cpu] [on|off]
```

```
cpu      Specifies which cpu to configure
on|off   Specifies to configure or deconfigure a cpu
```

Notes:

1. Cpu status will not change until next boot

Examples:

```
* To deconfigure CPU 0
fs0:\> cpuconfig 0 off
CPU will be deconfigured on the next boot

* To display configuration status of cpus
fs0:\> cpuconfig
<CPU configuration data displayed>
```

Example 4-4 help bch Command

```
COnfiguration      help bch co
INformation        help bch in
PAth               help bch pa
ScRool            help bch sr
SEARch            help bch sea
SERvice           help bch ser
BOot              help bch bo
HElp              help bch he
RESET             help bch reset
MAin              help bch ma
```

For more help on one of the commands above, at the prompt type:

```
help bch COMMAND
```

baud

Sets the baud rate and communication settings for a UART.

Syntax

```
baud <index> <baudrate>
```

Parameters

<index> 0 through the total number of UARTS minus one
 <baudrate> baud rate.

Operation

This command is used to change the speed for a UART in the system. This command works for all UARTs visible to EFI/POSSE. If the UART is part of PDH space and is initialized by the core firmware, this command communicates the settings to core firmware so the UART can be initialized with the new settings on the next boot. System default is 9600 baud.

Other Communication parameters are listed in Table 4-2.

Table 4-2 Communications Parameters

Parameter	Value
RECEIVE_FIFO_DEPTH	1
TIMEOUT	1000000
PARITY	No parity
DATA_BITS	8
STOP_BITS	1
CONTROL_MASK	0

boottest

Interacts with the speedy boot variable allowing it to be set appropriately.

Syntax

```
boottest           Displays status of all speedy boot bits
boottest on       Run all tests (for a normal boot time)
boottest off      Skip all tests (for a faster boot time)
boottest [test]   Displays status of specific Speedy Boot bit
boottest [test] [on|off] Sets or clears a specific Speedy Boot bit
```

Parameters

[test] Each test can be set or cleared:

booting_valid	Enable/disable system firmware response to BOOTING bit. If OS Speedy Boot aware set to on.
early_cpu	Enable/disable early CPU selftests.
late_cpu	Enable/disable late CPU selftests.
platform	Enable/disable system board hardware tests.
chipset	Enable/disable CEC tests.

```

io_hw           Enable/disable EFI driver Core I/O tests.
mem_init       Enable/disable memory initialization.
mem_test       Enable/disable full destructive memory tests.

```

Example 4-5 boottest Command

```

Shell> boottest
BOOTTEST Settings Default Variable
Selftest      Setting
-----
booting_valid On (OS speedy boot aware)
early_cpu     Run this test
late_cpu      Run this test
platform      Run this test
chipset       Run this test
io_hw         Run this test
mem_init      Run this test
mem_test      Run this test

```

Example 4-6 boottest early_cpu off Command

```

Shell> boottest early_cpu off
BOOTTEST Settings Default Variable
Selftest      Setting
-----
booting_valid On (OS speedy boot aware)
early_cpu     Skip this test
late_cpu      Run this test
platform      Run this test
chipset       Run this test
io_hw         Run this test
mem_init      Run this test
mem_test      Run this test

```

cpuconfig

Displays the config/deconfig state of processors in the system and allows the user to configure or reconfigure processors.

Syntax

```
cpuconfig <cpu> <on|off>
```

Parameters

```

<cpu>          specify a processor
<on|off>       state to set the processor to

```

Operation

Issuing `cpuconfig` with no parameters displays the config/deconfig status of all processors. A user can reconfigure CPUs by specifying a CPU number and a state (on or off). If a valid state is entered and is different from the current state of a CPU, its status changes on the next boot. The last remaining configured CPU in a system cannot be deconfigured.

Example 4-7 cpuconfig Command

```

Shell> cpuconfig
PROCESSOR INFORMATION
# of      L3      L4      Family/
CPU  Logical Cache Cache  Model      Processor

```


Slot	CPUs	Speed	Size	Size	(hex.)	Rev	State
0	1	1 GHz	3 MB	None	1F/00	B2	Active
1	1	1 GHz	3 MB	None	1F/00	B2	Active
2	1	1 GHz	3 MB	None	1F/00	B2	Active
3	1	1 GHz	3 MB	None	1F/00	B2	Active

Example 4-8 `cpuconfig 2` Command

```
Shell> cpuconfig 2 off
CPU will be deconfigured on next boot.
```

```
Shell> cpuconfig
PROCESSOR INFORMATION
```

Slot	# of Logical CPUs	Speed	L3 Cache Size	L4 Cache Size	Family/Model (hex.)	Rev	Processor State
0	1	1 GHz	3 MB	None	1F/00	B2	Active
1	1	1 GHz	3 MB	None	1F/00	B2	Active
2	1	1 GHz	3 MB	None	1F/00	B2	Sched Deconf
3	1	1 GHz	3 MB	None	1F/00	B2	Active

default

Allows the user to restore NVM to default values and clear NVM storage values.

Syntax

```
default [efi|sal]
default clear [bmc|efi|sal]
```

Parameters

`clear` clears NVM storage values

Operation

Default sets NVM and Stable Store values to predefined default values. To the normal user only a subset of values are available for default. Executing “default clear” resets the system.

errdump

Displays the contents of processor internal memory logged on the first MCA for all processors present in the system.

Syntax

```
errdump [mca | cpe | cmc | init | la | clear]
```

Parameters

`mca` dumps the Machine Check Abort error log
`cpe` dumps the Corrected Platform Error log
`cmc` dumps the Corrected Machine Check log
`init` dumps the Initialization log
`la` dumps the Logic Analyzer log
`clear` erases all of the logs (mca, cpe, cmc, init, la)

Operation

If a user enters no parameters, the usage is displayed. Otherwise, the specified error log is displayed. Adding `-n` to the clear parameter disables the confirmation prompt. (The `errdump` command can also be accessed via the System Configuration menu.)

info

Allows the user to display most system information.

Syntax

```
info [ -b] [target]
```

Parameters

```
target:          valid targets are:
all              display everything
cpu              display information on cpus
cache            display information on cache
mem              display information on memory
io               display information on io
boot             display boot-related information
chiprev          display information on chip revisions
fw               display firmware version information
sys              display system information
warning          display warning and stop boot information
```

Example 4-9 info -b all Command

```
Shell> info -b all
PROCESSOR INFORMATION
```

CPU Slot	# of Logical CPUs	Speed	L3 Cache Size	L4 Cache Size	Family/Model (hex.)	Rev	Processor State
0	1	1 GHz	3 MB	None	1F/01	B2	Active
1	1	1 GHz	3 MB	None	1F/01	B2	Active
2	1	1 GHz	3 MB	None	1F/01	B2	Sched Deconf
3	1	1 GHz	3 MB	None	1F/01	B2	Active

MEMORY INFORMATION

Extender 0:

	DIMM A		DIMM B		DIMM C		DIMM D	
	DIMM	Current	DIMM	Current	DIMM	Current	DIMM	Current
0	256 MB	Active	256 MB	Active	256 MB	Active	256 MB	Active
1	----		----		----		----	
2	----		----		----		----	
3	----		----		----		----	
4	----		----		----		----	
5	----		----		----		----	

Extender 1:

	DIMM A		DIMM B		DIMM C		DIMM D	
	DIMM	Current	DIMM	Current	DIMM	Current	DIMM	Current
0	256 MB	Active	256 MB	Active	256 MB	Active	256 MB	Active
1	----		----		----		----	
2	----		----		----		----	
3	----		----		----		----	

```
4      ----          ----          ----          ----
5      ----          ----          ----          ----
```

```
Active Memory   : 1024 MB
Installed Memory : 1024 MB
```

I/O INFORMATION

BOOTABLE DEVICES

```
Order  Media Type  Path
-----
      1  HARDDRIVE   Acpi (HWP0002,0) /Pci (2|0) /Scsi (Puno,Luno) /HD (Part1,Sig3D1F1
86A-846F-11D1-FB49BB94A768)
      2  HARDDRIVE   Acpi (HWP0002,0) /Pci (2|0) /Scsi (Pun2,Luno) /HD (Part1,Sig965900000
      3  CDROM        Acpi (HWP0002,0) /Pci (2|1) /Scsi (Pun4,Luno) /CDROM (Entry0)
      4  HARDDRIVE   Acpi (HWP0002,100) /Pci (1|0) /Pci (1|1) Scsi (Pun2,Luno) /HD (Part2,SigA45AC380-2588
-11D6-B48C-806D6172696F)
      5  HARDDRIVE   Acpi (HWP0002,100) /Pci (1|0) /Pci (1|1) /Scsi (Pun2,Luno) /HD (Part2,Sig9C82CD80-70D
2-4E88-A374-B029EBF1D8E4)
```

Seg #	Bus #	Dev #	Fnc #	Vendor ID	Device ID	Slot #	Path
00	00	01	00	0x103C	0x1290	01	Acpi (HWP0002,0) /Pci (1 0)
00	00	01	01	0x103C	0x1048	01	Acpi (HWP0002,0) /Pci (1 1)
00	00	02	00	0x1000	0x000B	01	Acpi (HWP0002,0) /Pci (2 0)
00	00	02	01	0x1000	0x000B	01	Acpi (HWP0002,0) /Pci (2 1)
00	00	04	00	0x1011	0x0026	02	Acpi (HWP0002,0) /Pci (4 0)
00	01	04	00	0x1033	0x0035	02	Acpi (HWP0002,0) /Pci (4 0) /Pci (4 0)
00	01	04	01	0x1033	0x0035	02	Acpi (HWP0002,0) /Pci (4 0) /Pci (4 1)
00	01	04	02	0x1033	0x00E0	02	Acpi (HWP0002,0) /Pci (4 0) /Pci (4 2)
00	01	05	00	0x1002	0x5159	02	Acpi (HWP0002,0) /Pci (4 0) /Pci (5 0)
00	20	01	00	0x1014	0x01A7	03	Acpi (HWP0002,100) /Pci (1 0)
00	21	01	00	0x1000	0x0021	03	Acpi (HWP0002,100) /Pci (1 0) /Pci (1 0)
00	21	01	01	0x1000	0x0021	03	Acpi (HWP0002,100) /Pci (1 0) /Pci (1 1)
00	21	04	00	0x14E4	0x1645	03	Acpi (HWP0002,100) /Pci (1 0) /Pci (4 0)

BOOT INFORMATION

```
Monarch CPU :
Current Preferred
Monarch      Monarch      Possible Warnings
-----
```

```
0          0
AutoBoot : ON - Timeout is : 7 sev
Boottest :
OS is not speedy boot aware
Selftest      Setting
```

```
-----
early_cpu      Skip this test
late_cpu       Run this test
platform       Run this test
chipset        Run this test
io_hw          Run this test
mem_init       Run this test
mem_test       Run this test
```

LAN Address Information :

```
Lan Address      Path
-----
*Mac (00306E05B950)  Acpi (HWP0002,100) /Pci (1|0) /Pci (4|0) /Mac (00306E05B950)
```

AWARE INFORMATION

```
verscode      : 00.00 xxx
datecode      : xxxx
built with    : xxxxxxxx
Firmware Revision : 2.01 (xxxx)
PAL_A Revision : 7.31
```

EFI/POSSE Commands

```

PAL_B Revision      : 7.41
SAL Spec Revision   : 7.31
SAL_A Revision      : 7.41
SAL_B Revision      : 7.31
EFI Spec Revision   : 7.41
EFI INTEL Drop Revision : 7.31
EFI Build Revision  : 7.41
POSSE Revision      : 7.31
ACPI Revision       : 7.41
BMC Revision        : 7.31
IPMI Revision       : 7.41
SMBIOS Revision     : 7.31
Management Processor Revision : 7.41
    
```

WARNING AND STOP BOOT INFORMATION

Warning [52] : A ROM revision is inconsistant with FIT or REVBLOCK

CHIP REVISION INFORMATION :

CHIP Type	Logical ID	Device ID	Chip Revision
Memory Controller	0	122b	0022
Root Bridge	0	1229	0022
Host Bridge	0000	122e	0022
Host Bridge	0001	122e	0022
Host Bridge	0002	122e	0022
Host Bridge	0003	122e	0022
Host Bridge	0004	122e	0022
Hot Plug Controller	0	0	0110
Host Bridge	0005	122e	0022
Host Bridge	0006	122e	0022
Hot Plug Controller	0	0	0110
Host Bridge	7	0	0110
Hot Plug Controller	0	0	0110
Other Bridge	0	0	0002
Other Bridge	0	0	0007
Baseboard MC	0	0	0130

Example 4-10 info cpu Command

```

Shell> info cpu
PROCESSOR INFORMATION
    
```

CPU	# of Logical	L3 Cache	L4 Cache	Family/Model	Processor	
Slot	CPUs	Speed	Size	Size (hex.)	Rev	State
0	1	1 GHz	3 MB	None	1F/01 B2	Active
1	1	1 GHz	3 MB	None	1F/01 B2	Active
2	1	1 GHz	3 MB	None	1F/01 B2	Sched Deconf
3	1	1 GHz	3 MB	None	1F/01 B2	Active

Example 4-11 info mem Command

```

Shell> info mem
MEMORY INFORMATION
Extender 0:
    
```

	DIMM A		DIMM B		DIMM C		DIMM D	
	DIMM	Current	DIMM	Current	DIMM	Current	DIMM	Current
0	256 MB	Active	256 MB	Active	256 MB	Active	256 MB	Active
1	----		----		----		----	

```

2      ----          ----          ----          ----
3      ----          ----          ----          ----
4      ----          ----          ----          ----
5      ----          ----          ----          ----
Extender 1:
      --- DIMM A -----   --- DIMM B -----   ---DIMM C -----   --- DIMM D -----
      DIMM   Current      DIMM   Current      DIMM   Current      DIMM   Current
-----
0      256 MB   Active    256 MB   Active    256 MB   Active    256 MB   Active
1      ----          ----          ----          ----
2      ----          ----          ----          ----
3      ----          ----          ----          ----
4      ----          ----          ----          ----
5      ----          ----          ----          ----

Active Memory      : 1024 MB
Installed Memory   : 1024 MB

```

Example 4-12 info io Command

```

Shell> info io
BOOTABLE DEVICES
  Order  Media Type  Path
-----
  1  HARDDRIVE  Acpi (HWP0002,0) /Pci (2|0) /Scsi (Pun0, Lun0) /HD (Part1,
Sig3D1F186A-846F-11D1-8780-FB49BB94A768)
  2  HARDDRIVE  Acpi (HWP0002,0) /Pci (2|0) /Scsi (Pun2, Lun0) /HD (Part1, Sig9659000)
  3  CDROM      Acpi (HWP0002,0) /Pci (2|1) /Scsi (Pun4, Lun0) /CDROM (Entry0)
  4  HARDDRIVE  Acpi (HWP0002,100) /Pci (1|0) /Pci (1|1) /Scsi (Pun2, Lun0) /HD (Part1,
SigA45AC380-2588-11D6-B48C-806D6172696F)
  5  HARDDRIVE  Acpi (HWP0002,100) /Pci (1|0) /Pci (1|1) /Scsi (Pun2, Lun0) /HD (Part1,
Sig9C82CD80-70D2-4E88-A374-B029EBF1D8E4)

Seg  Bus  Dev  Fnc  Vendor  Device  Slot  Path
#    #   #   #   ID      ID      #    -----
---  ---  ---  ---  ---     ---     ---  -----
00   00   01   00   0x103C  0x1290  01   Acpi (HWP0002,0) /Pci (1|0)
00   00   01   01   0x103C  0x1048  01   Acpi (HWP0002,0) /Pci (1|1)
00   00   02   00   0x1000  0x000B  01   Acpi (HWP0002,0) /Pci (2|0)
00   00   02   01   0x1000  0x000B  01   Acpi (HWP0002,0) /Pci (2|1)
00   00   04   00   0x1011  0x0026  02   Acpi (HWP0002,0) /Pci (4|0)
00   01   04   00   0x1033  0x0035  02   Acpi (HWP0002,0) /Pci (4|0) /Pci (4|0)
00   01   04   01   0x1033  0x0035  02   Acpi (HWP0002,0) /Pci (4|0) /Pci (4|1)
00   01   04   02   0x1033  0x00E0  02   Acpi (HWP0002,0) /Pci (4|0) /Pci (4|2)
00   01   05   00   0x1002  0x5159  02   Acpi (HWP0002,0) /Pci (4|0) /Pci (5|0)
00   20   01   00   0x1014  0x01A7  03   Acpi (HWP0002,0) /Pci (1|0)
00   21   01   00   0x1000  0x0021  03   Acpi (HWP0002,100) /Pci (1|0) /Pci (1|0)
00   21   01   01   0x1000  0x0021  03   Acpi (HWP0002,100) /Pci (1|1) /Pci (1|1)
00   21   04   00   0x14E4  0x1645  03   Acpi (HWP0002,100) /Pci (1|0) /Pci (4|0)

```

Example 4-13 info boot Command

```

Shell> info boot
BOOT INFORMATION
  Monarch CPU:

  Current Preferred
  Monarch Monarch Possible Warnings
  -----
  0          0

AutoBoot: on - Timeout is : 7 SEC
Boottest:
boottest Settings Default Variable

```

```
OS is not speedy boot aware.
```

```

Selftest      Setting
-----      -
early_cpu    Skip this test
late_cpu     Run this test
platform     Run this test
chipset      Run this test
io_hw        Run this test
mem_init     Run this test
mem_test     Run this test

```

```
LAN AddressInformation:
```

```

LAN Address      Path
-----      -
*Mac(00306E05B950)  Acpi(HWP0002,100)/Pci(1|0)/Pci(4|0)/Mac(00306E05B950B)

```

lanaddress

Allows the user to display the core I/O MAC address.

Syntax:

```
lanaddress
```

Parameters

none

Example 4-14 lanaddress Command

```
Shell> lanaddress
```

```

LAN Address Information
LAN ADDRESS      Path
-----      -
*Mac(00306E05B950)  Acpi(HWP0002,100)/Pci(1|0)/Pci(4|0)/Mac(00306E05B950)

```

monarch

Displays or modifies the ID of the bootstrap processor. The preferred monarch number is stored in NVM.

Syntax

```
monarch <cpu>
```

Parameters

<cpu> specifies a cpu

Operation

If specified with no parameters, **monarch** displays the Monarch processor for the system. Specifying a processor number alters the preferred Monarch processor. None of these changes takes affect until after a reboot.

Example 4-15 monarch Command

```
Shell> monarch
Current Preferred
Monarch Monarch Possible Warnings
-----
          0          0
          0          0
```

To view monarch: fs0 :\ monarch

```

          | Processor
-----+-----
current status | 0
next boot status | 0
```

To set the monarch processor to 1: fs0 :\ monarch 1

```

          | Processor
-----+-----
current status | 0
next boot status | 1
```

pdt

Displays or clears the contents of the Page Deallocation Table.

Syntax

```
pdt (clear)
```

Parameters

```
<clear> clears the pdt
```

Operation

With no options specified, the command displays the PDT information for the system. The PDT is cleared and a reboot is required for memory reallocation and safe booting.

Example 4-16 pdt Command

```
Shell> pdt
PDT Information
      Last Clear time: PDT has not been cleared
Number of total entries in PDT:          50
Number of used entries in PDT:           0
Number of free entries in PDT:          50
Number of single-bit entries in PDT:      0
Number of multi-bit entries in PDT:       0
Address of first multi-bit error: x0000000000000000
```

Example 4-17 pdt clear Command

```
Shell> pdt clear
Are you sure you want to clear the PDT? [y/N] y
Shell>
```

```
Shell> pdt
PDT Information
      Last Clear time: 10/21/01 5:00p
```

```
Number of total entries in PDT:          50
Number of used entries in PDT:           0
Number of free entries in PDT:          50
Number of single-bit entries in PDT:     0
Number of multi-bit entries in PDT:     0
Address of first multi-bit error: 0x0000000000000000
```

sysmode

Display or modify the system mode.

Syntax

```
sysmode <normal | admin| service>
```

Parameters

```
<normal>    sets system mode to normal
<admin>     sets system mode to admin
<service>   sets system mode to service
```

Operation

If specified alone, `sysmode` displays the system mode. If a mode is specified as a parameter, then the system mode is changed. This new mode takes effect immediately. The system mode is retained on successive boots. Interaction with `sysmode` in a variety of scenarios is outlined below.

Example 4-18 `sysmode` Command

```
Shell> sysmode
System Mode: NORMAL

Shell> sysmode admin
You are now in admin mode.

Shell> sysmode service
You are now in service mode.

Shell> sysmode normal
You are now in normal mode
```


Specifying SCSI Parameters

The following SCSI parameters may be configured for the SCSI board:

- SCSI ID (SCSI initiator ID)
- Maximum data transfer rate (SCSI rate)
- Bus width
- Whether the HBA is bootable (driver support)
- Avoid bus resets (secondary cluster server)

Using the SCSI Setup Utility

Step 1. At the EFI shell prompt, type this command to map the parameters for all PCI cards installed in the system:

```
info io
```

A list of all the devices that are installed in the hp Integrity rx4640 Server and managed by EFI drivers is displayed. The output may look like this:

Seg #	Bus #	Dev #	Fnc #	Vendor ID	Device ID	Slot #	Path
00	20	02	00	0x14E4	0x1645	XX	Acpi (HWP0002,100)/Pci (2 0)
00	00	01	00	0x1033	0x0035	XX	Acpi (HWP0002,0)/Pci (1 0)
00	00	01	01	0x1033	0x0035	XX	Acpi (HWP0002,0)/Pci (1 1)
00	00	01	02	0x1033	0x00E0	XX	Acpi (HWP0002,0)/Pci (1 2)
00	00	02	00	0x1095	0x0649	XX	Acpi (HWP0002,0)/Pci (2 0)
00	00	03	00	0x8086	0x1229	XX	Acpi (HWP0002,0)/Pci (3 0)
00	20	01	00	0x1000	0x0030	XX	Acpi (HWP0002,100)/Pci (1 0)
00	20	01	01	0x1000	0x0030	XX	Acpi (HWP0002,100)/Pci (1 1)
00	40	01	00	0x1000	0x0021	03	Acpi (HWP0002,200)/Pci (1 0)
00	40	01	01	0x1000	0x0021	03	Acpi (HWP0002,200)/Pci (1 1)
00	60	01	00	0x1000	0x0021	02	Acpi (HWP0002,300)/Pci (1 0)
00	60	01	01	0x1000	0x0021	02	Acpi (HWP0002,300)/Pci (1 1)
00	80	01	00	0x8086	0x1229	01	Acpi (HWP0002,400)/Pci (1 0)
00	C0	01	00	0x1000	0x0021	04	Acpi (HWP0002,600)/Pci (1 0)
00	E0	01	00	0x103C	0x1290	XX	Acpi (HWP0002,700)/Pci (1 0)
00	E0	01	01	0x103C	0x1048	XX	Acpi (HWP0002,700)/Pci (1 1)
00	E0	02	00	0x1002	0x5159	XX	Acpi (HWP0002,700)/Pci (2 0)

In the example above, *two* SCSI boards are in the listing. The information for *both* channels of *both* SCSI boards is shown in **bold**, for highlighting purposes.

For each channel of the SCSI board, you need to note certain information. As an example, look at the information for the first SCSI board (the first two bold lines). For each channel of *this* SCSI board, note the following information:

- Bus #—identifies the bus the device is on; for the SCSI board, this is the same for both channels. In this example, the bus number is 40.
- Dev #—the ID the device is assigned on the bus; for the SCSI board, this is the same for both channels. In this example, the SCSI board is device 01.

Specifying SCSI Parameters

- **Fnc #**—identifies the channel of the device (00 for channel A, 01 for channel B, and so on). In this example, because the SCSI board has two channels, one channel is 00 and the other is 01.
- **Vendor ID**—shows the device's vendor ID; for the SCSI board, this is the same for both channels. For all SCSI board HBAs, the ID is 0x1000.
- **Device ID**—shows the device's device ID; for the SCSI board, this is the same for both channels. For all SCSI board HBAs, the ID is 0x0021.
- **Slot #**—identifies the physical card slot in the system where the HBA is installed; for the SCSI board, this is the same for both channels. In this example, the HBA is in slot 03.
- **Path**—identifies the device's path; for the SCSI board, this is the same for both channels. In this example, the HBA's path is `Acpi (HWP0002,200) /Pci (1|0)` for channel A and `Acpi (HWP0002,200) /Pci (1|1)` for channel B.

Using the SCSI board's information from the example above, the pieces of information that, combined, tell you this is a SCSI board are the following (shown in **bold**, for highlighting purposes):

```
00  40  01  00  0x1000  0x0021  03  Acpi (HWP0002,200) /Pci (1|0)
00  40  01  01  0x1000  0x0021  03  Acpi (HWP0002,200) /Pci (1|1)
```

Looking at all of the above information together, the vendor (**0x1000**) and device (**0x0021**) are the IDs for a SCSI board. Of the devices with those IDs, this device has two channels (Fnc # of **00** immediately followed by Fnc # of **01**). Also, this SCSI board has a numeric (non-XX) slot # (**03**, in this example).

Step 2. Still at the EFI shell prompt, type this command to obtain the controller's handle for the SCSI card:

```
devtree
```

A tree of all EFI-capable devices installed in the system is displayed. The output could look like this:

```
Device Tree
Ctrl[02]
Ctrl[04] Acpi (HWP0002,0)
  Ctrl[76] Acpi (HWP0002,0) /Pci (1|0)
  Ctrl[77] Acpi (HWP0002,0) /Pci (1|1)
  Ctrl[78] Acpi (HWP0002,0) /Pci (1|2)
  Ctrl[79] Acpi (HWP0002,0) /Pci (2|0)
    Ctrl[7B] Acpi (HWP0002,0) /Pci (2|0) /Ata (Primary,Master)
  Ctrl[7A] Acpi (HWP0002,0) /Pci (3|0)
    Ctrl[7C] Acpi (HWP0002,0) /Pci (3|0) /Mac (00306E1ECE06)
Ctrl[05] Acpi (HWP0002,100)
  Ctrl[32] Acpi (HWP0002,100) /Pci (2|0)
    Ctrl[33] Acpi (HWP0002,100) /Pci (2|0) /Mac (00306E1E9EFA)
  Ctrl[7D] LSI Logic Ultra320 SCSI Controller
  Ctrl[7E] LSI Logic Ultra320 SCSI Controller
Ctrl[06] Acpi (HWP0002,200)
  Ctrl[82] LSI Logic Ultra160 SCSI Controller
  Ctrl[83] LSI Logic Ultra160 SCSI Controller
Ctrl[07] Acpi (HWP0002,300)
  Ctrl[91] LSI Logic Ultra160 SCSI Controller
  Ctrl[92] LSI Logic Ultra160 SCSI Controller
Ctrl[08] Acpi (HWP0002,400)
  Ctrl[93] Acpi (HWP0002,400) /Pci (1|0)
    Ctrl[94] Acpi (HWP0002,400) /Pci (1|0) /Mac (0002B35BE064)
Ctrl[09] Acpi (HWP0002,600)
```

```
Ctrl[95] LSI Logic Ultra160 SCSI Controller
Ctrl[0A] Acpi(HWP0002,700)
Ctrl[96] Acpi(HWP0002,700)/Pci(1|0)
Ctrl[97] Acpi(HWP0002,700)/Pci(1|1)
Ctrl[98] Acpi(HWP0002,700)/Pci(2|0)
```

In the above example, *this* SCSI board’s information is shown in **bold**, for highlighting purposes. You can tell the information is for this SCSI board because the path on the first line—Acpi(HWP0002,200)—is the HBA’s path from the information displayed by the info io command. The next two lines are for the SCSI board’s two channels, one line for each channel (they contain the SCSI board’s description [LSI Logic Ultra160 SCSI Controller]). Note the value shown for Ctrl—82 and 83—at the beginning of each of those lines; this is the **controller’s handle** for that channel. You need to know it for the next step.

NOTE The controller’s handle values will change on every boot.

Step 3. Still at the EFI shell prompt, type this command to obtain the EFI driver’s handle for the SCSI card:

drvcfg

A list of all EFI-capable configurable components in the system is displayed. The output may look like this:

```
Drv[26] Ctrl[79] Lang[eng]
Drv[34] Ctrl[83] Lang[eng]
Drv[35] Ctrl[82] Lang[eng]
Drv[36] Ctrl[92] Lang[eng]
Drv[37] Ctrl[91] Lang[eng]
Drv[38] Ctrl[95] Lang[eng]
Drv[71] Ctrl[7D] Lang[eng]
Drv[71] Ctrl[7E] Lang[eng]
```

This listing shows which driver controls which device (controller). In the above example, *this* SCSI board’s information is shown in **bold**, for highlighting purposes. You can tell the information is for this SCSI board because the values shown for Ctrl—82 and 83—are the controller’s handles for the SCSI board’s two channels (from the information displayed by the devtree command).

NOTE The EFI driver’s handle values will change on every boot.

TIP From this command (drvcfg), we recommend you record these two pieces of information for *each* channel of *each* SCSI board HBA you want to change the SCSI parameters for:

- Drv (the EFI driver’s handle)
- Ctrl (the controller’s handle)

Step 4. Using the information (the driver’s handle [Drv] and the controller’s handle [Ctrl]) from the drvcfg command, start the EFI SCSI Setup Utility for *one* channel of *this* SCSI board. Still at the EFI shell prompt, type this command:

drvcfg -s *drv_handle* *cntrl_handle*

where

- *drv_handle* is the handle of the driver that controls the channel whose SCSI ID you want to display or change
- *cntrl_handle* is the handle of the controller for the channel whose SCSI ID you want to display or change

So, continuing the example for *channel A* of *this* SCSI board, you would type:

```
drvcfg -s 35 82
```

Step 5. The EFI SCSI Setup Utility starts and its main menu is displayed, showing a list of all the EFI capable HBAs in the system.

TIP To move the cursor in the EFI SCSI Setup Utility, you can use these keys:

- Arrow keys: ↑ ↓ ← →
- Alternate keys:
 - H** = left
 - J** = down
 - K** = up
 - L** = right
 - I** = home
 - O** = end

Move the cursor to highlight *this* channel of *this* SCSI board; press **Enter**. (To determine which channel of the HBA to highlight, match the PCI Bus, PCI Dev, and PCI Func values on this screen to the Bus #, Dev #, and Fnc # values from the `info io` command.)

CAUTION Do *not* select the <Global Properties> option on the main menu.

Step 6. The “Adapter Properties” screen for this channel of this SCSI board is displayed. If you like, you can make sure the utility is running for *this* channel of *this* SCSI board by comparing the values shown for PCI Bus, PCI Device, and PCI Function to the Bus #, Dev #, and Fnc # values from the `info io` command.

CAUTION Do *not* change the value for *any* of these fields on the “Adapter Properties” screen:

- Auto Termination
- SCSI Parity
- SCSI Bus Scan Order
- Spinup Delay (Secs)

Changing any of these fields can cause unpredictable results.

CAUTION Do *not* change the value for *any* of these fields on the “Device Properties” screen:

- Scan Id
- Scan LUNs > 0
- Disconnect
- SCSI Timeout
- Queue Tags
- Format
- Verify

Changing any of these fields can cause unpredictable results.

Step 7. You may display (and optionally change) any SCSI parameters listed below for *this* channel of *this* SCSI board, or restore its SCSI parameters to their default values.

- SCSI ID
- Maximum data transfer rate
- Bus width
- Whether the HBA is bootable (driver support)
- Avoid bus resets (secondary cluster server)
- Restore Defaults

Step 8. Use the arrow keys to navigate to the appropriate SCSI parameter.

Step 9. Use the plus (+) and minus (-) keys to scroll through the values until the value you want is displayed.

Step 10. Press **Esc** to exit the “Adapter Properties” screen. You are given these choices:

- Cancel the exit from the screen (to stay in the “Adapter Properties” screen for *this* channel of *this* SCSI board)
- Save the changes you made and then exit the screen
- Discard the changes you made and then exit the screen

Step 11. Move the cursor to the action (cancel, save, or discard) you want to take; press **Enter**.

If you selected cancel, you remain in the “Adapter Properties” screen for *this* channel of *this* SCSI board. You can still change *this* channel’s parameters listed above.

If you selected save or discard, you are placed in the EFI SCSI Setup Utility’s main menu.

CAUTION Do *not* select the <Global Properties> option on the main menu.

Step 12. Press **Esc** to exit the main menu and the EFI SCSI Setup Utility.

Specifying SCSI Parameters

Step 13. Select the option for exiting the utility.

Step 14. When you are prompted to, press **Enter** to stop *this* SCSI board; you are now back at the EFI shell prompt.

Step 15. At the EFI shell prompt, type this command:

reset

The system starts to reboot. This is **required** to cause the new SCSI setting.

Management Processor

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

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

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

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

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

Accessing the Management Processor

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

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

Interacting with the Management Processor

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

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

NOTE	If the management processor is not displaying the MP Main Menu, use CTRL+B to access the MP Main Menu and the management processor (MP) prompt.
-------------	--

Step 2. Use the management processor menus and commands as needed. A list of available commands can be displayed by using the management processor help function (in the MP Main Menu, enter **HE** followed by **LI** at the MP HELP: prompt). Log out using the X command (in the MP Main Menu, enter **X** at the MP> prompt) when done.

Management Processor Command Interface

Use the management processor menus and commands as needed. The login screen, which includes the Main Menu, is shown below. Main Menu commands (CO, VFP, CM, CL, CSP, SE, SL, HE, and X) can be entered after the MP prompt. Commands not displayed in the MP Main Menu can be accessed in command mode by first using the CM command at the MP prompt. (A list of available commands can be displayed by using the management processor help function. Display the list of commands as follows: in the MP Main Menu, enter **HE** after the MP> prompt, then enter **LI** after the MP HELP: prompt.) You can return to the MP Main Menu by typing **CTRL+B**.

Figure 4-2 **MP Welcome Screen**

```
MP Login: Admin
MP password: *****
Hewlett-Packard Management Processor
(C) Copyright Hewlett-Packard Company 1999-2003. All rights reserved
System Name: xxxxxxxxxx
```

```
MP MAIN MENU:
CO:Console
VFP:Virtual Front Panel
CM:Command Menu
CL:Console Log
SL:Show Event Logs
CSP:Connect to Service Processor
```

MP commands are described in the following paragraphs.

Management Processor Commands

Table 4-3 Management Processor Commands and Descriptions

Command	Description
BP	Reset BMC passwords
CA	Configure async or serial ports
CE	Log repair in histor buffer
CL	View console log
CM	Enter command mode
CO	Select console mode
CSP	Connect to another service processor
DATE	Date display
DC	Default configuration
DF	Display FRU information
DI	Disconnect remote or LAN console
DNS	Set DNS configuraton
FW	Upgrade MP firmware
HE	Display help for menu or command
ID	System information
IT	Inactivity timeout settings
LC	LAN configuration
LDAP	LDAP configuration
LM	License Management
LOC	Locator LED display and configuration
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

Table 4-3 Management Processor Commands and Descriptions (Continued)

Command	Description
SA	Set access
SE	Enter OS session
SL	Show event logs
SO	Security options
SS	System processor status
SYSREV	Current system firmware revisions
TC	Reset via transfer of control (TOC)
TE	Tell- send a message to other users
UC	User configuration
VFP	Virtual front panel
WHO	Display connected management processor users
XD	Diagnostics and/or reset of management processor

Reset BMC Passwords

BP: Reset BMC Passwords

This command resets BMC passwords (both USER and ADMIN passwords).

Configure Serial Port Parameters

CA: Configure local and remote serial port parameters

Set up the local serial port parameters as follows:

- **TERMINAL TYPE:** Vt100 vs HPterm
- **BAUD RATES:** Input and output data rates are the same; 300, 1200, 2400, 4800, 9600, 38400, 115200 bit/sec.
- **FLOW CONTROL:** Hardware uses RTS/CTS; Software uses Xon/Xoff.
- **TRANSMIT CONFIGURATION STRINGS:** Disable this setting whenever the modem being used is not compatible with the supported modem (MT5634ZBA).

IMPORTANT Do not mix HP and vt100 terminal types at the same time.

Set up the remote serial port parameters as follows:

- **MODEM PROTOCOL:** Bell or CCITT (CCITT is a European standard; RTS/CTS signaling is used, as well as the Ring signal. Bell is a U.S. or simple mode).
- **BAUD RATES:** Input and output data rates are the same; 300, 1200, 2400, 4800, 9600, 38400, 115200 bit/sec.

- FLOW CONTROL: Hardware uses RTS/CTS; Software uses Xon/Xoff.
- TRANSMIT CONFIGURATION STRINGS: Disable this setting whenever the modem being used is not compatible with the supported modem (MT5634ZBA).
- MODEM PRESENCE: When the modem may not always be connected, set this parameter to “not always connected”.

For example: A modem attached through a switch. In mode “not always connected”, no dial-out functions are allowed: DIAL-BACK is disabled, and PAGING is not possible.

The MP mirrors the system console to the MP local, remote/modem, and LAN ports. One console output stream is reflected to all of the connected console users. If several different terminal types are used simultaneously by the users, some users may see strange results.

Example 4-19 HP-UX

Applications that care about the terminal type (install, SAM, vi, and so on) running on HP-UX use three methods to determine the terminal type:

1. The application takes the terminal information from the OS. This value is set in the CA command and takes effect for all MP ports.
2. The \$TERM shell environment variable.
3. The application directly queries the terminal (in this case, the write enabled terminal establishes the terminal type).

Make sure that settings #1 and #2 agree with your terminal type.

Log Repair Information

CE: Log repair info in the log history

This command allows the operator to add an entry to the SEL and FPL logs, normally to indicate a firmware repair or update.

Console Log

CL: Console Log—view the history of the Console output

This command displays up to 60 Kilobytes of console data (about 60 pages of display in text mode) sent from the SPU to the Console path and stored for later analysis.

Console data is stored in a buffer in non-volatile memory. Data is displayed from the beginning of the buffer to end of the buffer.

What is displayed is an image of the console history at the time the CL command is entered. Console output will continue to be logged while this buffer is read. Nothing will be lost in the meantime.

Command Mode

CM: Command Mode—enter command mode

This command switches the console terminal from the MP Main Menu to mirrored command interface mode. If the current mux authority is administrator and the new login is as an operator, the command mux will be denied (remains in MP Main Menu mode). If a command is in progress, a message will be displayed warning the new user of system status.

Console

CO: Console—leave command mode and enter console mode

This command switches the console terminal from the MP Main Menu to mirrored/redirected console mode. All mirrored data is displayed. Type **CTRL+B** to return to the MP command interface.

For VT100 and HPTERM, verify that the MP setting in the CA command is correct and all mirrored consoles are of the same terminal type for proper operation.

Connect to Service Processor

CSP: Connect to remote management processor over the LAN

This command allows the local or remote port user to connect over the MP LAN to another MP on the network. The user that launches the command is given a private connection to the other MP over the LAN. To return to the original MP, type **CTRL+]** to disconnect the CSP session.

Date

DATE: Displays the current date, as generated in the MP real-time clock.

Default Configuration

DC: Default Configuration—reset all MP parameters to the default configuration

This command sets all MP parameters back to their default values. The user may reset all or a subset of the following parameters:

- IP configurations
- Modem configuration
- Paging configuration
- Command Interface configuration
- Disable remote access, security configuration
- Session configuration. For example: setting the security configuration to default erases all users and passwords.

There are three ways to reset passwords in the MP:

1. In the SO command, change individual users.
2. In the DC command choose “Reset Security Configuration”.
3. Forgotten passwords can be reset by pressing the MP reset button on the back panel of your HP Server. After the MP reboots, the local console terminal displays a message for five seconds. Responding to this message in time will allow a local user to reset the passwords.

NOTE All user information (logins, passwords, and so on) is erased in methods 2 and 3.

Display FRUID

DF: Display FRUID information

This command displays FRUID information from the BMC for FRU devices. Information provided includes serial number; part number; model designation; name and version number; and manufacturer.

Disconnect Remote or LAN Console

DI: Disconnect remote/modem or LAN/WEB console

This command disconnects (hang up) the remote/modem or LAN/WEB users from MP. It does not disable the ports. The remote console is no longer mirrored.

DNS Configuration

DNS: Set DNS Configuration

This command allows a user to configure the DNS server settings when DHCP is enabled.

If no DNS server IP addresses are specified, or the DNS domain is undefined, then DNS will not be used.

If an IP address was obtained via DHCP then an add name request will be sent to the DDNS server if enabled and registered.

MP Firmware Update

FW: Activates MP firmware upgrade mode

This command activates the upgrade mode. This command is only available from the LAN port and the local serial port.

The upgrade is performed through the MP LAN by ftp, which must be operational. Information required for the upgrade needs to be entered through the FW command interface.

CAUTION If the upgrade process is interrupted at any time, the core I/O will need to be repaired or replaced.

The MP is reset at the end of the upgrade process.

Help

HE: Display help for menu or command

This command displays the MP hardware and firmware version identity, and the date and time of firmware generation. If executed from the MP Main Menu, general information about the MP, and those commands displayed in the MP Main Menu, will be displayed. If executed in command mode, this command displays a list of command interface commands available to the user. It also displays detailed help information in response to a topic or command at the help prompt.

Display System ID

ID: Display/modify system information

This command allows the user to display and modify the following:

- SNMP contact information
- SNMP server information
- SPU hostname

Inactivity Timeout

IT: Inactivity Timeout settings

The session inactivity timeout is up to 1,440 minutes—default is 60 minutes. This timeout prevents sessions to the system from being inadvertently left open. A session can be started by the `SE` command. An open session can prevent users from logging onto the MP through a port and can also prevent system applications from initiating an outbound connection.

MP inactivity timeout is up to 1,440 minutes—default is 5 minutes. This timeout prevents a user from inadvertently keeping the MP locked in a MP Command Interface mode preventing other users from looking at the console output. The MP Command Interface inactivity timeout may not be deactivated.

Flow control timeout is 0 to 60 minutes. If set to 0, no timeout is applied. This timeout prevents mirrored flow control from blocking other ports when inactive.

Configure LAN Console

LC: LAN configuration (IP address, and so on)

This command displays and allows modification of the LAN configuration. Configurable parameters include:

- MP IP Address
- MP IP Address
- DHCP Status
- MP Host Name
- Subnet Mask
- Gateway Address
- Web Console port number
- Link State
- SSH Access Port Number

The MP Host Name set in this command is displayed at the MP command mode prompt. Its primary purpose is to identify the MP LAN interface in a DNS database.

If the IP address, gateway IP address, or subnet mask were obtained via DHCP, then they cannot be changed without first disabling DHCP. If the hostname is changed and the IP address was obtained via DHCP and DDNS is registered then a delete old name request for the old hostname and an add name request for the new hostname will be sent to the DDNS server.

If the DHCP status is changed from Enabled to Disabled, then the IP address, subnet mask and gateway address will be set to their default values (127.0.0.1:0xfffff00). Also the DNS parameters are voided. When the DHCP Status is changed from Enabled to Disabled, the DNS parameters for use DHCP will be set to Disabled and the Register with DDNS parameter will be set to No. When the DHCP Status is changed from Disabled to Enabled, the DNS parameters for use DHCP will be set to Enabled and the Register with DDNS parameter will be set to Yes.

LDAP Configuration

LDAP: LDAP Configuration

This command displays and allows modification of the following LDAP directory settings:

- LDAP Directory Authentication (Enable or Disable): Designates whether a directory server is used to authenticate a user login.
- Local MP User database (Enable or Disable): Specifies whether the local MP User database will be used in case of authentication failure via LDAP Directory. Has to be enabled if LDAP is disabled.
- Directory Server IP Address: Designates the IP address of the directory server. This setting is required if you directory services are used for user authentication.
- Directory Server LDAP Port: Designates the port used for LDAP communications.
- Object Distinguished Name (DN): Specifies the full distinguished name of the MP Device object in the directory service.
- For example, CN=RILOE2OBJECT,CN=Users,DC=HP,DC=com. Distinguished names are limited to 256 characters.
- Directory User Search Context 1, 2, 3: Specifies search contexts when authenticating a user. These settings point to areas in the directory service where users are located so the user does not have to enter the complete tree structure when logging in. For example, CN=Users,DC=HP,DC=com. Directory User Contexts are limited to 128 characters each.

License Management

LM: License Management

This command displays the current license status and is used to enter a license key to enable the following features:

- Directory-based authentication and authorization
- SSH (Secure Shell)
- Group Actions via Systems Insight Manager

Locator LED Status

LOC: Locator LED Status

This command displays the current status of the Locator LED.

LAN Status

LS: LAN Status

This command displays all parameters and the current status of the MP LAN connections. The LAN parameters are not modified by the execution of this command.

Modem Reset

MR: Modem Reset

This command makes the MP send an AT Z command to the modem, which resets it. Any modem connections are lost. The initialization results can be viewed via the MS command.

Modem Status

MS: Modem Status—Display modem status

The `MS` command displays the state of the modem lines connected to the remote/modem serial port. The display can be updated by pressing **Enter**. The current state of the status signals DCD, CTS, DSR, RI and the last state of the control signals DTR, RTS set by the firmware are displayed.

Power Control

PC: Power Control—turn system power on and off

For proper system shutdown, shutdown the OS before issuing this command or use the commands graceful shutdown option.

This command allows you to switch the system power on or off. The user can have the action take place immediately or after a specified delay.

Notice this is roughly the equivalent to turning the system power off at the front panel switch. There is no signal sent to the OS to bring the software down before power is turned off. To turn the system off properly, you must ensure that the OS is in the proper shutdown state before issuing this command. Use the proper OS commands or use the graceful shutdown option of the Remote Power Control command.

Configure Paging

PG: Paging parameter setup—configures pagers

This command allows the user to configure the pagers and set triggering events.

A string description of the triggering event will be sent with the page.

Configure Power Restore Policy

PR : Power Restore policy configuration

This command can be used to configure the power restore policy. The power restore policy determines how the system or chassis behaves when AC power returns after an AC power loss.

If PR is set to On, the system will be powered up after AC is applied. If PR is set to Off, the system will stay powered off after AC is applied; pushing system power switch or executing PC command is required to power on the system.

If PR is set to Previous, the power is restored to the state that was in effect when AC was removed or lost.

SEE ALSO: PC

Power Status

PS: Power status—display the status of the power management module

This command displays on the console the status of the power management module.

Reset BMC

RB: Reset BMC

This command resets the BMC by toggling a GPIO pin.

Reset System

RS: Reset system through RST signal

IMPORTANT Under normal operation, shut down the OS before issuing this command.

This command causes the system (except the MP) to be reset through the RST signal.

Execution of this command irrecoverably halts all system processing and I/O activity and restarts the computer system. The effect of this command is very similar to cycling the system power. The OS is not notified, no dump is taken on the way down, and so on.

Set Access

SA: Set access options—configures access for LAN and remote/modem ports

If a remote/modem, LAN or Web user(s) are connected at the time a disable from this command is executed, then they are disconnected. Any future incoming connection request to the corresponding port will be rejected.

Create Local Session

SE: Log into the system on local or remote port

Only valid from the local or remote/modem port, SE allows the user to leave the MP Command Interface and enter a system session. Other mirrored MP users are placed in console mode. The session user returns to the mirrored MP session on exit.

The MP regularly checks the activity of the session, closes the connection with the system, and, if the timeout period has elapsed, returns the port to mirroring. The timeout period is set with the IT command. On HP-UX, the SE command works on the local and remote ports.

In HP-UX, use the System Administration Manager (SAM) to add modem device files for the session UARTS. The modem type, CCITT or Bell must agree with the remote port settings for the remote session port and always be Bell mode for the local session port.

If the system and the MP Command Interface local or remote ports have been configured with different port speeds, the baud rate changes to the rate specified by the OS for the duration of the session.

Display Logs

SL: Display contents of the system status logs

This command displays the contents of the event logs that have been stored in nonvolatile memory.

- System Event Log (SEL)—Events (filtered by alert level) and errors
- Forward progress—All events
- Current boot log—All events between “start of boot” and “boot complete”
- Previous boot log—The events from the previous boot

Reading the system event log turns off the system LED. Accessing this log is the only way to turn off the system LED when it is flashing and alerts have not been acknowledged at the alert display level.

Events are encoded data that provide system information to the user. Some well-known names for similar data would be Chassis Codes or Post Codes. Events are produced by intelligent hardware modules, the OS, and system firmware. Use SL to view the event log.

Navigate within the logs as follows:

Management Processor Command Interface

- + — View the next block (forward in time)
- - — View the previous block (backward in time)
- Enter (<CR>) — View the next block in the previously selected direction (forward or backward in time)
- D — Dump the entire log for capture or analysis
- F — First entry
- L — Last entry
- J — Jump to entry number __
- V — View mode configuration (text, keyword, hex)
- ? — Display this help menu
- Q — Quit

Table 4-4 defines alert (or severity) levels.

Table 4-4 Alert Levels

Severity	Definition
0	Minor forward progress
1	Major forward progress
2	Informational
3	Warning
5	Critical
7	Fatal

Security Options

SO: Configure security options and access control (users, passwords, and so on)

This command modifies the security parameters of the MP, which include login time-outs and allowed password faults.

If configured, when you access the MP via the modem port, the MP hangs up and dials the user back. This does not work if `Modem Presence` is set to `not always connected` with the `CA` command.

If the mode is `Single`, the `State` is changed to `disabled` after the first login.

A disabled user's login is not accepted.

System Status

SS: Displays the status of the system processors

The `SS` command displays the status of the system processors and which processor is the monarch.

Firmware Revision Status

SYSREV: Displays the revision status of firmware in the system.

This command displays the revision status of firmware in the system.

NOTE At the time of production of this guide, the firmware revisions were:

FIRMWARE INFORMATION

Firmware Revision: 1.10 [4341]

PAL_A Revision: 7.31/5.37

PAL_B Revision: 5.37

SAL Spec Revision: 3.01

SAL_A Revision: 2.00

SAL_B Revision: 1.10

```
EFI Spec Revision: 1.10
EFI Intel Drop Revision: 14.61
EFI Build Revision: 1.10
POSSE Revision: 0.10
ACPI Revision: 7.00
BMC Revision: 2.24
IPMI Revision: 1.00
SMBIOS Revision: 2.3.2a
Management Processor Revision: E.02.25
```

Transfer Of Control

TC: System reset through INIT or TOC (Transfer of Control) signal

Under normal operation, shut down the OS before issuing this command.

This command causes the system to be reset through the INIT (or TOC) signal. Execution of this command irreversibly halts all system processing and I/O activity and restarts the computer system. It is different from the RS command in that the processors are signaled to dump state on the way down.

Tell

TE: Tell—sends a message to other terminals

Up to 80 characters can be typed in. The message is broadcast to the other mirrored clients. Users in a session or CSP are not shown the message.

User Configuration

UC: User Configuration—controls user access

This command is used to allow an administrator to add, modify, re-enable or delete any of the following user parameters.

- Login ID
- Password
- User Name
- User Workgroup
- User Access Right
- User Operating Mode
- User Enabled
- Modem Dial-back
- Modem Dial-back Phone

An MP user will be able to have any (or all) of the following rights:

- **Login Access:** Right to login to MP, and execute "Status" or "Read-only" commands (view event logs, check system status, power status, etc) but not execute any commands that would alter the state of MP or the system.
- **Commands:** CL, CSP, DATE, DF, HE, LS, MS, PS, SL, SS, SYSREV, TE, VFP, VDP, WHO, XD (status options)
- **Console Access:** Right to access the system console (the host OS). This does not bypass host authentication requirements, if any.
- **Commands:** CO, SE
- **Power Control Access:** Right to power on/off or reset the server, as well as to configure the Power Restore policy.
- **Commands:** PC,PR, RS, TC
- **Local User Administration Access:** Right to configure locally stored user accounts.
Commands: UC
- **MP Configuration Access:** Right to configure all MP settings (as well as some system settings i.e. "Power Restore Policy").
- **Commands:** BP, CA, CG, CL (clear option), DC, DI, FW, ID, IT, LC, LDAP, LOC, MR, PG, RB, SA, SL (clear option), SO, XD (MP reset option)

Display Virtual Diagnostics Panel LEDs

VDP: Display Virtual Diagnostics Panel LEDs.

This command is used to monitor the LEDs on the Diagnostics Panel.

Virtual Front Panel

VFP: Display Virtual Front Panel

The VFP command presents a summary of the system by using direct console addressing. If the terminal is not recognized by the MP, VFP mode will be rejected. Each individual user will get this summary in order to avoid issues related to terminal type and screen display mode.

Who

WHO: Displays a list of MP connected users

This command displays the login name and operating mode (Main Menu, command, and so on) of the connected console client users, and the port on which they are connected. For the LAN and WEB console clients the remote IP address is also displayed.

If the local console client user did not originate the MP command interface session, there is always one default user listed for the local serial port: local user i. If the local console operator types **CTRL+B**, then the login name that the local operator used is displayed instead.

Diagnostics and/or Reset of MP

XD: Diagnostics and/or Reset of MP

This command allows the user to perform some simple checks to confirm the MP's health and its connectivity status. The following tests are available:

Management Processor Command Interface

- MP Parameter Checksum
- Verify I2C connection (get BMC Device ID)
- LAN connectivity test using ping
- Modem self-tests

Also, the MP can be reset from this command. A MP reset can be safely performed without affecting the operation of the server.

Management Processor Help System

The MP has a robust help system. To invoke MP HELP, enter **he** after the MP> prompt. The following is displayed:

```
HE
```

```
==== MP Help: Main Menu =====(Administrator)====
```

```
Hardware Revision a1 Firmware Revision E.02.20 May 30 2003,15:18:47
```

```
MP Help System
```

```
Use Ctrl-B to exit MP command interface and return to the main MP menu:
```

```
Enter a command at the help prompt:
```

```
OVerview  : Launch the help overview
LIst      : Show the list of MP commands
<COMMAND> : Enter the command name for help on individual command
TOPics    : Show all MP Help topics and commands
HElp      : Display this screen
Q         : Quit help
```

Enter one of the commands described above: **OV**, **LI**, **<command>**, **TOP**, **HE**, **Q**

5 Troubleshooting

Troubleshooting Tips

WARNING Before removing a cover to service components that cannot be hot-swapped, always disconnect the AC power cords and unplug telephone cables. Disconnect telephone cables to avoid exposure to shock hazard from telephone ringing voltages. Disconnect the AC power cords to avoid exposure to high energy levels that may cause burns when parts are short-circuited by metal objects such as tools or jewelry.

CAUTION Do not operate the HP Server for more than 10 minutes with any cover (including power supplies and disk drives) removed. Otherwise, damage to system components may result due to improper cooling airflow.

However, you can safely remove a cover while the HP Server is running to remove and replace PCI hot-plug boards. For any other service activity requiring access to the system board or power distribution board, power-down the HP Server and observe all safety precautions.

Troubleshooting Methodology

Step 1. This is the entry point to the troubleshooting process. Here, you pick from a set of symptoms, ranging from very simple (System LED is blinking) to the most difficult Machine Check Abort (MCA) has occurred. The following is a list of symptom examples:

- System LED blinking
- System Alert present on console
- System will not power-up
- System will not boot
- Event/Error Message received
- Machine Check Abort (MCA)

Step 2. This step narrows down the observed problem to the specific troubleshooting procedure required. Here you isolate the failure to a specific part of the server so that you can perform more detailed troubleshooting. For example:

- Problem-System LED blinking
 - System Alert on console?
 - Analyze the alert by using the system event log (SEL) to identify the last error logged by the baseboard management controller. Use either the EFI shell command line interface (CLI) or the optional management processor card is installed, use the MP commands to view the SEL.

- Step 3.** At this point you will have a good idea about which area of the system requires further analysis. For example, if the symptom was “system will not power-up” then the initial troubleshooting procedure may have indicated a problem with the DC power supply not coming up after the power switch was turned on.
- Step 4.** You have now reached the point where the failed Field Replaceable Unit (FRU or FRUs) have been identified and need to be replaced. You must now perform the specific remove-and-replace verification steps.

NOTE If multiple FRUs are identified as part of the solution, a fix cannot be guaranteed unless all identified failed FRUs are replaced.

- Step 5.** There may be specific recovery procedures you need to perform to finish the repair. For example, if the display panel is replaced, you will need to restore customer-specific information.

Possible Problems

This section contains example HP Server problems and their possible solutions.

The system will not power-up.

- Step 1.** Review the installation procedures for the server. See the *hp Integrity rx4640 Installation Guide*.
- Step 2.** Check all power connection cables.
- Step 3.** Verify that 200-240 VAC power is available at the AC power receptacle. Check the receptacle output with another device.
- Step 4.** Check the power supply fans to see if they are operating. The fans will operate off the DC voltage generated by the power supply.
- Step 5.** Check that the Power LED on Front Control Panel is illuminated. See “Front Control Panel LEDs” on page 76.
- Step 6.** Check all connections from the power supply to the power distribution module.
- Step 7.** Verify that all cables and modules are correctly connected. Especially check the display panel connection.
- Step 8.** If the system starts to power-on and then power-off, a voltage rail of the power supply may be out of specification. The BMC monitors voltages and prevents power-on when power values are out of specification.

The system will not boot.

- Step 1.** Examine the front panel LEDs for warning or fault indications. The system LED will be flashing yellow with a warning indication and flashing red with a fault indication. See “Front Control Panel LEDs” on page 76.
- Step 2.** Examine the QuickFind Diagnostic Panel for indications of specific warning or fault indications. The diagnostic LEDs present patterns that categorize the source of the warning or fault. See “QuickFind Diagnostic Panel LEDs” on page 78.
- Step 3.** Display and examine the system event log (SEL) and forward progress log (FPL) for further information relating to warning or fault isolation.
- Step 4.** Review the firmware revisions of all firmware.
- Step 5.** Use the MP command to cycle the system power: `pc off, pc on`.
- Step 6.** Turn the server off, wait at least twenty seconds, then turn the server back on to see if the failure can be cleared.
- Step 7.** Check that all DIMMs are seated properly.
- Step 8.** Check that the DIMM configuration on the system board matches those approved. A minimum of one DIMM pair must be installed.

- Step 9.** Verify that the DIMMs are fully seated. When the DIMM is fully seated in the mating connector, the retaining latches are closed (they should be flush with the front of the DIMM). If the latches are not closed, reseal the DIMM fully by engaging the retaining latches and closing them fully.
- Step 10.** Check that the processors are installed in the correct sockets and that each processor has a power pod installed. Also verify that the processors are of the same type.
- Step 11.** Check the boot order with the SCSI configuration utility.
- Step 12.** If there are no obvious errors, reflash the BMC firmware, Refer to Chapter 4, “Utilities.”
- Step 13.** If the system will still not boot, it may be necessary to replace the base unit.

The system has intermittent failures.

- Step 1.** Examine the front panel LEDs for warning or fault indications. The system LED will be flashing yellow with a warning indication and flashing red with a fault indication. See “Front Control Panel LEDs” on page 76.
- Step 2.** Examine the QuickFind Diagnostic Panel for indications of specific warning or fault indications. The diagnostic LEDs present patterns that categorize the source of the warning or fault. See “QuickFind Diagnostic Panel LEDs” on page 78.
- Step 3.** Display and examine the system event log (SEL) and forward progress log (FPL) for further information relating to warning or fault indications.
- Step 4.** Make sure that the system fan assemblies are fully seated.
- Step 5.** Verify that the server is plugged into a power source that is within specifications described on the label of the power supply.
- Step 6.** Make sure that the internal SCSI chain is terminated and that termination is not enabled on any of the drives. Note that LVD SCSI termination is provided on the cable.
- Step 7.** Check that the processors are installed in the correct sockets and that terminators are installed in all unused sockets.
- Step 8.** Reset the main memory DIMMs.
- Step 9.** If date and time or customer settings are being cleared, the system board battery may need to be replaced.

The system LED or Diagnostic LEDs are not on and no error messages appear.

If the server does not work (with no LEDs illuminated) and no error messages appearing, check the following:

- Step 1.** Make sure that all cables and the AC power cord are plugged into their proper receptacles.
- Step 2.** Make sure that the AC outlet is working. If the server is plugged into a switched multiple-outlet box, make sure that the switch on the outlet box is turned on.
- Step 3.** Make sure that the server is turned on (the power-on light should be green and the fans should be on).
- Step 4.** Turn the server off, wait at least twenty seconds, then turn the server back on to see if the failure can be cleared.

- Step 5.** Make sure that all boards are installed properly and the processors are installed in the correct slot. They must be seated firmly in their slots and any cables must be connected firmly.
- Step 6.** If the server stopped working after you installed a new board, remove the board and turn on the server. If your server now works, check the installation instructions received with the new board for correct installation method. If the new board is preventing the server from powering on, it is likely to have a serious electrical problem.
- Step 7.** If the server still does not work, remove all boards and options that you have installed (do not remove the hard disk drives) and turn on the server.
- Step 8.** Add boards and options one at a time to determine which one is causing the problem.
- Step 9.** If you have added any memory, make sure that the DIMMs are seated properly in the board. Also check the DIMM configuration, and that the DIMMs are matched pairs.

Power goes off on the server and does not come back on.

When certain critical conditions exist, the server shuts down all power.

The critical conditions that may shut down the server are:

- Critical temperature fluctuations or changes
- Voltage problems (external AC line)
- Power supply failure

If the server powers-off, and before you try a restart, do the following:

- Step 1.** Examine the front panel LEDs for warning or fault indications. The system LED will be flashing yellow with a warning indication and flashing red with a fault indication. See “Front Control Panel LEDs” on page 76.
- Step 2.** Examine the QuickFind Diagnostic Panel for indications of specific warning or fault indications. The diagnostic LEDs present patterns that categorize the source of the warning or fault. See “QuickFind Diagnostic Panel LEDs” on page 78.
- Step 3.** Check to make sure power is getting to the server. Plug a known working device into the power outlet.
- Step 4.** Check for proper ventilation for the server. The server should have at least three inches of space around the front and rear for proper airflow when installed in a rack.

NOTE Temperature problems may be caused by a fluctuating power supply.

- Step 5.** Check the system specifications and make sure the environmental temperature and voltage are in the specified guidelines.
- Step 6.** Monitor the system to make sure you are not experiencing further temperature and voltage problems.

Troubleshooting Using LED Indicators

Your hp Integrity rx4640 Server has LED indicators located on the front control panel and an internal QuickFind diagnostic panel that you can use to determine what repair action is required. For descriptions of all LEDs on your hp Integrity rx4640 Server see the *hp Integrity rx4640 Operations Guide* on the documentation CD included with your system.

Front Control Panel LEDs

The front control panel LEDs show you the system status at a glance. If warning or attention lights are flashing, then you should to query the QuickFind diagnostic panel or management processor for further information.

Figure 5-1 Front Control Panel

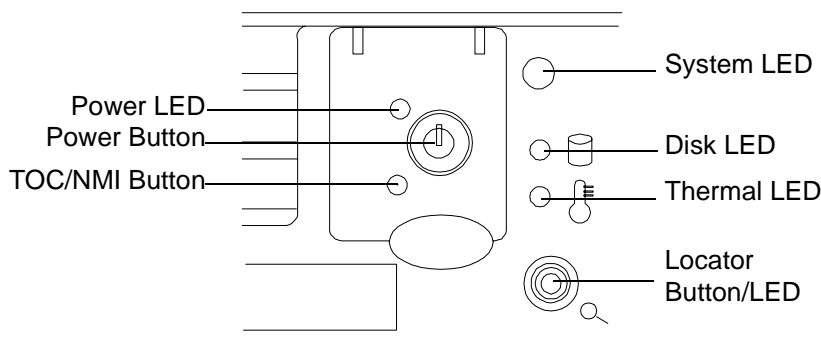


Table 5-1 Front Control Panel LED Definitions

LED/ Button	State	Flash Rate	Color	Description
System	Running	Steady	Green	Green: System normal-OS up and running
System	Booting	Flashing at 0.5Hz	Green	Flashing green: OS booting or at EFI
System	Attention	Flashing at 1 Hz	Yellow	Flashing yellow: warning-system needs attention. Redundancy lost, component failure pending.
System	Fault	Flashing at 2 Hz	Red	Flashing red: hard fault, system halted
System	Off	Off	N/A	Off: system off
Power	On	Steady	Green	Green: power normal
Power	On	Steady	Yellow	Flashing yellow: Housekeeping voltage present
Power	Off	Off	Off	Off: Power off

Table 5-1 Front Control Panel LED Definitions (Continued)

LED/ Button	State	Flash Rate	Color	Description
Disk LED		Flashing at rate of disk activity	Green	Flashing green: disk activity
Thermal LED	OK	Steady	Green	Green: thermal OK
Thermal LED	Warning	Flashing at 1 Hz	Yellow	Flashing yellow-thermal warning
Locator LED/Button		Flashing at 1 Hz	Blue	Flashing blue: system locator LED may be remotely or locally activated/deactivated

QuickFind Diagnostic Panel LEDs

The QuickFind diagnostic panel is located under the top cover and is attached to the top of the power supply cage. The following definitions describe the status of the various LEDs and what is wrong with the indicated component.

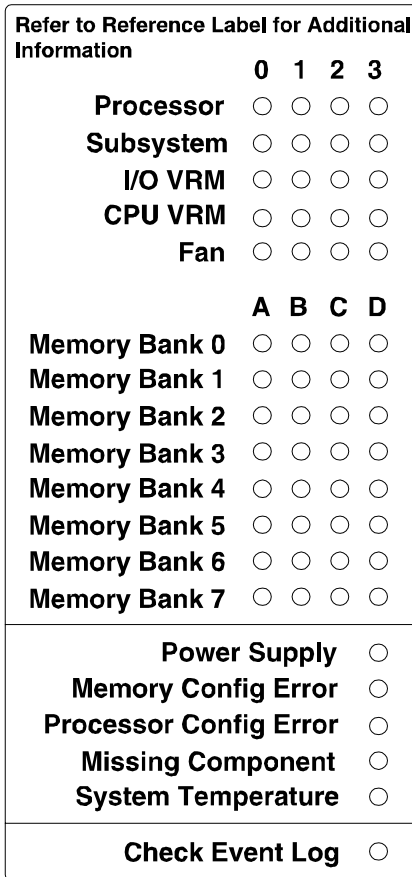
Table 5-2 QuickFind Diagnostic Panel LED Definitions

Item	LED 0	LED 1	LED 2	LED3	Details
Processor	Socket 0	Socket 1	Socket 2	Socket 3	<p>If the System LED (on front panel) is in the attention or fault state and the processor LED is on, then the processor or voltage regulator has failed—the processor module in the specified socket needs to be replaced.</p> <p>If the thermal LED is in the warning or critical state and the processor LED is on, then the processor exceeded the warning or critical level.</p>
Subsystem	CPU board	Memory board	I/O board	n/a	A soldered voltage regulator has failed—the specified board must be replaced.
I/O VRM	12 volt	5 volt	3 volt	n/a	A plug-in voltage regulator has failed—specific VRM must be replaced.
CPU VRM	n/a	n/a	n/a	n/a	n/a
Fan Module	0	1	2	n/a	<p>One or both fans in a fan module have failed—the module must be replaced.</p> <p>Fan 2 is in front of the power supplies.</p>
Memory Bank X (0-7)	DIMM xA	DIMM xB	DIMM xC	DIMM xD	<p>The specified DIMM has failed—the DIMM must be replaced.</p> <p>If all the LEDs for a rank (0-7) are lit and the memory config error LED is lit, then the DIMMs in the specified rank are mismatched—replace mismatched DIMM.</p>
Check Power Supply	n/a	n/a	n/a		One of the power supply or power supply fans have failed—replace the power supply. The faulty power supply LED (located on Power supply) will be lit.
Memory Config Error	n/a	n/a	n/a		The DIMMs in a rank are mismatched. All the DIMMs in the specified rank (0-7) will be lit.
Processor Config Error	n/a	n/a	n/a		The processors are mismatched—replace mismatched processor.
Missing Component	n/a	n/a	n/a		A required component(s) is not installed in the system and thus preventing “power-up.”

Table 5-2 QuickFind Diagnostic Panel LED Definitions (Continued)

Item	LED 0	LED 1	LED 2	LED3	Details
System Temp	n/a	n/a	n/a		The internal temperature of the server has exceeded the warning or critical level.
Check Event Log	n/a	n/a	n/a		An event has occurred that requires attention.

Figure 5-2 QuickFind Diagnostic Label



○ Marks unused LED positions covered by the label

I/O Baseboard LED Indicators

Various LEDs, sensors, and reset or attention buttons are found on the I/O baseboard.

Figure 5-3 I/O Baseboard LEDs, Buttons and Sensors

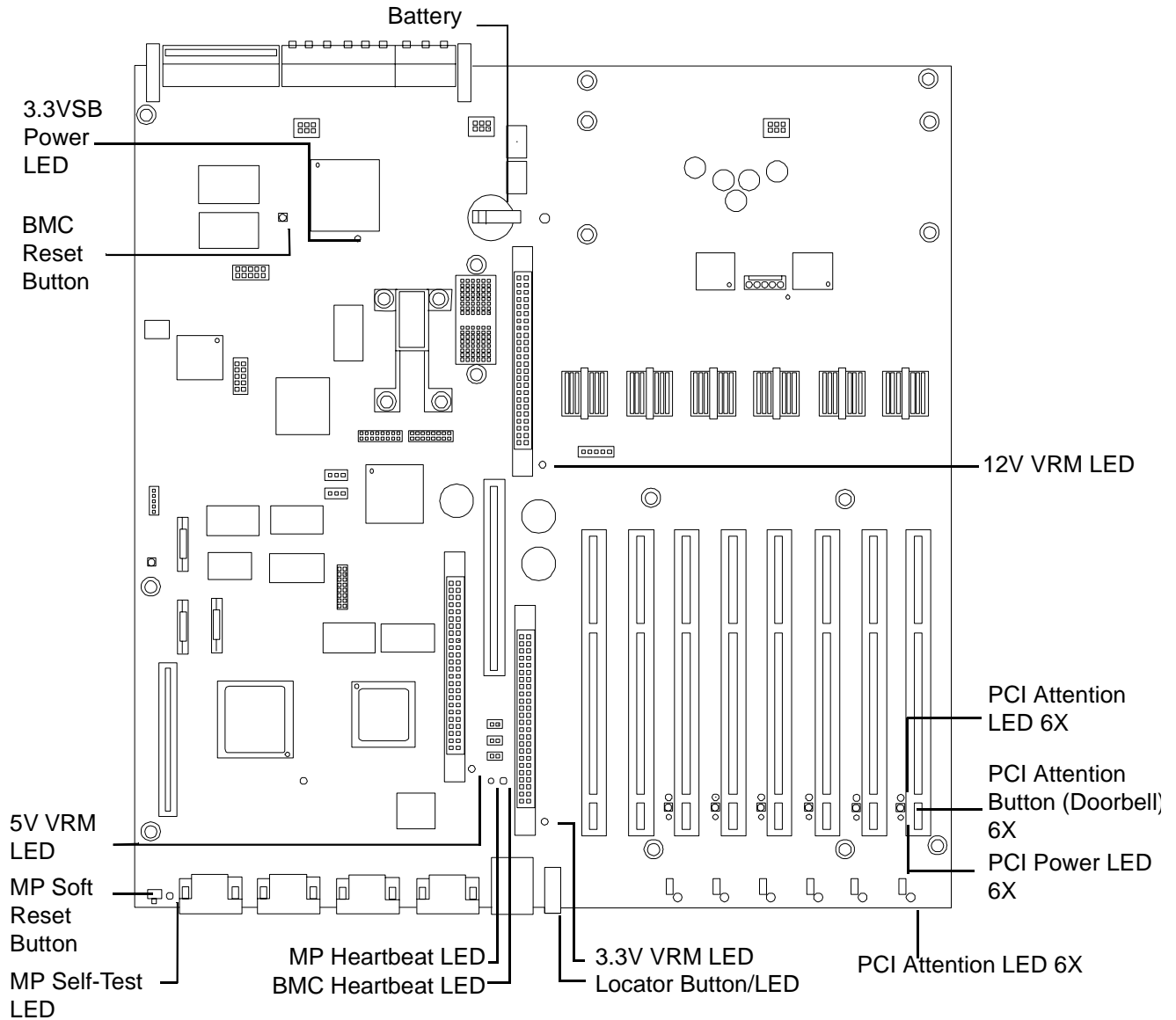


Table 5-3 I/O Baseboard LEDs, Buttons and Sensors

LED/Button	Color	Status	Condition
12V VRM Power LED	Green	On	12V VRM is functioning.
5V VRM Power LED	Green	On	5V VRM is functioning.

Table 5-3 I/O Baseboard LEDs, Buttons and Sensors (Continued)

LED/Button	Color	Status	Condition
3.3V VRM Power LED	Green	On	3.3V VRM is functioning.
MP Heartbeat	Green	Blinking	The management processor is functioning correctly.
MP Self Test LED	Amber	On Off	The management processor is executing the internal self test. The management processor has passed the internal self test.
BMC Heartbeat	Green	Blinking	The baseboard management controller is functioning correctly.
3.3VSB Power LED	Green	On	Standby power is available.
MP Soft Reset Button	N/A	Press	Resets the management processors values.

Troubleshooting Using Online Support Tools

The following online support tools are available from the HP-UX environment.

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).

To access the Support Tools Manager from a terminal console, perform the following steps:

Step 1. In a terminal window type the following at the command prompt:

```
fs0:\> cstm
```

The following message appears:

```
Support Tools Manager Version A.01.00
Type 'help' for a list of available commands
CSTM>
```

Step 2. To verify the system operation, type the following at the CSTM> prompt:

```
CSTM> verify all
Messages similar to the following appear:
Verification has started on device (CPU)
Verification has started on device (FPU)
CSTM> Verification of (FPU) has completed)
CSTM> Verification of (CPU) has completed)
```

Step 3. Press **Enter** to return to CSTM> prompt after all test results are reported.

Step 4. To exit the Support Tools Manager, type the following:

```
CSTM> exit
```

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:

- IA-64 core hardware monitor
- 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/sbin/monconfig
```

From the list of main menu selections, choose:

```
(E) Enable Monitoring
```

Instant Support Enterprise Edition (ISEE)

ISEE is a remote monitoring software package that can operate on your hp Integrity rx4640. It can deliver, via the Internet, remote system monitoring and secure remote access from your machine to HP support engineers. It places a MAP (script) on your machine that can be turned on by HP support to gather system information. This software can be obtained at <http://www.software.hp.com>.

Troubleshooting Using Offline Support Tools

You can use offline support tools to troubleshoot your hp Integrity rx4640 Server.

- Offline Diagnostic Environment (ODE)—available on IPF Offline Diagnostics on the resource CD that comes with your HP Server.
- e-Diagtools—available from IPF Offline Diagnostics on the resource CD that comes with your server.

NOTE For machines using HP-UX the HP service partition is not available and the *IPF Offline Diagnostics CD* must be used.

- Management Processor (MP) event logs—available by logging on to the management processor via the MP LAN or MP remote serial connectors.

Offline Diagnostic Environment (ODE)

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

- Step 1.** Power on your HP Server and insert the *IPF Offline Diagnostics CD*.
- Step 2.** Do not permit the server to boot into an operating system and at the EFI boot manager, select EFI shell.
- Step 3.** Determine the file system that represents the CD and enter the appropriate command to access the CD.

e-Diagtools

e-Diagtools is used to evaluate the hardware integrity of your HP Server. To access e-Diagtools from the *IPF Offline Diagnostics CD*, perform the following steps:

- Step 1.** Power on your HP Server and insert the *IPF Offline Diagnostics CD*.
- Step 2.** Do not permit the server to boot into an operating system and at the EFI boot manager, select EFI shell.
- Step 3.** Determine the file system that represents the CD and enter the appropriate command to access the CD.
- Step 4.** After accessing the CD diagnostic menu, launch e-Diagtools for IPF and run the basic and advanced tests according to the menus.

Figure 5-4 Offline Diagnostic Main Menu

```
*****
*****
*****      Offline Diagnostic Environment      *****
*****
*****      (C) Copyright Hewlett-Packard Co 1993-2003      *****
*****
```


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

Step 4. Press **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 see Chapter 4, “Utilities.”

Disk and I/O Path Logging

Some failures result in I/O path logging. These paths help to indicate the source of the error and may be included in the error message or logged into console or event logs. The following table describes the disk drive and PCI slot paths for your HP Server.

Table 5-4 Disk and DVD Paths

Slot	Path
Slot 1	Acpi(HWP0002,100)/Pci(1 0)
Slot 2	Acpi(HWP0002,100)/Pci(1 1)
DVD	Acpi(HWP0002,0)/Pci(3 0)

Table 5-5 I/O Paths

I/O Slot	Path
Slot 1	Acpi(HWP0002,100)/Pci(2 0)
Slot 2	Acpi(HWP0002,100)/Pci(1 0)
Slot 3	Acpi(HWP0002,400)/Pci(2 0)
Slot 4	Acpi(HWP0002,400)/Pci(1 0)
Slot 5	Acpi(HWP0002,500)/Pci(2 0)
Slot 6	Acpi(HWP0002,500)/Pci(1 0)
Slot 7	Acpi(HWP0002,200)/Pci(1 0)
Slot 8	Acpi(HWP0002,600)/Pci(1 0)

Other Event Logs and General Diagnostic Tools

This section describes other general diagnostic tools that will be provided for your HP Server and how to generate other event logs for troubleshooting diagnosis.

- General diagnostic tools available to support your HP Server are:
 - MCA analyzer
- Event logs not generated by the management processor include:
 - Machine check abort log (MCA)
 - Corrected machine check log (CMC)
 - Corrected platform error log (CPE)

To access these logs type in at the `shell>`command line prompt:

```
errdump mca
```

```
errdump cmc
```

```
errdump cpe
```

6 Specifications

Introduction

This chapter provides the power requirements, operating conditions (environmental requirements), physical requirements, hardware specifications, and video resolutions of the hp Integrity rx4640. The following tables provide the specifications required for normal operation of the hp Integrity rx4640.

NOTE The specifications and requirements for the power supply and environment can vary if you install a mass storage device in the server that has more stringent environmental limits than required for the HP Server. Ensure that the operating environment for any mass storage devices you intend to install are compatible with the server environmental requirements.

Hardware Specifications

Table 6-1 Hardware Specifications

Micro-processors	Intel Itanium (up to 4 processor modules): 1.1 GHz dual processor module 32MB Level 4 cache. Up to 4 modules or 8 processors 1.3 GHz/3MB 1.5 GHz/6MB 1.5 GHz Itanium2 4MB 1.6 GHz Itanium2 6MB 1.6 GHz Itanium2 9MB
Memory	Supports up to eight Double Data Rate (DDR) registered ECC Memory, in PC1600 DIMMs. Supported DDR DIMM sizes: 128MB, 256MB, 513MB, 1GB, 2GB, and 4GB. Requires DIMMs to be added in quads of equal capacity.
Video	Embedded
SCSI	Integrated Ultra-3 SCSI dual channel controller; 80 MB/s transfer rate with two 68-pin connectors.
integrated hp raid controller	Optional.
LAN	PCI Gigabit, Fast Ethernet Controller; with Wake-on-LAN enabled/disabled via BIOS setup.
PCI Slots	Four 64-bit PCI slots, 66MHz slots Two 64-bit PCI-X slots, 133 MHz slots.
Core I/O	Three serial ports, 2 USB ports, Integrated RJ-45 LAN .
DVD-ROM	DVD-R/CD-ROM drive; IDE interface; 48x speed.
Mass Storage	Maximum Internal Storage: Two 73MB, 15K drive.

Table 6-1 Hardware Specifications (Continued)

External Storage	2 external SCSI ports
Power Supply	1+1 configuration, redundant 200-240 VAC power supply (optional).

Dimensions and Weights

This section provides dimensions and weights of hp Integrity rx4640 Server components.

Server Component Dimensions

Table 6-2 Server Component Dimensions

Dimension	Value
Height	6.87 in. (17.46 cm)
Width	17.32 in. (44 cm)
Depth	27.1 in. (68.8 cm)
Weight	Unloaded 75 lbs (34 kg) Fully loaded <95 lbs (43 kg)

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