Silicon Graphics™ 750 User's Guide

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CONTRIBUTORS

Written by Eric Zamost et al

Illustrated by Dan Young

Production by Glen Traefald

Contributions by Charles Alexander, Carter Anderson, Paul Davison, Tom Dye, Jim Gath, Mary Jane Isaacson, Brian Stickney, Susan Tellep, Eric Wang, Audy Watson, and Will Woodford

Cover Design By Sarah Bolles, Sarah Bolles Design, and Dany Galgani, SGI Technical Publications.

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Tables

About This Guide

This guide describes the features of the Silicon Graphics 750 system and provides an overview of the BIOS in the following chapters:

- Chapter 1, “System Overview and Setup”
- Chapter 2, “Board Set Description”
- Chapter 3, “BIOS Overview”
- Chapter 4, “Error and Informational Messages”
- Chapter 5, “Solving Problems”
- Appendix A, “Configuration Manager Settings”
- Appendix B, “Regulatory Specifications”

An index completes this guide.

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System Overview and Setup

The Silicon Graphics™ 750 system is an Intel® Itanium™-based system. It features the Intel 82460GX PCI chipset, multiple 64-bit, 66-MHz PCI expansion slots, and support for AGP Pro 110 graphics cards.

This chapter describes the main features of the Silicon Graphics 750 system, and provides basic system setup information in the following sections:

Warning: Only SGI service engineers may access the inside of the system.

Unpacking and Inspecting the System

Remove the Silicon Graphics 750 system from the packaging container and check that the following items are included:

- Silicon Graphics 750 system
- *Silicon Graphics 750 Quick Start Guide*
- Silicon Graphics 750 Documentation CD

Inspect the above items for evidence of mishandling during transit. If the contents appear damaged, file a damage claim with the carrier immediately.

Save the boxes and packing materials for future use.

Note: If your system ships with software or media not listed above, please see its accompanying documentation for installation instructions.

Warning: To avoid personal injury when unpacking the system, use only a mechanical assist unit to lift the system off the shipping pallet. The system weighs approximately 84 pounds (38 kilograms).

Physical Specifications

Table 1-1 shows the physical specifications for the Silicon Graphics 750 system.

Table 1-1 Silicon Graphics 750 Physical Specifications

Feature	Specification
Dimensions:	
height	17.9 in. (45.5 cm)
width	9.9 in. (25.2 cm)
depth	24.9 in. (63.3 cm)
Weight (maximum configuration)	84 pounds (38.1 kg)

Table 1-1 (continued) Silicon Graphics 750 Physical Specifications

Feature	Specification
Temperature	
operating	+10 °C (+50 °F) to +35 °C (+95 °F)
non-operating	-40 °C (-40 °F) to +70 °C (+158 °F)
Humidity (non-operating)	< 95% RH, non-condensing
Shock (non-operating):	
unpacked	35 G, 200 inches/second (all axes)
packed	18 inch drop height: 6 surfaces, 3 edges, 1 corner
Vibration (non-operating):	
unpacked	3 to 200 Hz, 1.15 G rms
packed	3 to 200 Hz, 1.15 G rms

Power Consumption

The Silicon Graphics 750 power supply is rated for a maximum input AC power consumption of 800 watts (7.5 amps at 100 Volts, 3.75 amps at 220 volts).

A fully loaded Silicon Graphics 750 system has a maximum input AC power consumption of 500 watts (510 volt-amps, 4.6 amps at 110 Volts, 2.3 amps at 220 volts).

Choosing a Site

The Silicon Graphics 750 operates reliably within normal office environments. Select a site that meets these criteria:

- Near a properly earthed, grounded, three-pronged power outlet, as follows:
  - In the U.S. and Canada: a NEMA 5-15R outlet for 100-120 V or a NEMA 6-15R outlet for 200-240 V.
  - In other geographic areas: a properly earthed, grounded outlet in accordance with the local electrical authorities and electrical code of the region.
- Clean and relatively free of excess dust.
- Well-ventilated and away from sources of heat, with the ventilation openings on the system kept free of obstructions.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields and line noise caused by electrical devices such as elevators, copy machines, air conditioners, large fans, large electric motors, radio and TV transmitters, and high-frequency security devices.
- Access space provided so the power cords can be unplugged from the power supply or the wall outlet. This is the only way to remove AC power from the system.
- Clearance provided for cooling and airflow.

Caution: In regions that are susceptible to electrical storms, it is recommended that you plug your system into a surge suppressor and disconnect any telecommunication lines during electrical storms.

Chassis Front Controls and Indicators

This section describes the front controls and indicators of the Silicon Graphics 750 system, as shown in Figure 1-1.

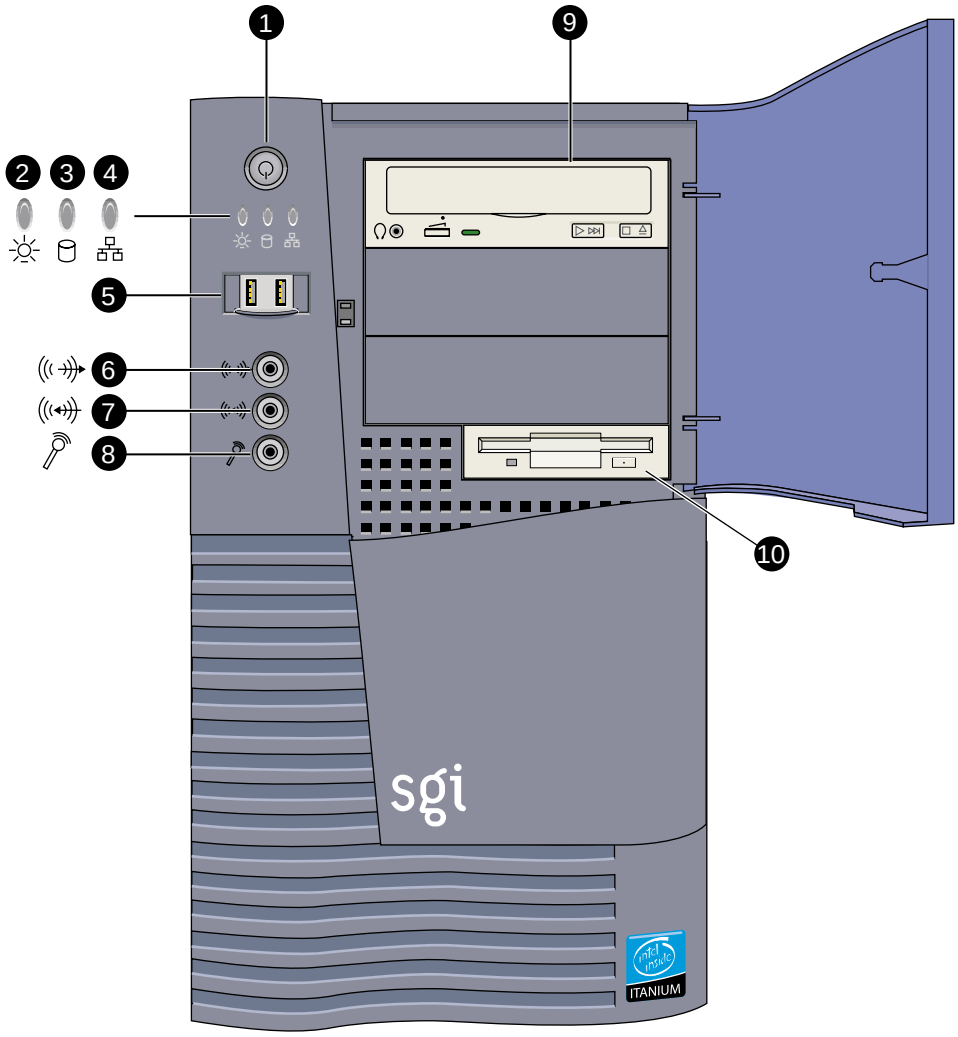

Figure 1-1 Front Controls and Indicators

Table 1-2 describes the front controls and indicators that are shown in Figure 1-1.

Table 1-2 Front Controls and Indicators

Number	Item
1	Power switch
2	Power LED
3	Hard drive activity LED
4	LAN LED
5	USB ports (2)
6	Line output port
7	Line input port
8	Microphone input port
9	CD-ROM drive
10	3.5-inch SuperDisk™ drive (compatible with 1.44 MB and LS-120 diskettes)

Rear Panel I/O Ports and Features

This section describes the rear panel I/O ports and other features as shown in Figure 1-2.

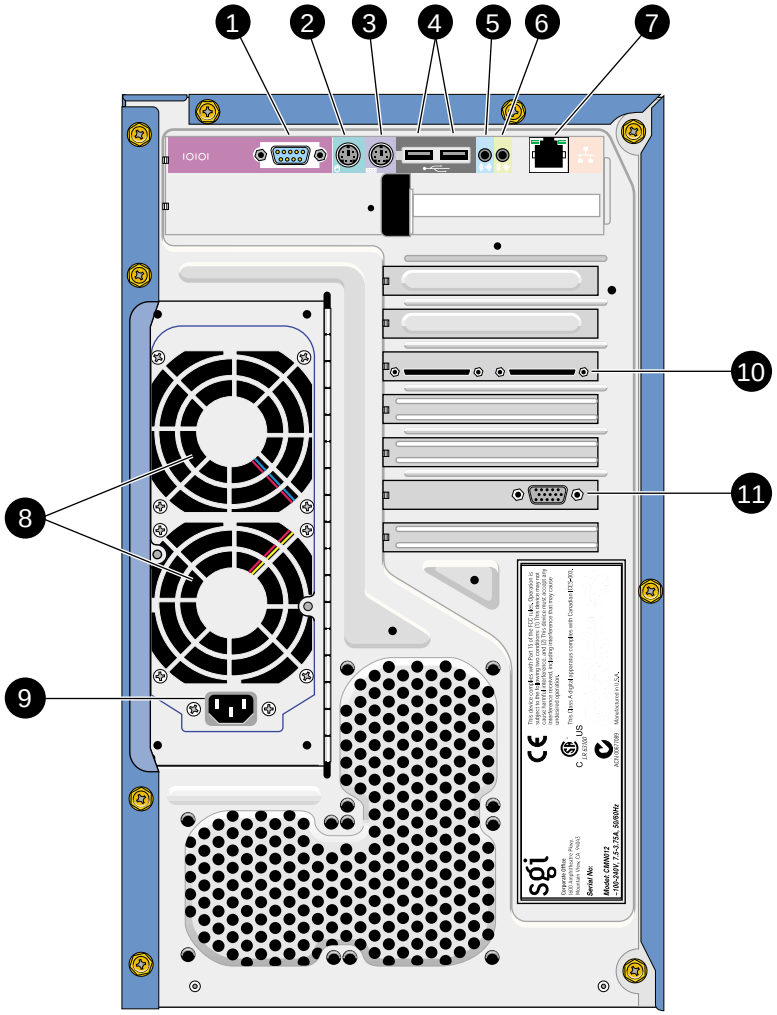

Figure 1-2 Rear Panel I/O Ports and Features

Table 1-3 describes the rear panel I/O ports and features that are indicated in Figure 1-2.

Table 1-3 Rear Panel I/O Ports and Features

Number	Item
1	9-pin serial port
2	PS/2™-compatible mouse connector
3	PS/2-compatible keyboard connector
4	USB ports (2)
5	Line input port
6	Line output port
7	LAN (10baseT/100baseTX Ethernet™)
8	Cooling fans
9	AC power input socket
10	Disk adapter: QLogic™ 12160 PCI SCSI HBA (LVD 160 MB/sec. (Ultra3) or SE Fast-20)
11	Video output: ATI® XPERT 2000 PRO™ AGP

Note: The Silicon Graphics 750 system has a QLogic 12160 SCSI Host Bus Adapter installed with two external SCSI connectors accessible from the system rear panel. The components in Figure 1-2 are for illustration purposes only. The actual card location may vary slightly.

Peripheral Bay

The peripheral bay can accommodate one 3.5-inch and three 5.25-inch devices. The CD-ROM drive and the Superdisk (floppy) drive are housed in the peripheral bay. Both devices are accessible from the front of the chassis, as shown in Figure 1-1 on page 5.

Hard Drive Bay

The hard drive bay is designed for 3.5-inch hard drives and can accommodate up to five 1-inch-high drives.

Power Supply

The chassis is configured with a single, 800-watt power supply. It is capable of providing full rated output power with input voltages ranging from 100 to 240 VAC. The power supply features automatic power factor correction (PFC). See "Power Consumption" on page 4 for additional power-related information.

System Cooling

The Silicon Graphics 750 system supports eight fans in the following four separate zones:

- Zone 1 - Processor: two fan headers for two 120-mm fans.
- Zone 2 - Memory: one fan header for one 80-mm fan.
- Zone 3 - I/O: two fan headers for one 92-mm and one 60-mm fan.
- Zone 4 - Exhaust: three fan headers for three 80-mm fans.

Starting the System

After making sure that you have set up the system properly and connected all the required cables, you may now power on the system by pressing the power button.

The system starts and displays a welcome message. After that, a series of power-on self-test (POST) messages appear. The POST messages indicate whether or not the system is running correctly.

Note: If the system does not turn on or boot after you press the power button, see the next section for the possible causes of the boot failure.

Power-on Problems

If the system does not boot after you have applied power, check whether the following factors might have caused the boot failure.

- The external power cable may be loosely connected.
  Check the power cable connection from the power source to the power socket on the rear panel. Make sure that each cable is properly connected to each power supply.
- No power comes from the grounded power outlet.
  Ask an electrician to check your power outlet.

Note: If you have performed the preceding actions and the system still fails to boot, ask your dealer or a qualified technician for assistance.

Chassis Features Summary

Table 1-4 describes the chassis features.

Table 1-4 Chassis Features Summary

Feature	Comment
System chassis	Designed to operate in a standard office environment. Mid-tower (deskside) design capable of operating from a standard AC power outlet. The peripheral bay can accommodate as many as three 5.25-inch media and one 3.5-inch media devices. The hard drive bay accepts 3.5-inch drives. It can accommodate as many as five 1-inch devices. The plastic front bezel provides airflow and easy access to the peripheral and hard drive bays. The removable top and side covers provide proper airflow and easy access to components inside the system. Only technically qualified personnel should remove the system covers.
Power system	An 800-watt power supply that is capable of operating over input voltage ranges of 100-240 VAC. Includes two integrated 80-mm fans for cooling. See “Power Consumption” on page 4 for additional power-related information.
Cooling system	The system has provisions for as many as eight fans for cooling within four separate cooling zones. There are two 120-mm fans, one 92-mm fan, four 80-mm fans, and one 60-mm fan.
System security	A side lock and chassis intrusion switch provides security against system tampering. The intrusion switch can be used with system level software (when it becomes available) to warn of chassis intrusion.

Board Set Description

This chapter describes the Silicon Graphics 750 system baseboard, processor board, memory board, and I/O board in the following sections:

The architecture of the Silicon Graphics 750 system supports symmetrical multiprocessing (SMP). The system board set consists of:

- Baseboard
  - Seven PCI expansion slots (five 64-bit, 66-MHz and two 64-bit, 33-MHz)
  - AGP Pro 110 slot
  - Processor board connector
  - Two memory expansion card connectors
  - Integrated voltage regulators
- Processor board
  - Two Intel Itanium processor LIF sockets
  - ITP connector
- Memory board
  - Two memory expansion cards (MECs)
  - Eight DIMM sockets on each MEC
  - Each MEC supports up to 2 GB of PC100 SDRAM (planned future support for up to 8 GB per MEC)
  - Memory DC-DC converters
- I/O board
  - ATA-33 IDE (primary and secondary channels)
  - USB (dual port)
  - Front panel connectors (audio and USB)
  - LAN (10/100 Mbps)
  - PS/2 (keyboard and mouse)
  - Audio
  - 9-pin serial

Table 2-1 describes the board set features.

Table 2-1 Board Set Features

Feature	Description
Baseboard	The baseboard provides the interface for the processor board, memory expansion cards, I/O board, PCI peripherals, and AGP Pro devices.
Processor board	The processor board can support a maximum of two Intel Itanium processors, two processor power pods, and an ITP connector. An add-in bus terminator is not required for single-processor configurations.
Memory expansion cards	Two plug-in expansion cards supporting PC100 registered SDRAM containing interleaved pathways to main memory. Each memory card supports from 256 MB to 8 GB (in the future) of error correction code (ECC) memory using eight 72-bit dual inline memory modules (DIMMs). These modules interface to the baseboard through 300-pin connectors.
I/O board	The I/O board plugs into the SC242 connector at the left side of the baseboard (PCI connectors oriented top). The ATA-33 Integrated Drive Electronics (IDE) interface supports one primary and one secondary IDE channel. The following connectors are on the rear panel: four universal serial bus (USB) ports, two I/O USB connectors, audio ports (blue = Line In, green = Speaker out), one LAN (10/100 Mbps) port, and one 9-pin serial port.
Front panel	Audio and USB ports Push-button power switch LEDs indicate power and hard drive activity

Processor Overview

The Intel Itanium processor is the first in a family of high-performance 64-bit processors. Intel's 64-bit Instruction Set Architecture (ISA) is referred to as Intel Itanium architecture. The Itanium processor maintains full compatibility with Intel's current 32-bit Intel Architecture processor family while delivering industry-leading performance beyond existing architectures. Each Intel Itanium processor is packaged in a PAC418 (418-pin array cartridge) format. The cartridge includes:

- Processor core
- L1 instruction cache (16 KB, on die)
- L1 data cache (16 KB, on die)
- Unified L2 cache (96 KB, on die)
- Unified L3 cache (2 MB or 4 MB)
- Thermal plate

Note: Each processor implements the MMX™ and SSE (streaming SIMD extensions) technology.

Memory Overview

The main memory resides on two add-in boards called memory expansion cards (MECs). Each MEC contains sockets for eight DIMMs and two power connectors for DC-DC converters. Each MEC is attached to the baseboard through a 300-pin connector. The memory controller supports PC100 registered SDRAM DIMMs. The memory sub-system can operate in two different modes.

- Interleaved mode (two MECs installed): This configuration offers the highest performance by dividing the total system RAM between two MECs. This reduces the probability of wait states, thus increasing speed on sequential accesses.

  Note: To operate in interleaved mode, both MECs must be used, and at least the top four DIMM sockets must be populated on each MEC.

- Single-port mode (one MEC installed): The single MEC responds to all memory addresses.

Note: Silicon Graphics 750 systems ship with two MECs standard.

PCI

The baseboard has two 64-bit, 66-MHz PCI buses and one 64-bit, 33-MHz PCI bus.

- The WXB (Wide eXpansion Bridge) PCI bus 1 provides PCI slots 1, 2, and S2.
- The WXB (Wide eXpansion Bridge) PCI bus 2 provides PCI slots 3 and 4.
- The PXB (PCI eXpansion Bridge) PCI bus 0 provides PCI slots 5, 6, and IFB.
- The IFB controls communications to IDE, USB, and Super I/O.

Note: In order for the system to remain EMC compliant, peripheral devices having an external output connector (for example, audio, video, SCSI) must be marked as FCC tested for home or office use (FCC Class B), and marked as Canada ICES-003 Class B compliant. For European installations, these devices are required to be CE marked with declaration of conformity to the EMC directives (89/336/EEC).

AGP

The Silicon Graphics 750 baseboard provides support for AGP Pro 110 (4x at 66 MHz) for high-end graphics capability.

Video

An ATI XPERT 2000 PRO AGP (4x-capable) add-in AGP video adapter, using the ATI RAGE 128 Pro™ graphics engine, provides video for the system.

LAN

The I/O board supports integrated 10/100 Mbps LAN support (using the Intel 82559 Fast Ethernet controller). An RJ45 connector accessible via the rear I/O panel is provided for this purpose.

SCSI Controller

The Silicon Graphics 750 includes one QLogic 12160 PCI-based dual-channel SCSI Host Bus Adapter (HBA). This adapter is capable of Ultra3 Low Voltage Differential (LVD) data transfers at up to 160 MB/sec. or Single-Ended (SE) data transfers at up to 40 MB/sec. on each of its two SCSI buses (these values are for wide devices — narrow devices can operate at speeds up to half those listed).

When a single-ended device is connected to one of the two SCSI buses on the QLogic 12160 board, that entire bus is limited to single-ended speeds (that is, 40 MB/sec.).

If an external SCSI device is used on either of the two SCSI buses, that bus should be terminated with a multi-mode terminator, supporting both LVD and SE operation.

Note: When a bus is operating in single-ended mode, the total internal and external cable length of that bus must be no more than 1.5 meters. Any external SCSI device on a single-ended bus must therefore be located very close to the Silicon Graphics 750 chassis, and should use the shortest cable practical. SGI therefore recommends the use of 0.5-meter cables for external single-ended devices.

IDE Controller

IDE is a 16-bit interface for integrated disk drives with AT disk controller electronics on board. The IFB (I/O and firmware bridge) is a multifunction device on the I/O board that acts as a PCI-based Fast IDE controller. The device controls:

- PIO mode 4 and DMA/bus master operations
- Transfer rates as fast as 22 MB/sec. (33 MB/sec. using Ultra DMA transfers)
- Buffering for PCI/IDE burst transfers
- Primary and secondary channels

BIOS Overview

The Silicon Graphics 750 system uses proprietary BIOS code stored on the 82802AC FWH (firmware hub). The BIOS may be upgraded using a diskette-based firmware flash utility. This chapter describes the system BIOS and explains how to configure the system by changing the settings of the BIOS parameters. This chapter consists of the following sections:

BIOS Features

Table 3-1 provides an overview of the features supported by the BIOS.

Table 3-1 BIOS Features

Feature	Description
BIOS upgrades	Flash memory upgrades using SuperDisk (floppy) drive
Enhanced IDE	PIO Mode 4 Ultra DMA 33 Auto-configuration LBA Two channels, support for master and slave drives on each channel
ATAPI	LS-120/LS-240 SuperDisk (floppy) drive support CD-ROM DVD
System management	System and chassis information is loaded into SMBIOS tables from IDROMs
ACPI	Power management support Software power off The BIOS supports the following ACPI states: S0 (Normal power on) S1 (Processor Sleep) S4 (Suspend to Disk) S5 (Normal power off) The BIOS supports wake up on: Power/sleep switch RTC alarm LAN Modem PME
Video support	Supports 1X, 2X, or 4X AGP graphics, AGP Pro 110, and 32- or 64-bit PCI graphics cards
Available languages	English (U.S.)

Table 3-1 (continued) BIOS Features

Feature	Description
Boot options	Hard drive (IDE or SCSI) DVD CD-ROM ARMD-HDD (LS-120/LS-240 SuperDisk/floppy) Network boot support
USB	Legacy USB keyboard and mouse support
BIOS security features	User and Administrative passwords Security for flash contents
BIOS recovery	Recovery BIOS included in flash
SMBIOS	Compliant with SMBIOS 2.3

Configuration Manager

The Configuration Manager is accessed at the Intel Itanium processor splash screen (see Figure 3-1) by tabbing to the **Enter Setup** option and pressing `Enter`. The Configuration Manager is organized into a set of tabbed panels. Table 3-2 summarizes the uses for each tab.

Table 3-2 Summary of Configuration Manager Screens

Tab Legend	Function(s)
Help	Explains how to use the Configuration Manager
System Processors	Displays processor information Displays the front side bus (FSB) speed
System Memory	Displays the amount of memory Displays the memory speed Displays the ECC setting Displays the type of memory module in each slot
System Event Log	Configure system event log Mark system event log as read View system event log
Integrated IDE	Enable controller Set spin delay Configure the primary and secondary IDE channels
System BIOS	Displays the BIOS version Displays the SMBIOS version Displays the PAL version Displays the SAL version Displays the boot block version
Power Events	Enable or disable the S5 wake-up events
Time/Date	Displays and sets the time or date
General	Set the amount of time the introductory screen remains visible Enable or disable the on-board network interface card (NIC) Enable or disable the on-board audio device Set resume after AC power failure to on or off Enable or disable Num Lock at power-on Set the COM port for serial port 1

Table 3-2 (continued) Summary of Configuration Manager Screens

Tab Legend	Function(s)
Security	Set or clear the user and administrator passwords
Save/Exit	Save or discard the changes Load the default settings Exit the Configuration Manager

Using Configuration Manager

The following sections describe entering, navigating, and exiting Configuration Manager.

Entering Configuration Manager

The BIOS displays a screen with the manufacturer's logo (see Figure 3-1) shortly after the start of the boot sequence. You have two choices before proceeding:

1. Click **Enter Setup** to use the Configuration Manager.
2. Click **Boot OS** to dismiss the introductory screen and continue booting the operating system.

The label for the currently selected button is white and enclosed by right (-->) and left (<--) arrows. To move the current selection between the two buttons, click the desired button with the mouse, or press the `Tab` key or the left and right arrow keys. The text box between the two buttons shows the number of seconds remaining before the BIOS automatically continues with the selected option.

Note: For reference purposes, before you begin record the current settings in Appendix A. When you make changes to the settings, update this record.

Figure 3-1 Full Screen Logo with Buttons to Enter Setup or Boot OS

The letters in Figure 3-1 indicate the following:

A Boot OS (operating system)

B Time remaining before executing selected option

C Enter the Configuration Manager (Setup)

Using the Keyboard and Mouse in Configuration Manager

You can use your keyboard and mouse together to navigate in the Configuration Manager. However, the mouse is the preferred method. Table 3-3 explains the functions of the mouse and keyboard keys.

Table 3-3 Using the Keyboard and Mouse in the Configuration Manager

Element	Function
Mouse	Click the left mouse button to select tabs or buttons. Click the right mouse button to display the online help for the selected tab. If you have swapped the left and right mouse buttons in your operating system, that setting is not in effect while you are using the Configuration Manager.
Backspace	Press the Backspace key when entering text to erase the previous character.
Tab	Press the Tab key to move to the next control.
Shift+Tab	Press the Shift+Tab key to move back one control.
Esc	Press the Esc key to move to the Save/Exit tab.
F1	Press the F1 key to display help text for the selected tab.
Right arrow	Press the Right Arrow key to move to the next tab panel to the right.
Left arrow	Press the Left Arrow key to move to the next tab panel to the left.
Space bar	If the focus is on a checkbox, press the space bar to toggle the checkbox on or off.
Enter	If the focus is on a button, press the Enter key to activate the button.
Up/down arrows	If the focus is on a combo box (a text box with a drop-down list), press the up and down arrow keys to select the previous or next option. If the focus is on a spin box, press the up and down arrow keys to select the previous or next value.

Figure 3-2 is an example of Configuration Manager tabs.

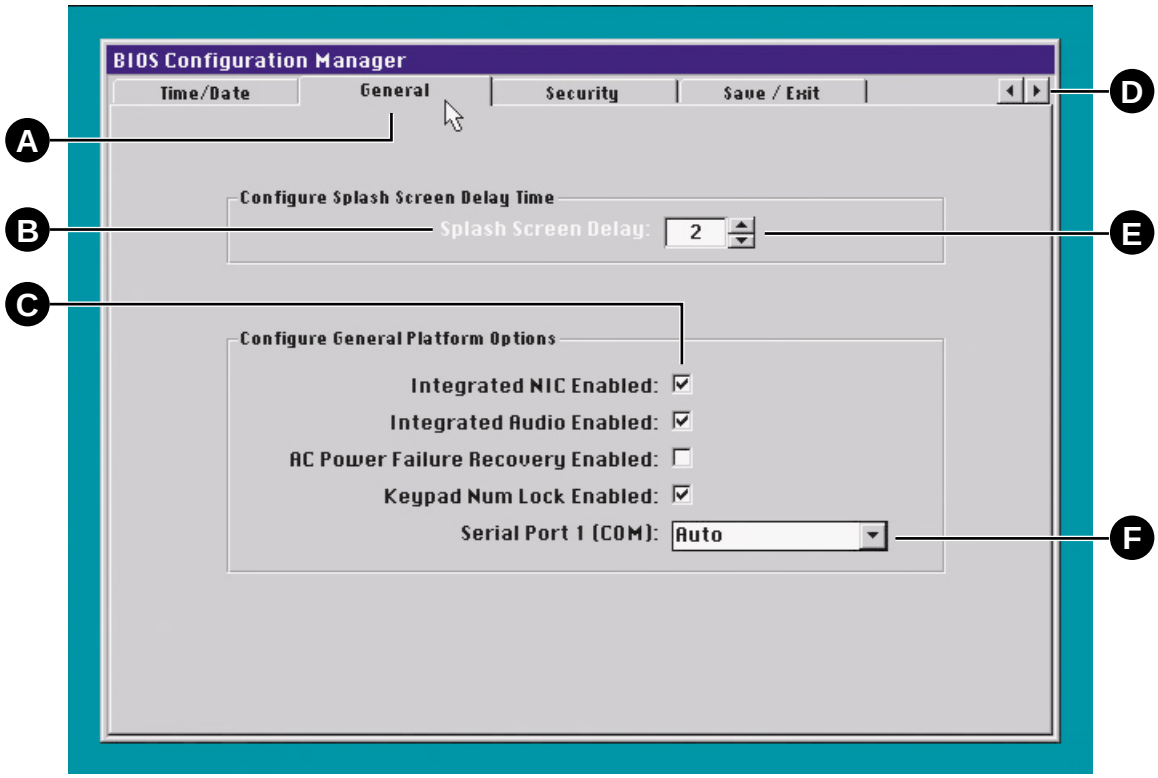

Figure 3-2 Configuration Manager Controls

The letters in Figure 3-2 indicate the following:

A Active tab panel

B Label turns white to indicate focus

C Checkbox

D Previous tab and next tab buttons

E Spin button

F Drop-down list

Exiting Configuration Manager

To exit the Configuration Manager, follow these steps:

1. Select the **Save/Exit** tab. (See “Save/Exit” on page 50.)
2. If you have changed the Configuration Manager settings, click **Save New Settings** or **Discard Changes**.
3. Click **Exit**.

Help

Figure 3-3 shows the **Help** tab screen.

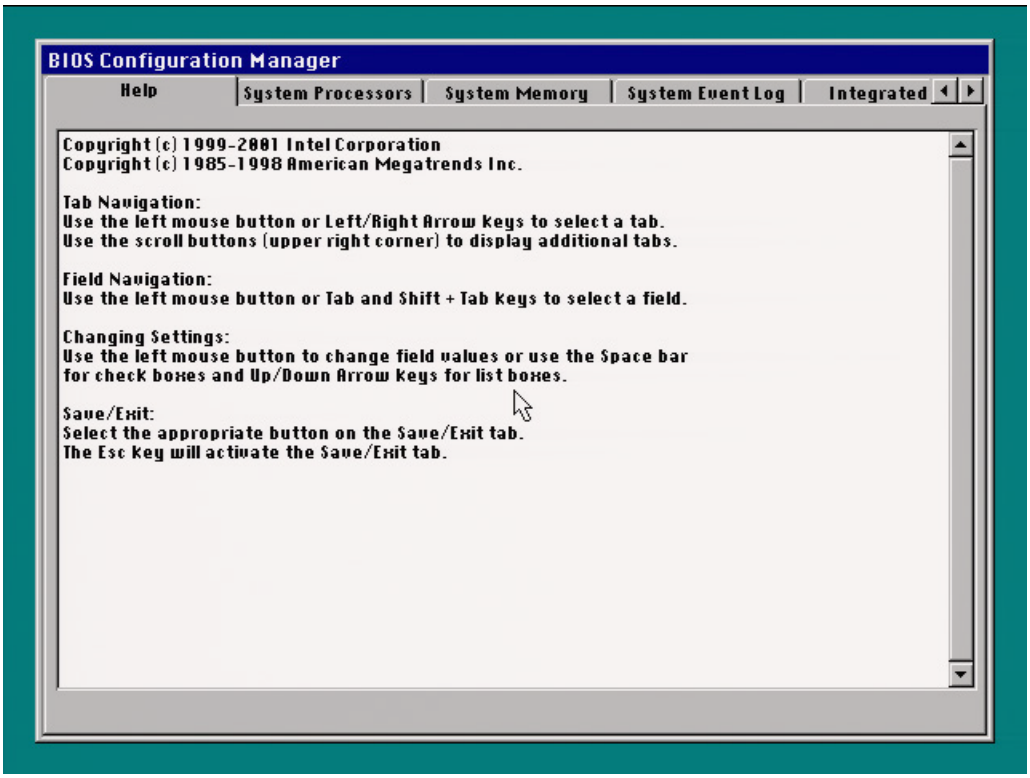

Figure 3-3 Help Tab Screen

The Help tab lists the keyboard navigation shortcuts used in the Configuration Manager. For help on any tab, press F1, or click the right mouse button.

System Processors

Figure 3-4 shows the **System Processors** tab screen.

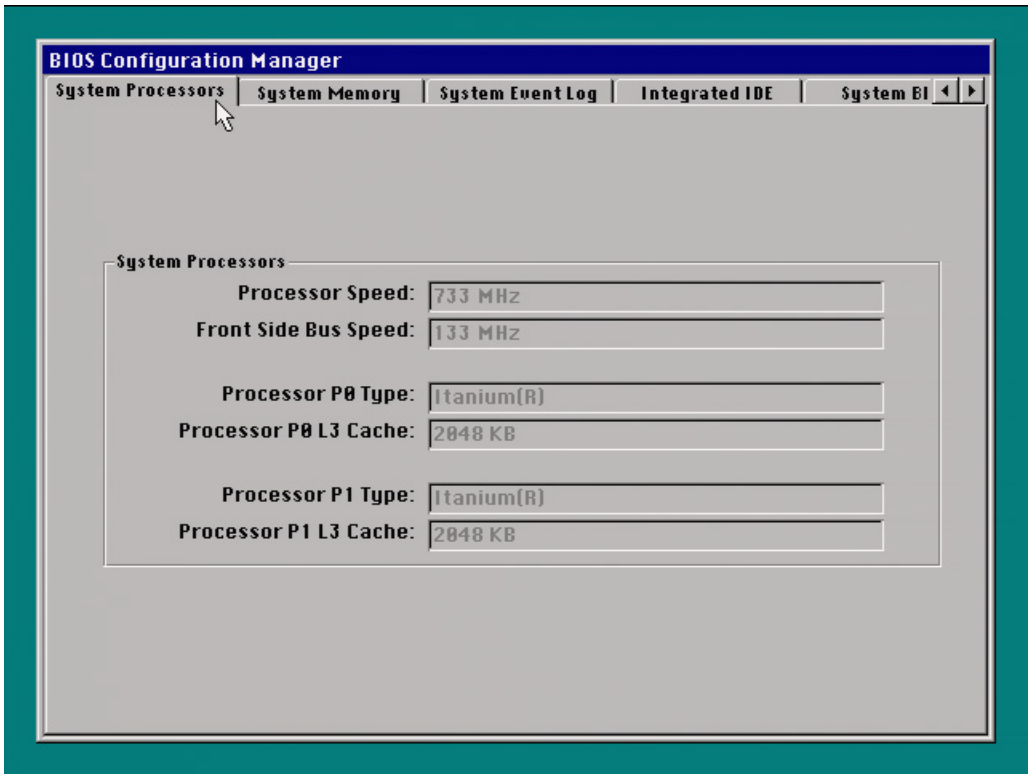

Figure 3-4 System Processors Tab Screen

Table 3-4 describes the **System Processors** tab features.

Table 3-4 Description of the System Processors Tab

Feature	Options	Description
Processor Speed	No options	Displays the processor speed detected by the BIOS. If two processors are installed, both processors have the same processor speed.
Front Side Bus Speed	No options	Displays the front side bus speed detected automatically by the BIOS.
Processor P0 Type	No options	Displays the processor type.
Processor P0 L3 Cache	No options	Displays the amount of L3 cache RAM for the processor. The L3 cache is located on the processor cartridge.
Processor P1 Type	No options	Displays the processor type.
Processor P1 L3 Cache	No options	Displays the amount of L3 cache RAM for the processor. The L3 cache is located on the processor cartridge.

System Memory

Figure 3-5 shows the **System Memory** tab screen.

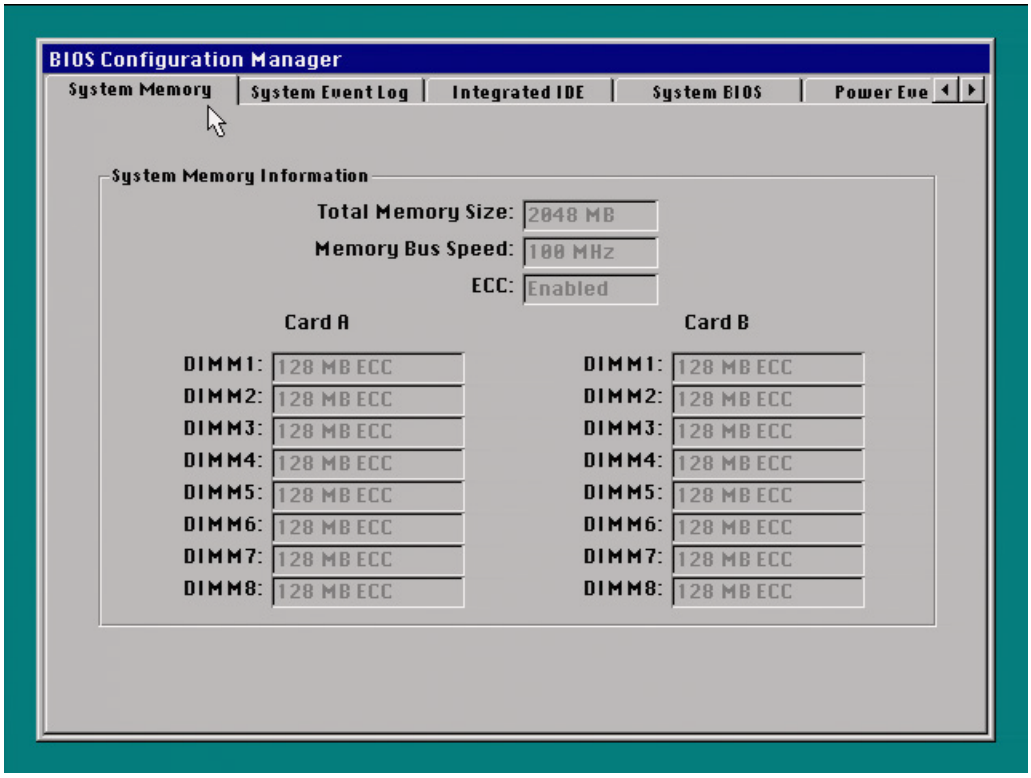

Figure 3-5 System Memory Tab Screen

Table 3-5 describes the **System Memory** tab features.

Table 3-5 Description of the System Memory Tab

Feature	Options	Description
Total Memory Size	No options	Displays the total amount of SDRAM installed.
Memory Bus Speed	No options	Displays the speed of the installed memory.
ECC Setting	No options	Displays whether or not ECC mode is enabled.
Card A DIMM 1	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 2	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 3	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 4	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 5	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 6	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 7	No options	Displays the size and type of memory installed in this slot.
Card A DIMM 8	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 1	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 2	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 3	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 4	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 5	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 6	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 7	No options	Displays the size and type of memory installed in this slot.
Card B DIMM 8	No options	Displays the size and type of memory installed in this slot.

Note: An asterisk (*) on the screen indicates that the memory bank is invalid.

System Event Log

Figure 3-6 shows the **System Event Log** tab screen.

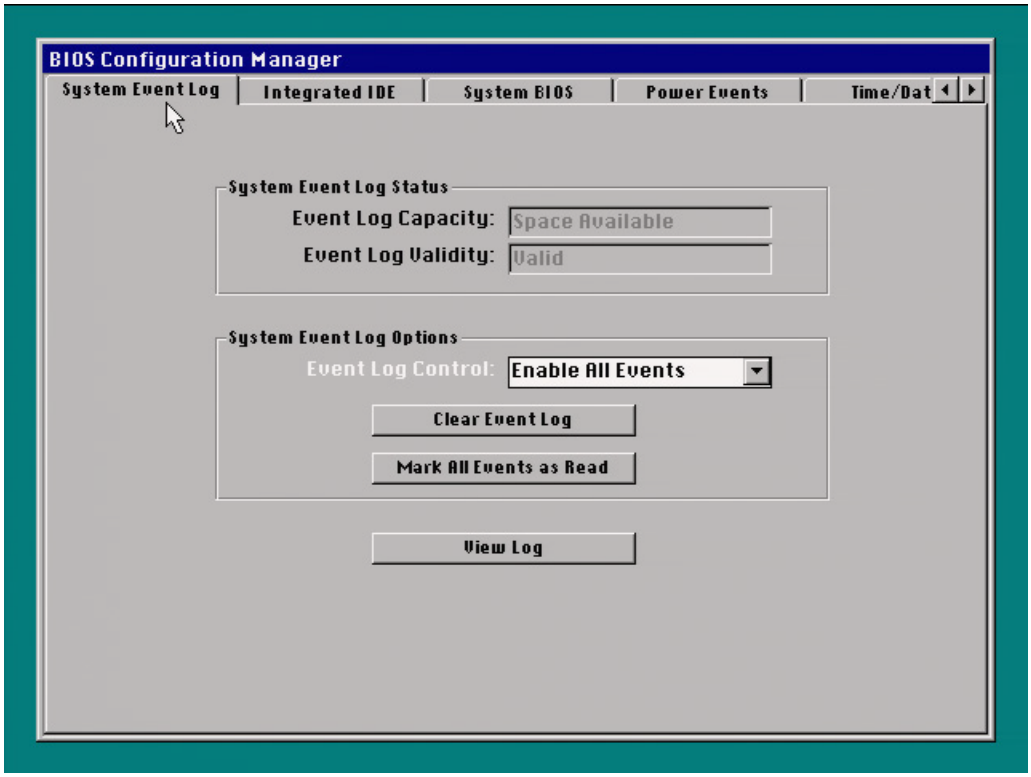

Figure 3-6 System Event Log Tab Screen

Table 3-6 describes the **System Event Log** tab features.

Table 3-6 Description of the System Event Log Tab

Feature	Options	Description
Event Log Capacity	Display only	Shows space availability for the event log.
Event Log Validity	Display only	Shows the information in the System Event Log as valid or invalid. If the log is marked as invalid, clear the log and reboot.
Clear Event Log	Enabled **Disabled** (default)	Enable this option to clear the System Event Log each time the system is rebooted.
Event Log Control	**Enable All Events** (default) Disable All Events Disable ECC Events	Enable or disable event logging. Disable ECC Events will enable logging all events except ECC events.
Mark All Events as Read	Button	Mark all events in the log as read.
View Log	Button	Displays the system events in the System Event Log (see Figure 3-7). Read events are marked with an asterisk.

Figure 3-7 shows the **System Event Log** screen.

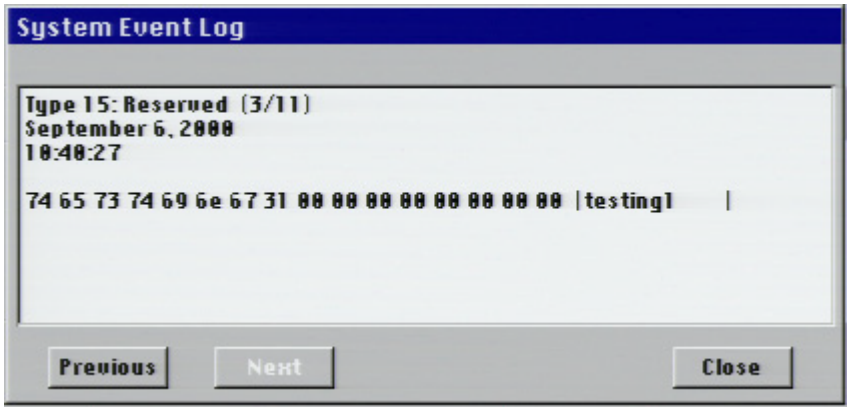

Figure 3-7 System Event Log Screen

Integrated IDE

Figure 3-8 shows the **Integrated IDE** tab screen.

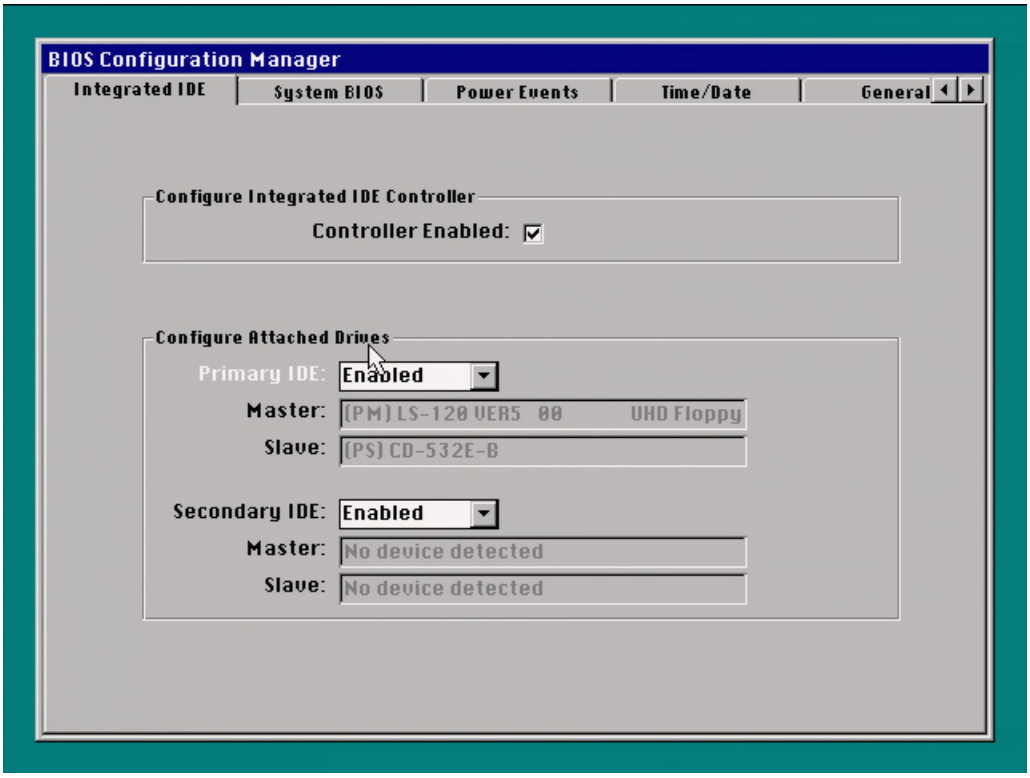

Figure 3-8 Integrated IDE Tab Screen

Table 3-7 describes the **Integrated IDE** tab screen.

Table 3-7 Description of the Integrated IDE Tab

Feature	Options	Description
Controller Enabled	**Enabled** (default) Disabled	*Disabled* will disable the dual-channel IDE controller. This option will prevent the IDE controller from using system resources. *Enabled* will enable the dual-channel IDE controller.
Spin Delay	0–60 seconds (**0** seconds is default)	Selects the hard disk drive pre-delay. Causes the BIOS to insert a delay before attempting to detect IDE drives in the system.
Primary IDE	**Enabled** (default) Disabled	*Enabled* automatically sets the values for the LBA mode, transfer mode, and Ultra DMA settings. *Disabled* will disable the primary channel.
Master (Primary IDE)	No options	Reports the type of connected IDE device.
Slave (Primary IDE)	No options	Reports the type of connected IDE device.
Secondary IDE	**Enabled** (default) Disabled	*Enabled* automatically sets the values for the LBA mode, transfer mode, and Ultra DMA settings. *Disabled* will disable the secondary channel.
Master (Secondary IDE)	No options	Reports the type of connected IDE device.
Slave (Secondary IDE)	No options	Reports the type of connected IDE device.

System BIOS

Figure 3-9 shows the **System BIOS** tab screen.

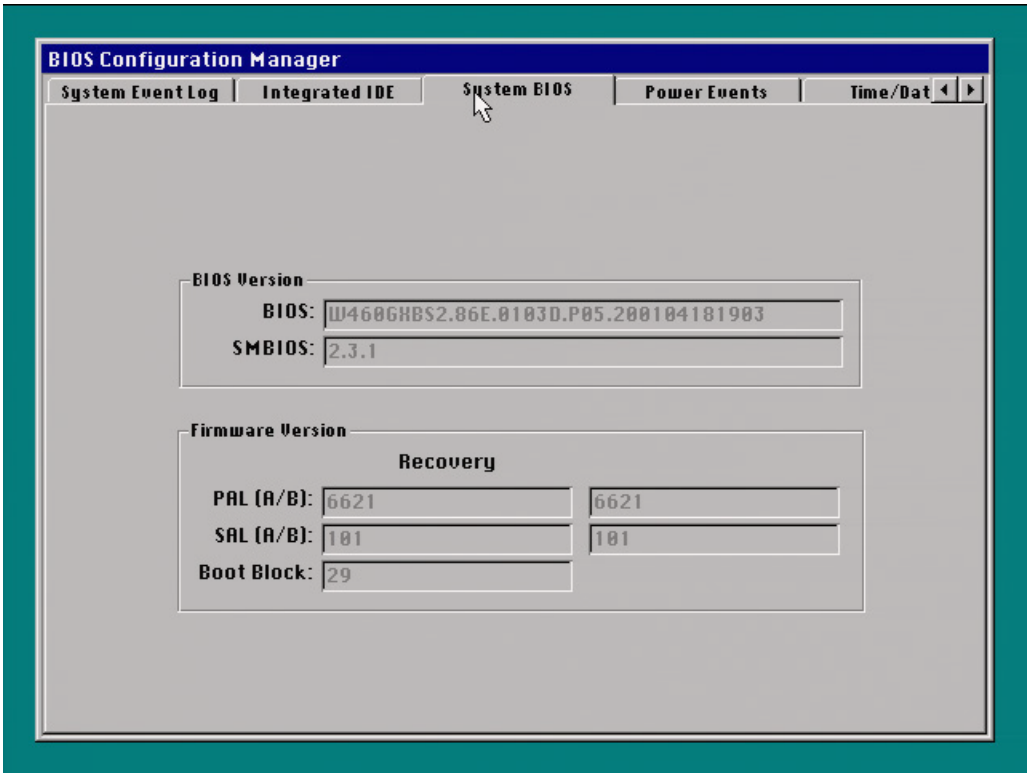

Figure 3-9 System BIOS Tab Screen

Table 3-8 describes the **System BIOS** tab screen.

Table 3-8 Description of the System BIOS Tab

Feature	Options	Description
BIOS Version:		
BIOS Version	No options	Displays the BIOS version.
SMBIOS Version	No options	Displays the System Management BIOS (SMBIOS) version.
Firmware Versions:		
PAL A/B	No options	Displays the Platform Abstraction Layer (PAL) version.
SAL A/B	No options	Displays the Software Abstraction Layer (SAL) version.
Boot Block	No options	Displays the Boot Block version.

Power Events

Figure 3-10 shows the **Power Events** tab screen.

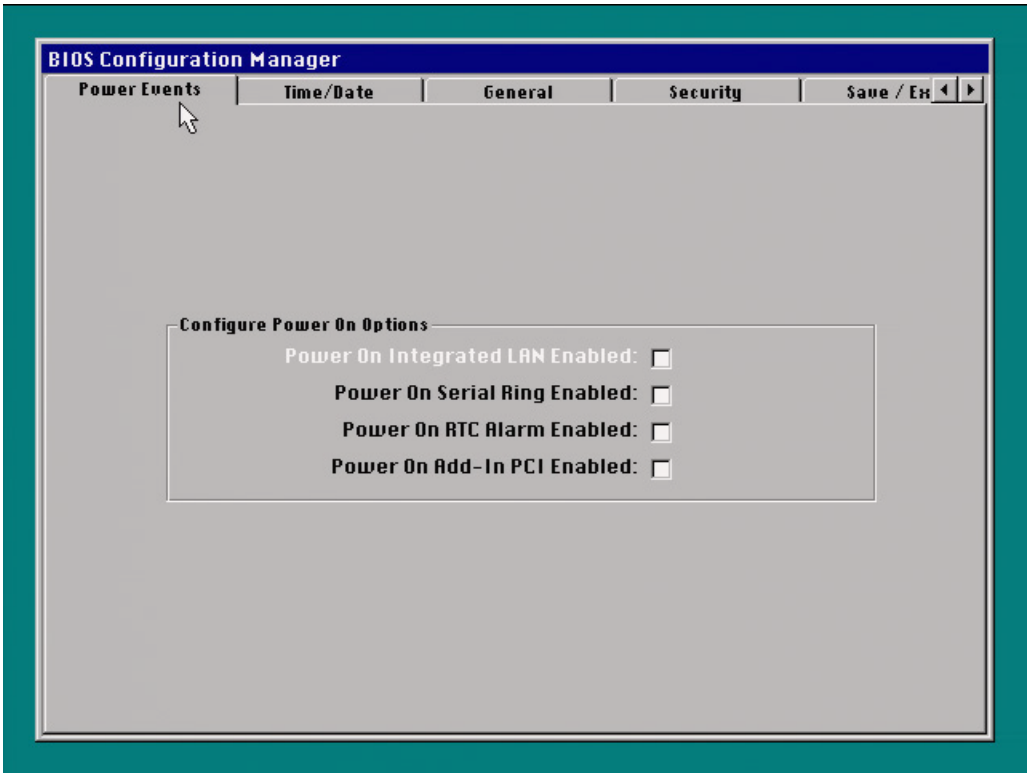

Figure 3-10 Power Events Tab Screen

Table 3-9 describes the **Power Events** tab screen.

Table 3-9 Description of the Power Events Tab

Feature	Options	Description
Power On Integrated LAN Enabled	Enabled **Disabled** (default)	Select this option to enable Wake on LAN from ACPI sleep state 5, or from the normal off state in non-ACPI operating systems. The default is disabled (the system will remain off). This option has no effect on the wake events in ACPI sleep state 1.
Power On Serial Ring Enabled	Enabled **Disabled** (default)	Select this option to enable Wake on Ring for external modems connected to the serial port from ACPI sleep state 5, or from the normal off state in non-ACPI operating systems. The default is disabled (the system will remain off). This option has no effect on the wake events in ACPI sleep state 1.
Power On RTC Alarm Enabled	Enabled **Disabled** (default)	Select this option to wake up the system on an RTC Alarm. The default is disabled (the system will remain off). This option has no effect on the wake events in ACPI sleep state 1.
Power On Add-In PCI (PME) Enabled	Enabled **Disabled** (default)	Select this option to enable Wake on PCI PME (Power Management Event) for PCI modems or other PCI devices from ACPI sleep state 5, or from the normal off state in non-ACPI operating systems. The default is disabled (the system will remain off). This option has no effect on the wake events in ACPI sleep state 1.

Time/Date

Figure 3-11 shows the **Time/Date** tab screen.

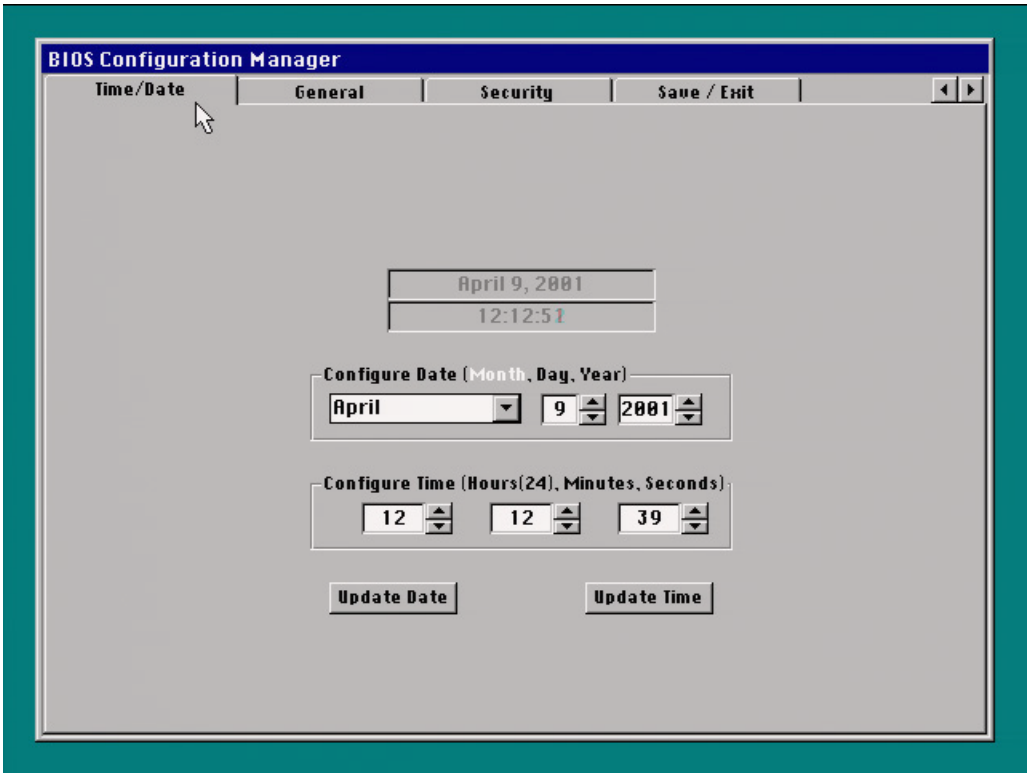

Figure 3-11 Time/Date Tab Screen

Table 3-10 describes the **Time/Date** tab screen.

Table 3-10 Description of the Time/Date Tab

Feature	Options	Description
Date	No options	Displays the current date.
Time	No options	Displays the current time (using 24-hour clock).
Month	January - December	Specifies the current date.
Day	1–31	
Year	1980–2099	
Hours	0–23	Specifies the current time.
Minutes	0–59	
Seconds	0–59	
Update Date	Buttons	Sets the date or time.
Update Time		

General

Figure 3-12 shows the **General** tab screen.

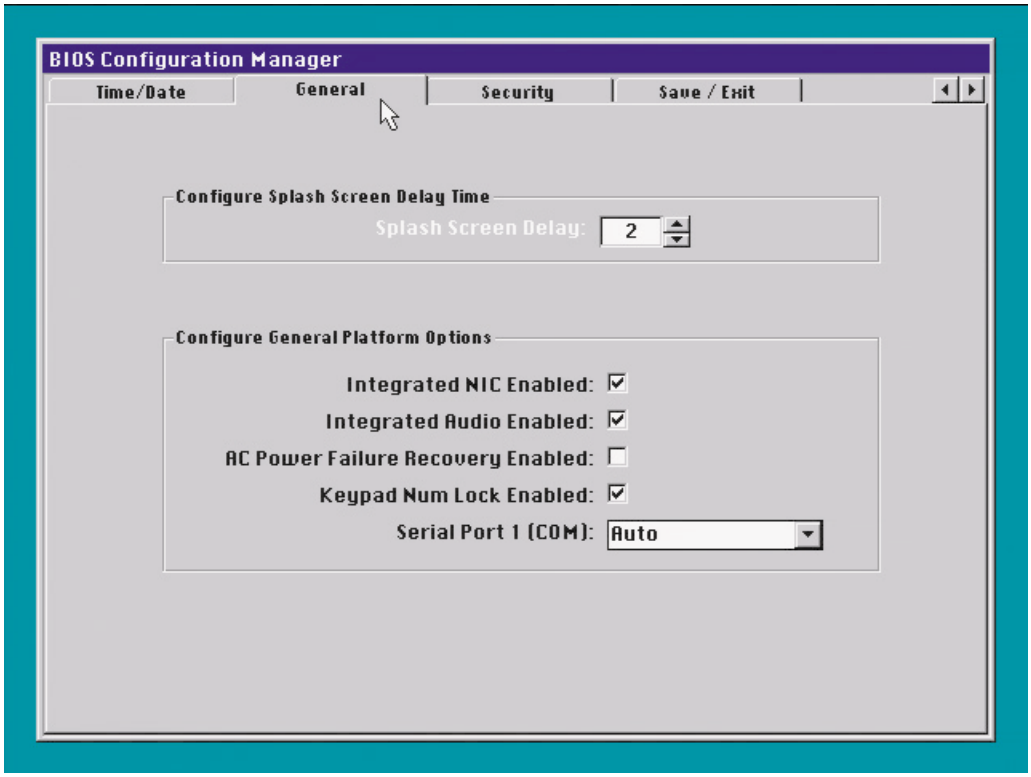

Figure 3-12 General Tab Screen

Table 3-11 describes the **General** tab screen

Table 3-11 Description of the General Tab

Feature	Options	Description
Splash Screen Delay	2–30 seconds (**10** seconds is default)	Specifies the number of seconds to display the startup screen before automatically booting the operating system.
Integrated NIC Enabled	**Enabled** (default) Disabled	Enables or disables the on-board network interface.
Integrated Audio Enabled	**Enabled** (default) Disabled	Enables or disables the on-board audio.
AC Power Failure Recovery Enabled	**Off** (default) On	Specifies the response after an AC power failure. Select **Off** to keep the system off after AC power is restored. Select **On** to power-on the system after AC power is restored.
Keypad Num Lock Enabled	**On** (default) Off	Specifies the power-on state of the Num Lock feature on the numeric keypad of the keyboard.
Serial Port 1 (COM)	**Auto** (default) COM1 Disabled	Specifies the resources assigned for Serial Port 1.

Security

Figure 3-13 shows the **Security** tab screen.

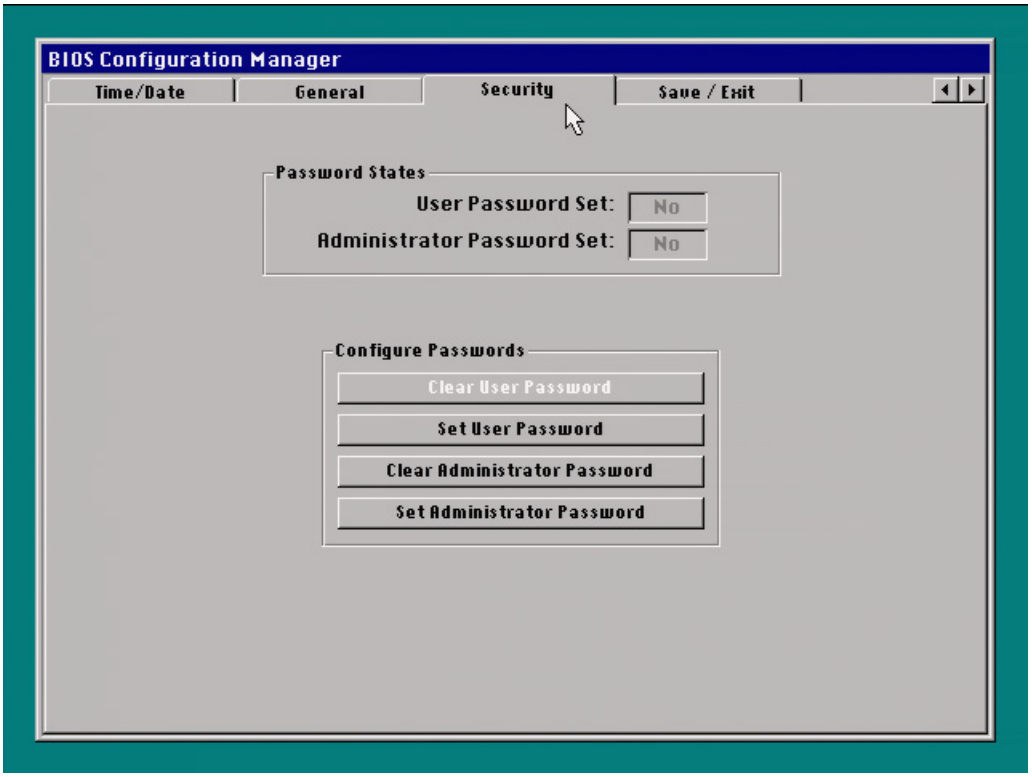

Figure 3-13 Security Tab Screen

Table 3-12 describes the **Security** tab screen.

Table 3-12 Description of the Security Tab

Feature	Options	Description
User Password Set	No options	Reports if the user password is set.
Administrator Password Set	No options	Reports if the administrator password is set.
Clear User Password	Button	Clears the user password.
Set User Password	Button	Specifies the user password. The user password can be as many as 15 characters long.
Clear Administrator Password	Button	Clears the administrator password.
Set Administrator Password	Button	Specifies the administrator password. The administrator password can be as many as 15 characters long.

Save/Exit

Figure 3-14 shows the **Save/Exit** tab screen.

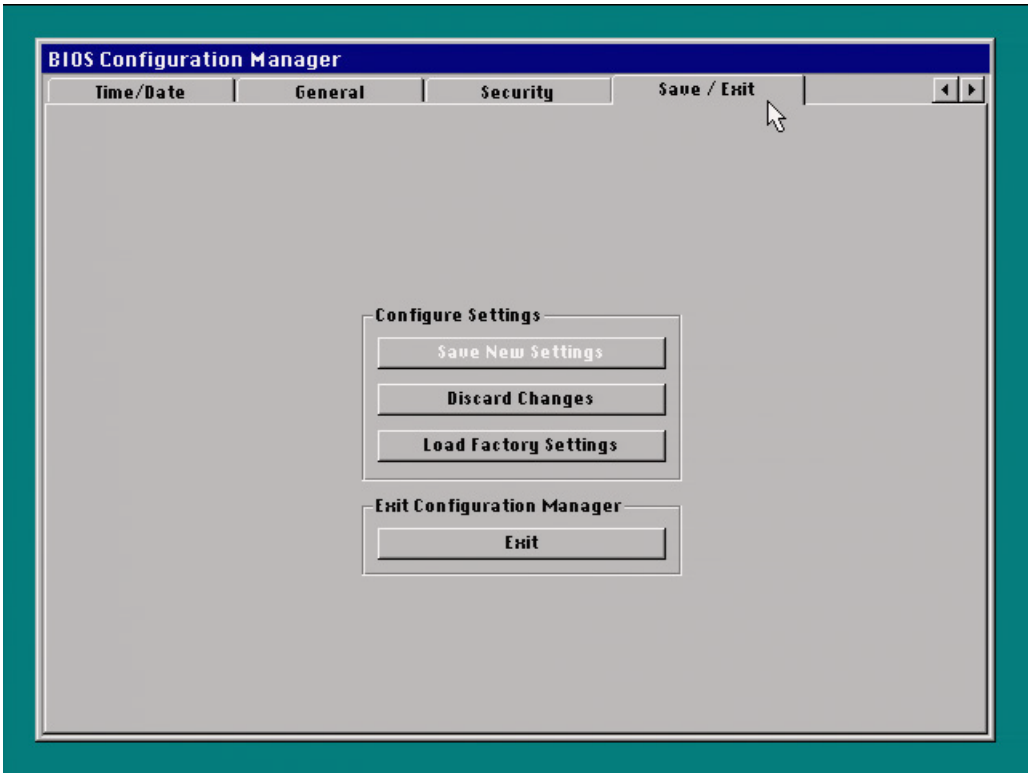

Figure 3-14 Save/Exit Tab Screen

Table 3-13 describes the **Save/Exit** tab screen.

Table 3-13 Description of the Save/Exit Tab

Feature	Options	Description
Save New Settings	Button	Saves the changes in flash memory.
Discard Changes	Button	Discards any changes made in the Configuration Manager.
Load Factory Settings	Button	Loads the factory default values for all the Configuration Manager options.
Exit	Button	Exits the Configuration Manager.

EFI Boot Manager

Follow these steps to use the extensible firmware interface (EFI) shell or the boot option maintenance menu:

1. Turn the power on, or restart the system.
2. Click **Boot OS** from the splash screen or wait without making a choice. The BIOS will boot the EFI shell if you do not choose **Enter Setup**.
3. If only the user password is set, you must enter the user password. If both the user and administrator passwords are set, you can enter either password.
4. The system boot manager will display a screen similar to that shown in Figure 3-15.

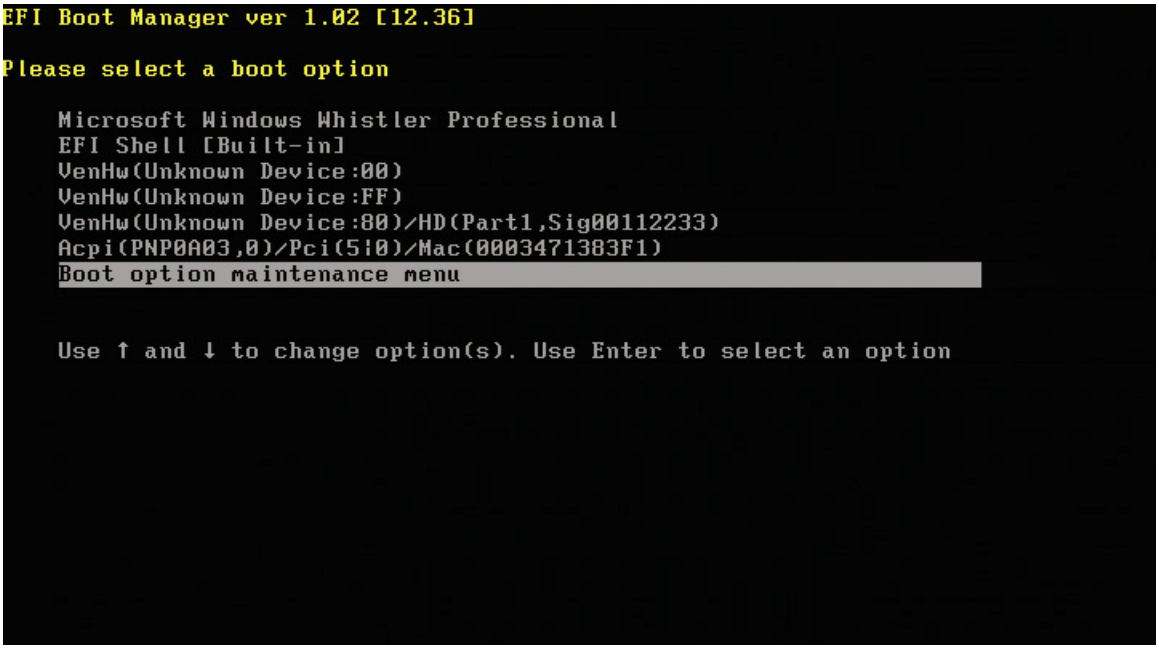

Figure 3-15 EFI Boot Manager Prompt

To enter EFI shell command mode, select **EFI Shell [Built-in]**. See "EFI Shell Command Mode" on page 53 for usage information.

To enter the boot maintenance manager, select **Boot option maintenance menu**. See "EFI Boot Maintenance Manager" on page 55 for usage information.

EFI Shell Command Mode

Follow the directions in “EFI Boot Manager” on page 52 to enter the EFI shell command mode. Figure 3-16 shows a typical EFI shell screen.

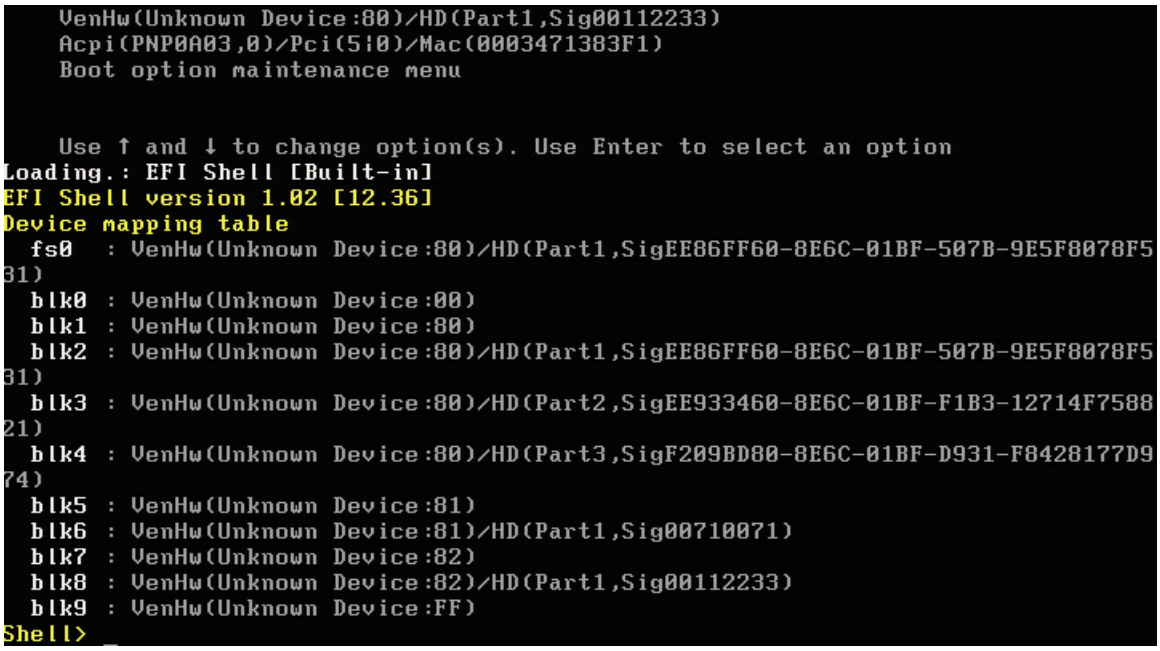

Figure 3-16 EFI Shell Command Mode

Note: Devices displayed in Figure 3-16 will change based on the system configuration. See Table 3-14 for device ID descriptions.

Table 3-14 Device ID Descriptions

Device ID	Description
Device:00	Indicates an LS-120/LS-240 (SuperDisk) drive

Table 3-14 (continued) Device ID Descriptions

Device ID	Description
Device:8*x*	Indicates a hard drive
Device:FF	Indicates a CD-ROM drive

EFI Shell Commands

The EFI shell provides the EFI shell command descriptions. Type **`help`** at the EFI prompt to display these descriptions.

Note: If you type **`-b`** after an EFI shell command (for example, **`help -b`**) the list will scroll one screen at a time.

EFI Boot Maintenance Manager

Follow the directions in "EFI Boot Manager" on page 52 to enter the boot maintenance manager. Using the boot maintenance manager you can select how your system boots.

Note: For reference purposes, you should record the current boot option settings in Table A-1 on page 86. When you change the settings, update this record.

Figure 3-17 shows the **EFI Boot Maintenance Manager** main menu screen.

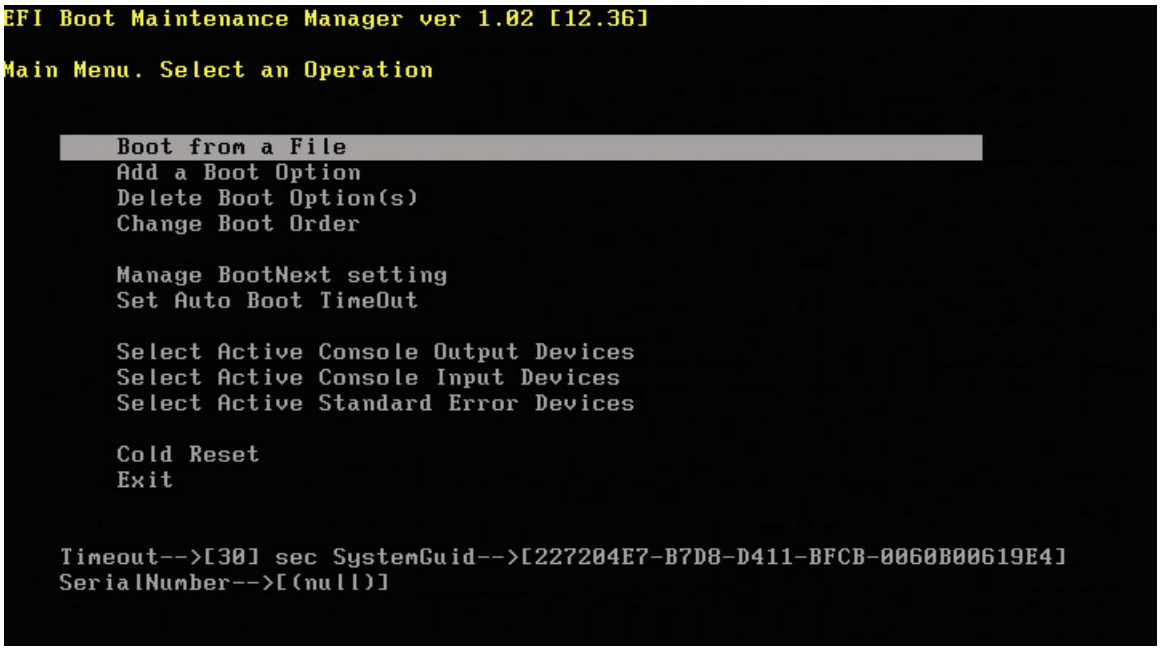

Figure 3-17 EFI Boot Maintenance Manager Main Menu Screen

The EFI boot maintenance manager is organized into a set of menu options allowing you to select how your system boots. Table 3-15 summarizes the EFI boot maintenance manager options shown in Figure 3-17.

Table 3-15 Boot Manager Menu

Option	Function
Boot from a File	Allows browsing for a boot file.
Add a Boot Option	Adds new boot option file to Select Boot Option menu.
Delete Boot Option(s)	Removes boot option file from Select Boot Option menu.
Change Boot Order	Changes order of option in Select Boot Option menu.
Manage BootNext Setting	Sets or resets the option to which the system will automatically boot on the next reboot.
Set Auto Boot TimeOut	Sets time delay before the system auto boots to the item selected in the BootNext option.
Select Active Console Output Devices	Allows output to be directed to selected options.
Select Active Console Input Devices	Allows input to be directed from selected options.
Select Active Standard Error Devices	Selects devices where errors are reported.
Cold Reset	Performs a cold reboot of system.
Exit	Returns to EFI Select Boot Option menu mode.

Boot From a File

If you select **Boot from a File** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can browse for a boot file. Figure 3-18 shows a typical **Boot from a File** screen.

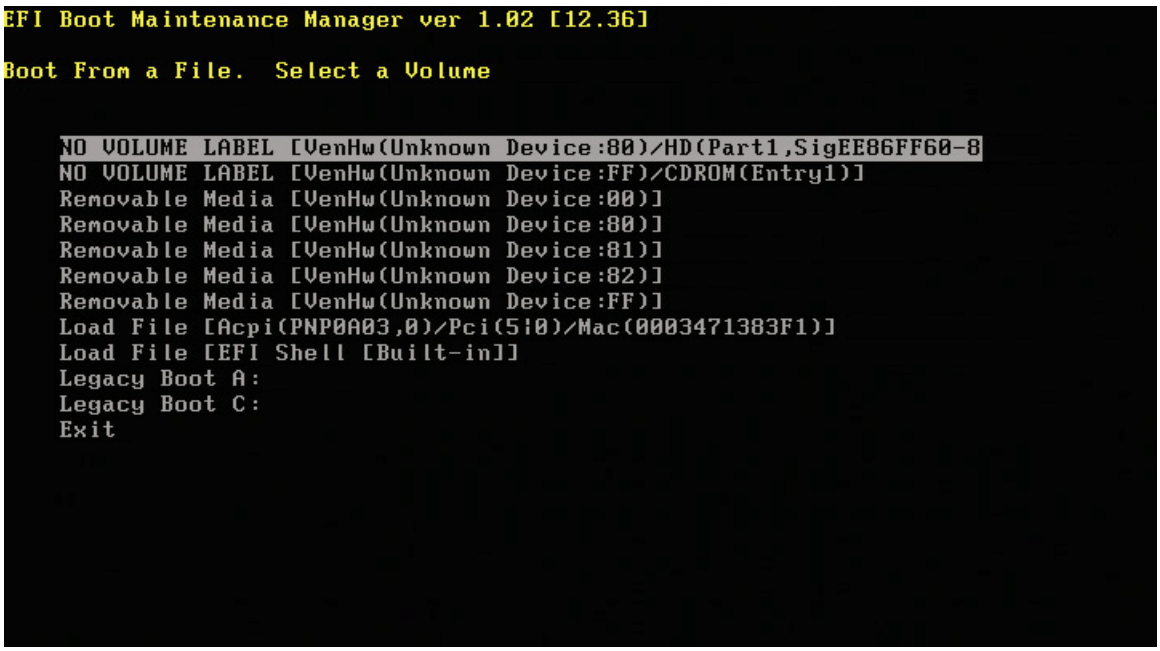

Figure 3-18 Boot From a File Screen

Add a Boot Option

If you select **Add a Boot Option** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can add new boot option information to the EFI shell. Figure 3-19 shows a typical **Add a Boot Option** screen.

To add a boot option, follow these steps:

1. Select the device where the boot file is located (see Figure 3-19).
2. Select the file within the device.

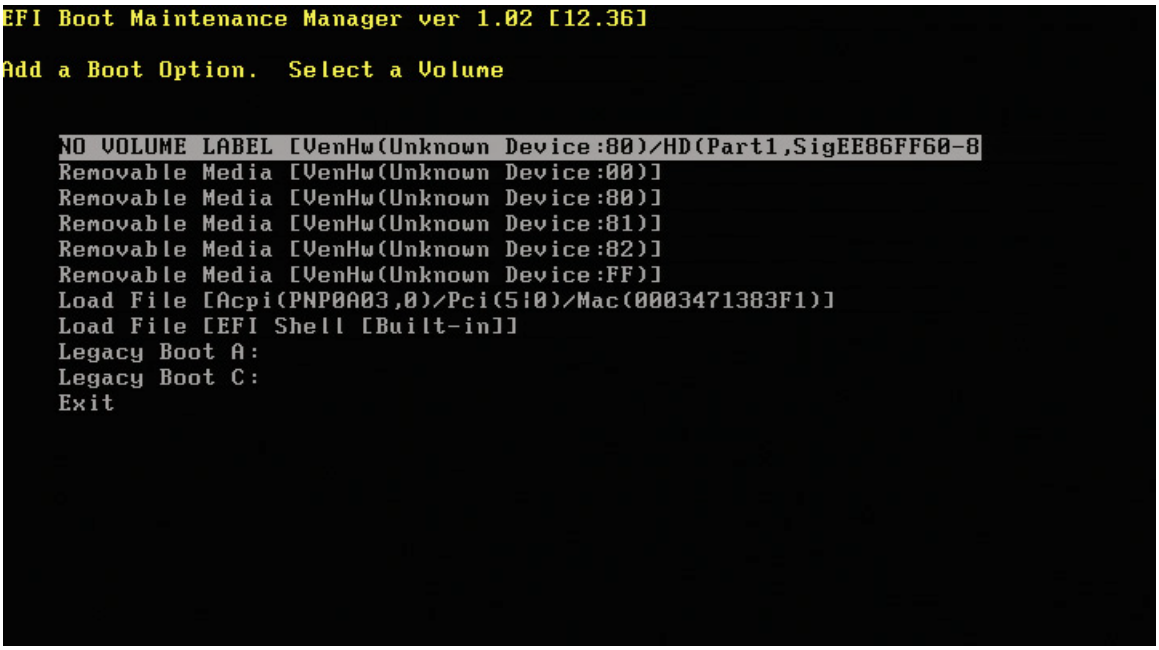

Figure 3-19 Add a Boot Option Screen

3. Enter the file description at the prompt (see Figure 3-20).
4. Type **u** or **U** to select Unicode and press **Enter**.
5. To save your changes, select **Save changes to NVRAM** and press **Y**.

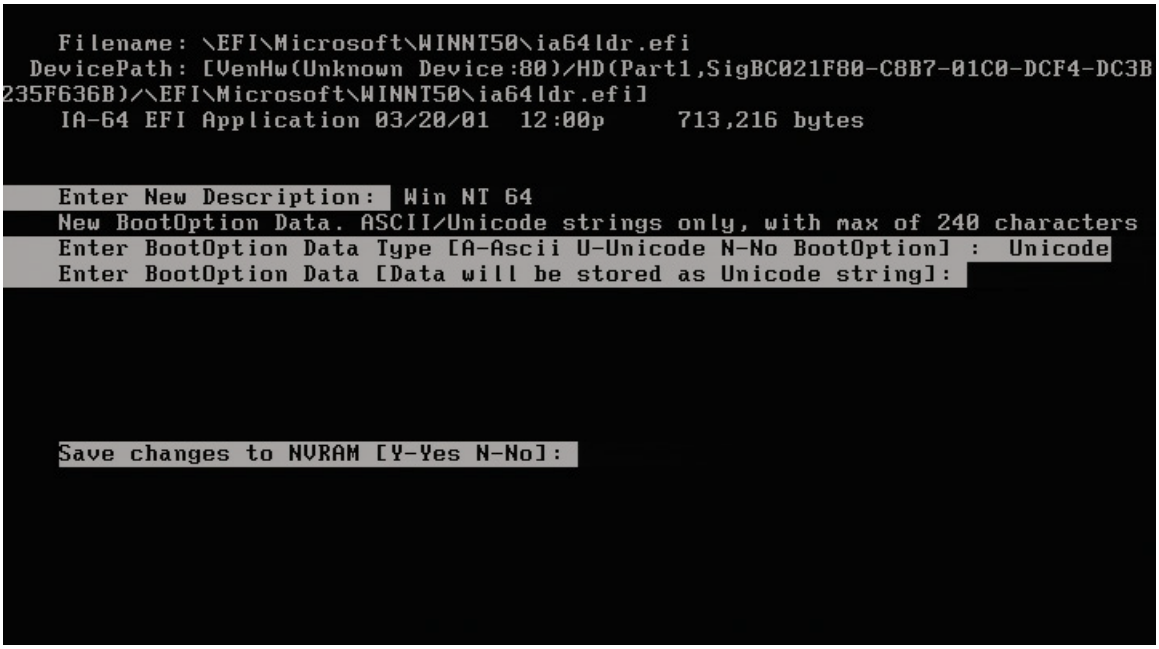

Figure 3-20 Add a Boot Option Details Screen

Booting from a Network

To boot from a network, following these steps:

1. From the **EFI Boot Maintenance Manager** main menu select **Add a Boot Option**.
2. Select the following option:

   Removable Media [Acpi(PNPA03,0)/Pci(4 0)/Mac(00XXXXXXXXX)]

   Note: The MAC address will vary with each board.

3. Enter a file description at the prompt (for example, **`LAN`** or **`Network`**) and press **`Enter`**.
4. To save your changes, select **Save changes to NVRAM** and press **Y**.
5. Exit both the **Add a Boot Option** screen and the **EFI Boot Maintenance Manager** main menu screen.
6. The **EFI Boot Manager** screen reflects your network boot option. Select this option and press **`Enter`** to boot from the network.

Delete Boot Option(s)

If you select **Delete Boot Option(s)** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can delete a boot option from the EFI shell. Figure 3-21 shows a typical **Delete Boot Option(s)** screen.

To delete a boot option, follow these steps:

1. Highlight that option using the arrow keys and press **Enter**. You may also highlight an option and press **d** or **D** on your keyboard.
2. To confirm your delete command, press **Y** or **N** at the prompt. To delete all the boot options, select **Delete All Boot Options** from the menu.
3. To save your changes before exiting, select **Save Settings to NVRAM**.

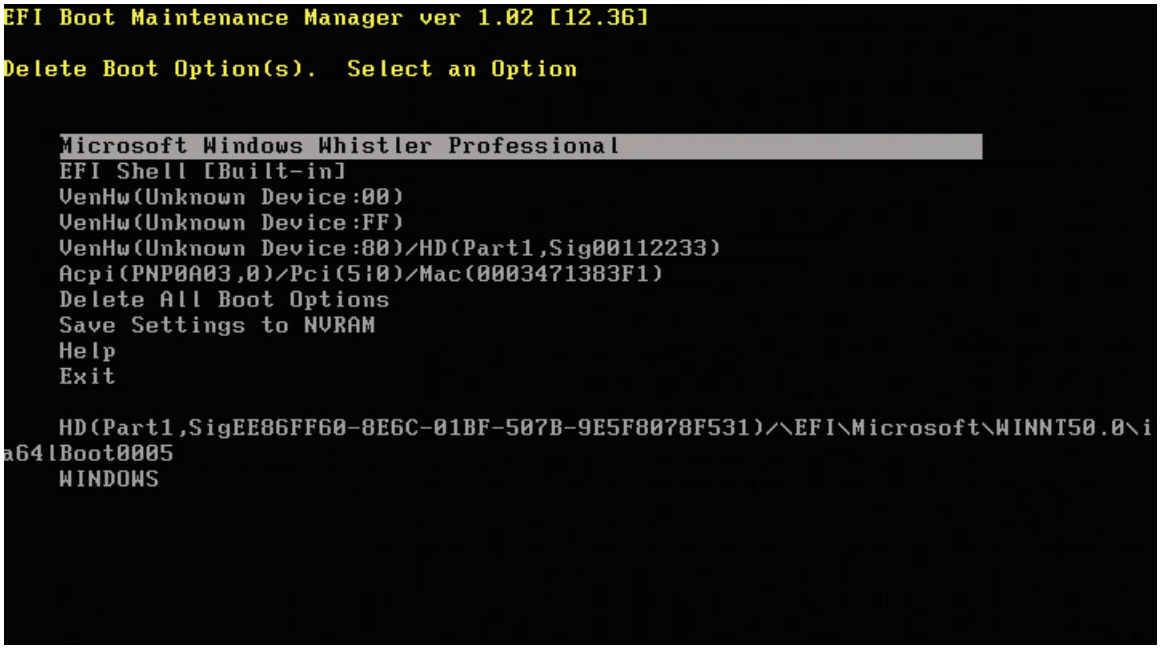

Figure 3-21 Delete Boot Option(s) Screen

Change Boot Order

If you select **Change Boot Order** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can set the boot order. Figure 3-22 shows a typical **Change Boot Order** screen.

To change the boot order, follow these steps:

1. Select a boot option using your arrow keys.
2. Press **U** or **u** to move an option up in the list and press **D** or **d** to move an option down the in list.
3. To save your changes before exiting, select **Save Settings to NVRAM**.

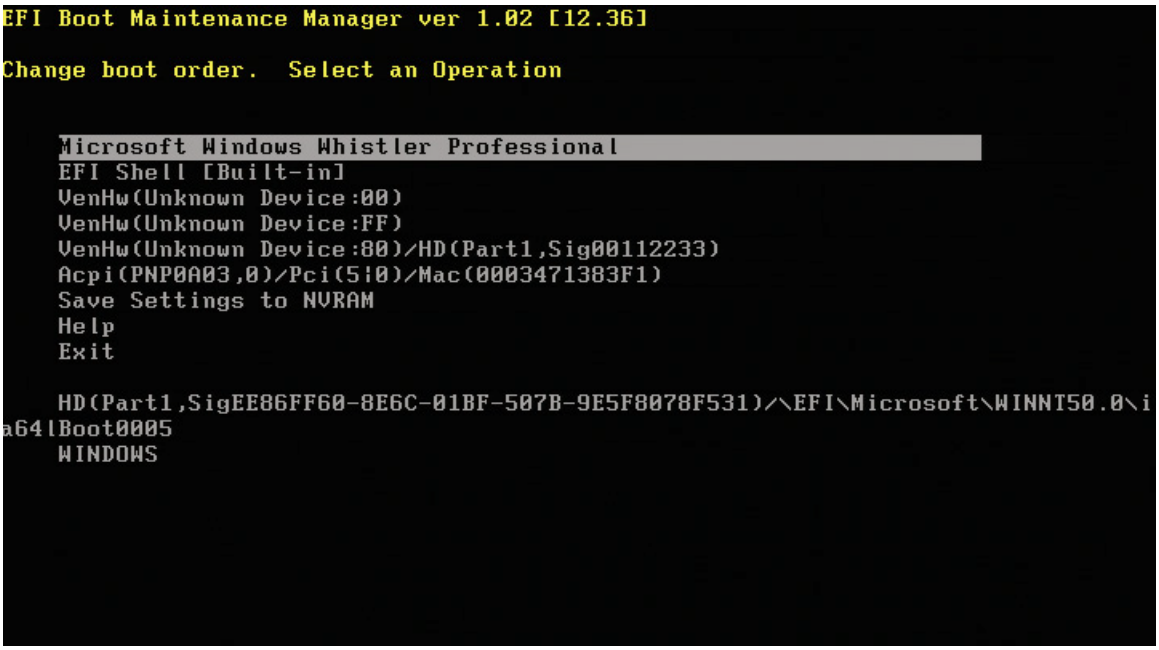

Figure 3-22 Change Boot Order Screen

Manage BootNext Setting

If you select **Manage BootNext Setting** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can control the automatic actions of the system on the next boot. Figure 3-23 shows a typical **Manage BootNext Setting** screen.

To change the BootNext setting, follow these steps:

1. Select a boot option using your arrow keys.
2. Press **`Enter`**, **`b`**, or **`B`** to designate this option as **BootNext**.
3. To remove a **BootNext** setting, select **Reset BootNext Setting**, or press **`r`** or **`R`** when the option is selected.
4. To save your changes before exiting, select **Save Settings to NVRAM**.

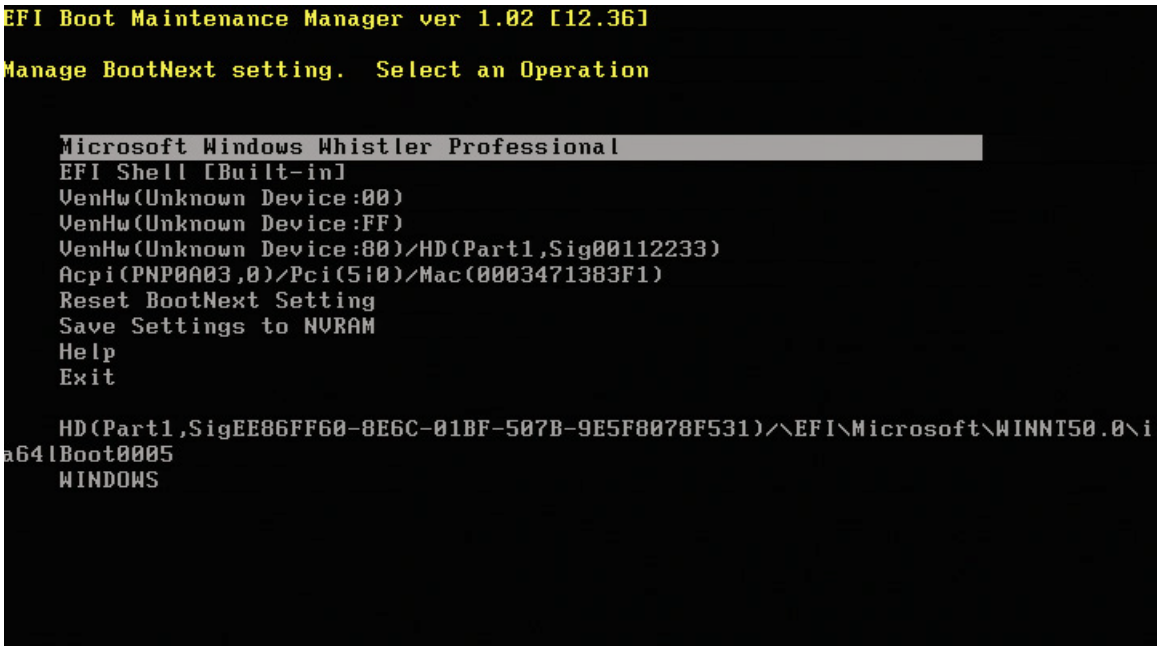

Figure 3-23 Manage BootNext Setting Screen

Set Auto Boot Timeout

If you select **Set Auto Boot Timeout** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can set the timeout value before the operating system (OS) automatically boots. Figure 3-24 shows a typical **Set Auto Boot Timeout** screen.

The auto boot timeout value can be set in the following ways:

- Select **Set Timeout Value** to set the time, in seconds, to boot the default OS. If a value of zero is specified, there is no wait to boot the default OS.
- The following three choices are available to disable the timeout variable:
  - Select **Delete/Disable Timeout** menu option to delete the timeout variable.
  - Set the timeout value to be **65535 <0xFFFF>.**
  - Press a key when the EFI is booting and the timeout count down is disabled.
- Select **Set Timeout Value** to save the timeout value.

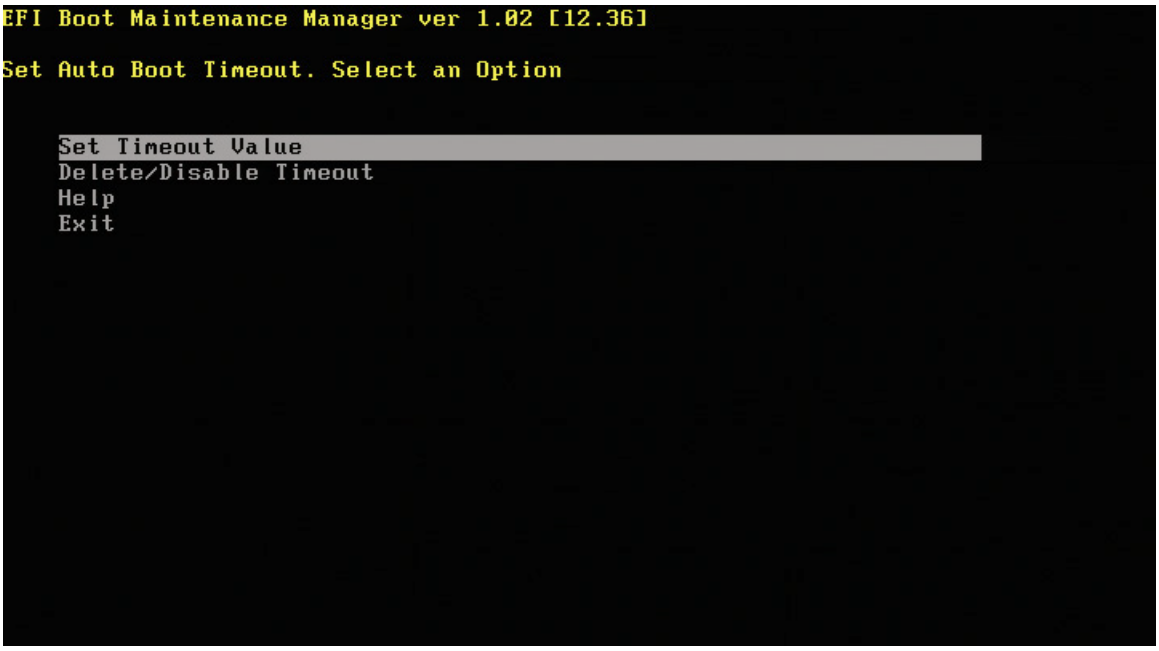

Figure 3-24 Set Auto Boot Timeout Screen

Select Active Console Output Devices

If you select **Select Active Console Output Devices** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can direct console output to selected devices. Figure 3-25 shows a typical **Select the Console Output Device(s)** screen.

To change the console output device setting, follow these steps:

1. Use your arrow keys to select your preferred device.
2. Press **Enter** to activate the option.
3. To save your changes before exiting, select **Save Settings to NVRAM**.

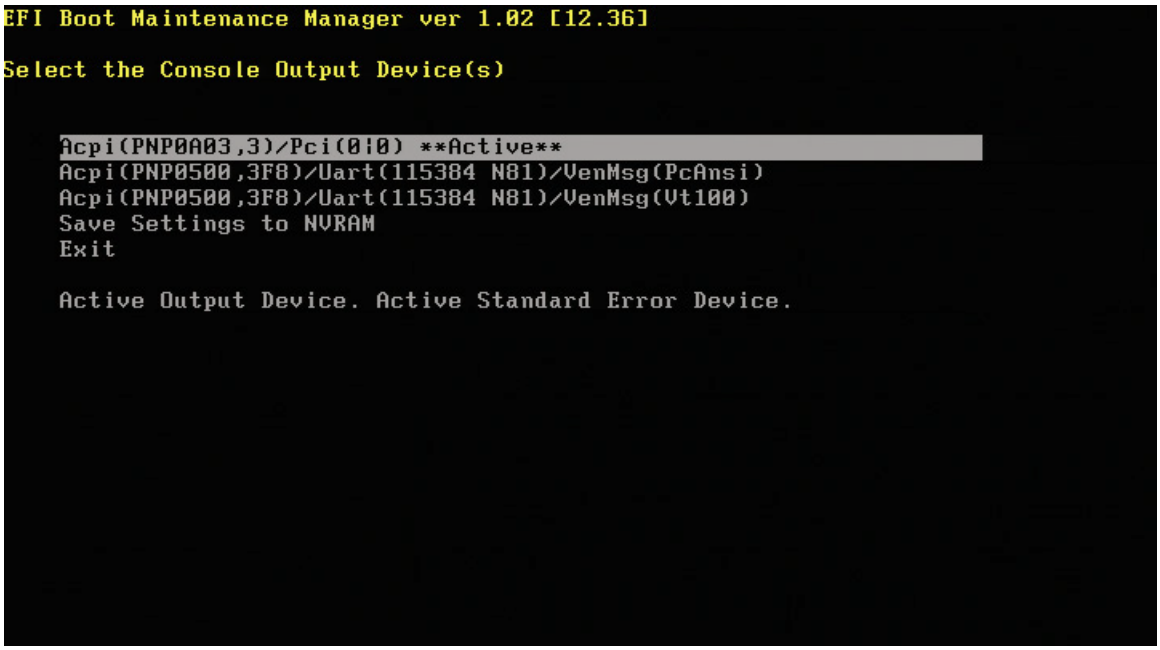

Figure 3-25 Select the Console Output Device(s) Screen

Select Active Console Input Devices

If you select **Select Active Console Input Devices** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can allow input to be accepted from selected devices. Figure 3-26 shows a typical **Select the Console Input Device(s)** screen.

To change the console input device setting, follow these steps:

1. Use your arrow keys to select your preferred device.
2. Press **Enter** to activate the option.
3. To save your changes before exiting, select **Save Settings to NVRAM**.

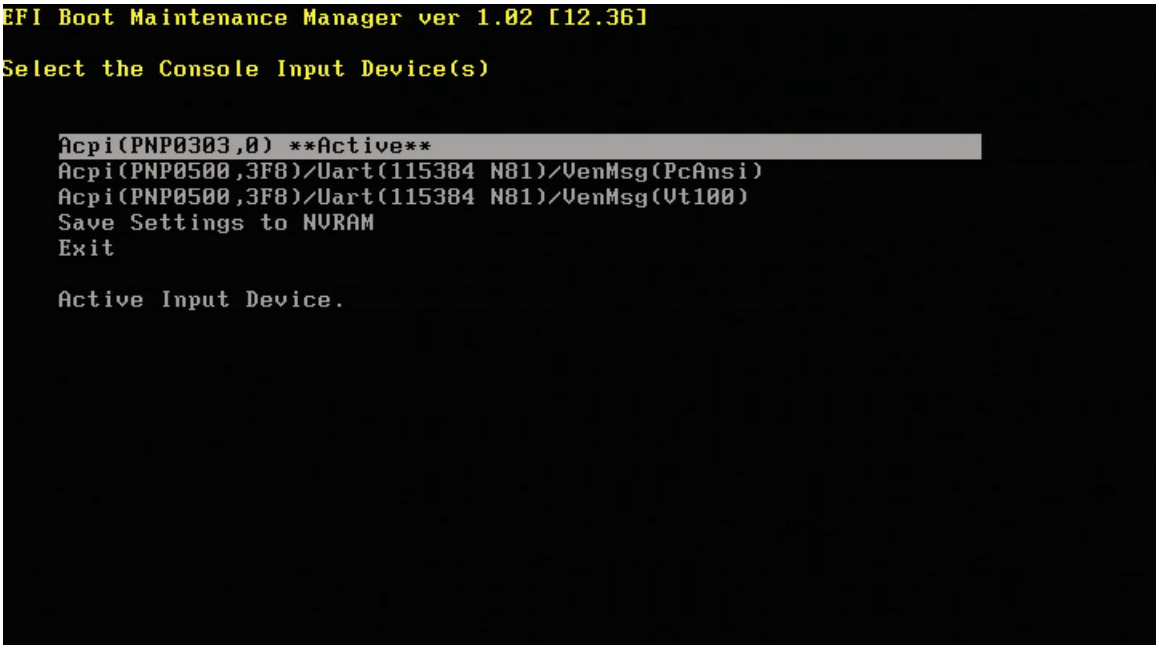

Figure 3-26 Select the Console Input Device(s) Screen

Select Active Standard Error Devices

If you select **Select Standard Error Devices** in the EFI boot maintenance manager main menu (as described in "EFI Boot Maintenance Manager" on page 55), you can choose the device where errors are reported. Figure 3-27 shows a typical **Select the Standard Error Device** screen.

To change the standard error device setting, follow these steps:

1. Use your arrow keys to select your preferred device.
2. Press **Enter** to activate the option.
3. To save your changes before exiting, select **Save Settings to NVRAM**.

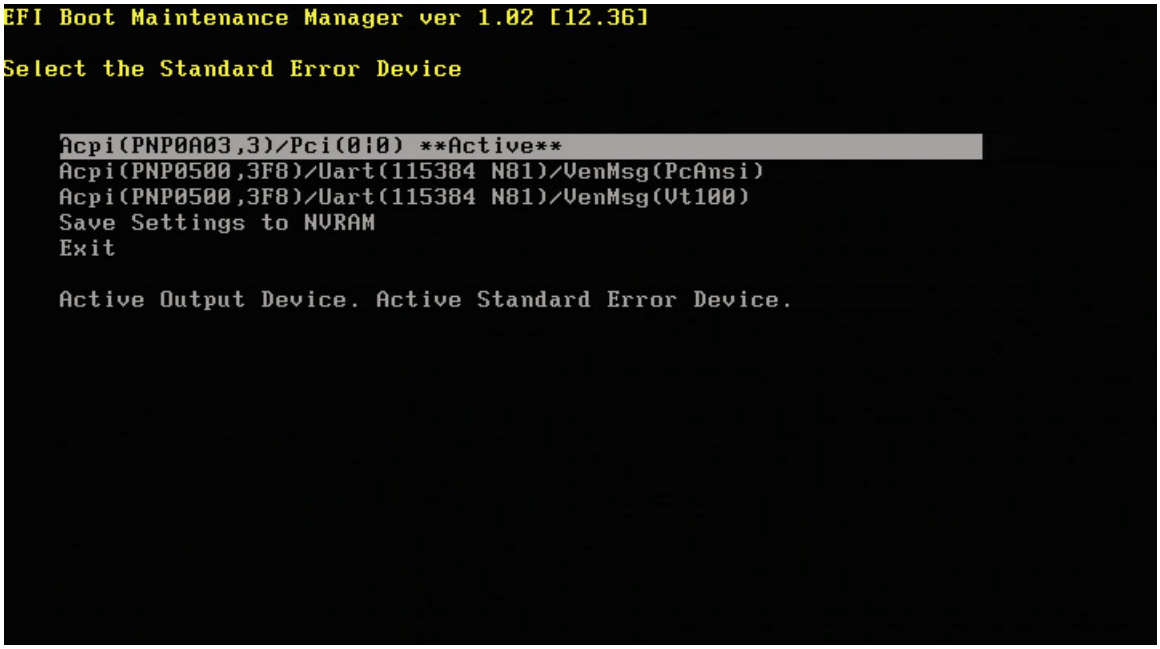

Figure 3-27 Select the Standard Error Device Screen

BIOS Flash Memory Organization

The firmware hub (FWH) includes an 8-Mbit (1024-KB) symmetrical flash memory device. Four FWH devices are located on the I/O board for a total of 4 MB of flash memory. Internally, each device is grouped into eight 64-KB blocks that are individually erasable, lockable, and unlockable with additional hardware protection for the top block.

BIOS Upgrades

The IFlash64 utility is an EFI application program used for updating the BIOS for this system. Firmware releases will be shipped as two images for updating in the field:

- `fw.bin` (4 MB) - Complete firmware image including recovery block.
- `wpgbios.bin` (3.75 MB) - Complete firmware image minus recovery block.

Note: Only the English language is supported.

You will most likely upgrade the BIOS using the 4-MB `fw.bin` file and the SuperDisk (floppy) drive.

Before you upgrade the BIOS, prepare by:

- Obtaining the appropriate BIOS and PAL version for the processor upgrade file.
- Recording the current BIOS settings.
- Creating the BIOS upgrade disk.

Obtaining the BIOS Upgrade File

You can upgrade to a new version of the BIOS by using the latest image and the current flash utility. The images and utilities are contained in a compressed, self-extracting archive that contains all the files you need to upgrade the BIOS.

Note: Review the instructions distributed with the BIOS files for new information before attempting a BIOS upgrade.

Recording the Current BIOS Settings

To record the current BIOS settings, boot the computer, click **Enter Setup**, and use Table A-1 on page 86 to record the current BIOS settings in the Configuration Manager.

Note: Do not fail to record the current settings in Appendix A. You will need these settings to configure your computer at the end of the upgrade procedure.

Upgrading the System BIOS

Use the BIOS Flash Upgrade Utility to upgrade your system BIOS by following the steps outlined below:

1. Unzip and copy the contents of the zip file (example: `077pal214.zip`) containing the BIOS and PAL code onto a SuperDisk (i.e., LS-120) floppy diskette.
2. Insert the SuperDisk diskette into its appropriate drive on the system.
3. Boot to the EFI shell, change the directory to the SuperDisk floppy drive (for example, if the SuperDisk drive is device fs0, type **`fs0:`**), and press **Enter**.
4. Enter the following command:
   ```
   UNLOCK /L=2
   ```
5. Reboot the system.
6. Again, boot to the EFI shell and change the directory to the SuperDisk floppy drive (for example, if the SuperDisk drive is device fs0, type **`fs0:`**), and press **Enter**.
7. Enter the following command:
   ```
   Iflash64 <filename>
   ```
8. Follow the instructions on the screen. Additional information can be obtained via the utility help command `Iflash64 /h`.
9. Reboot the system after the upgrade is completed.
10. Click **Enter Setup** and change the BIOS settings to match those recorded in “Recording the Current BIOS Settings” on page 69.
11. To save the settings and exit Configuration Manager, refer to “Save/Exit” on page 50.

Note: It is unlikely that anything will interrupt the BIOS upgrade. However, if an interruption occurs, the BIOS could be damaged. Recovery of the BIOS in this event requires access to the inside of the chassis, and must therefore be performed by technically qualified service personnel.

Error and Informational Messages

This chapter describes the BIOS error and informational messages in the following sections:

Beep Codes

The BIOS uses a series of beeps to alert you to problems during the boot process. In Table 4-1, a number indicates a that number of beeps, and a dash indicates a pause between beeps.

Note: The beeps will only be heard if an external speaker is connected to the front or rear line output ports, as described in "Chassis Front Controls and Indicators" on page 5 and "Rear Panel I/O Ports and Features" on page 7.

Table 4-1 BIOS Beep Codes

Beep Code	Description
1-1-5	Memory failure (all four rows have mismatched SPD data). Specification require that all four DIMMs of any row must have the same SPD data.
2-1-1	Cannot recognize file system on media. File system must be FAT12 or FAT16.
2-1-2	File not present on the disk.
2-1-3	Recovery device not found.
2-1-4	Recovery device initialization failure.
3-1-1	Flash device initialization failure.
3-1-2	Flash update operation failed.
3-1-3	Recovery device failed during a read operation.
3-1-4	Flash device erase failure.
3-1-5	Flash device programming failure.
3-1-6	File verify operation (checksum) failed.
3-1-7	Processor patch installation failed.
3-2-1	File verify operation failed (invalid BIOS).
3-2-2	File verify operation failed (mismatched platform BIOS).
3-2-3	Boot block incompatible with BIOS.
3-2-4	Flash verify after write failed.

Table 4-1 (continued) BIOS Beep Codes

Beep Code	Description
3-3-1	Recovery started.
3-3-3	Recovery completed successfully.

BIOS Messages

This section describes the BIOS messages.

Run-time Messages

`Searching for Boot record from [device name]...OK`
The BIOS searched for, and found, a valid boot image. The *device name* can be LS-120, HDD-0, HDD-1, CD-ROM, SCSI, or Network.

`Searching for Boot record from [device name]...Not Found`
The BIOS searched for a valid boot image, but did not find one.

`Drive Not Ready. Insert BOOT diskette in FS0:`
The SuperDisk (floppy) drive is not physically connected, or the drive does not have a diskette in the drive.

`Invalid Boot Diskette`
The diskette in the SuperDisk drive contains an unformatted diskette.

`Non-System disk or disk error. Replace and strike any key when ready.`
The diskette in the SuperDisk drive contains a formatted diskette, but not a valid boot diskette.

Configuration Manager Messages

`Password is incorrect!`
The password you entered does not match the required password.

`Password must be cleared before a new password can be set!`
Use the **Clear User Password** or **Clear Administrator Password** button on the **Security** tab to clear the password before entering a new password.

`Password cannot be zero length!`
A password must contain one or more characters.

`Password entries do not match!`
The passwords entered in the Password Verification dialog do not match. Enter the passwords again.

`Altered settings have not been saved! Selecting "Continue" will discard changes.`
Configuration settings have been changed but not saved. Click **Continue** to exit without saving the changes, or click **Clear** to return to the Configuration Manager.

PXE Client Status and Error Messages

`PXE-E05: Download buffer is smaller than requested file.`
The size of the requested file is larger than the allocated download buffer.

`PXE-E07: Network device error.`
The network device could not be initialized or had some other unexpected failure.

`PXE-E09: Could not allocate I/O buffers.`
There is not enough system memory to allocate network I/O buffers.

`PXE-E12: Could not detect network connection. Check cable.`
The network cable is not connected to the network interface card (NIC), or something is wrong with the NIC or the network cable.

`PXE-E16: Valid PXE offer not received.`
The client did not receive a valid PXE offer. This error is displayed for one or more of the following reasons:

- There are no DHCP or proxyDHCP servers that can receive the client's DHCP discover packets.
- There are no DHCP or proxyDHCP servers that can transmit DHCP offer packets to the client.
- The DHCP and/or proxyDHCP offer packets received by the client do not contain enough information to complete a remote boot.

`PXE-E21: Remote boot cancelled.`
You pressed **`Esc`** or **`Ctrl+C`** or selected a **Local Boot** option from the remote boot menu.

This message is also displayed when a DHCP/proxyDHCP server sends a menu that auto-selects **Local Boot** and when a bootserver sends a bootstrap program that returns control to the PXE LoadFile protocol.

`PXE-E22: Client received an ICMP error from server.`
An ICMP error was sent to the client by a PXE bootserver or M/TFTP server.

`PXE-E23: Client received TFTP error from server.`
A TFTP server sent a TFTP error packet to the client.

`PXE-E98:` <*extra information about previous error code*>
If available, extra error information will be displayed about the previous error message.

`PXE-E99: Unexpected network error: XXh`
An EFI status code is returned by the network drivers that was not expected by the PXE LoadFile protocol.

Solving Problems

This chapter helps you identify and solve problems that may occur while you are using your Silicon Graphics 750 system. This chapter consists of the following sections:

Resetting the System

Table 5-1 shows the commands for resetting the system.

Table 5-1 Resetting Commands

To do this:	Press
Soft-boot reset, which clears system memory and reloads the operating system.	`Ctrl+Alt+Del`
Cold-boot reset, which clears system memory, restarts POST, and initializes all peripherals. Hold the power button for four seconds to power off.	Power off/on

Initial System Startup

Incorrect installation or configuration usually causes problems that occur at initial system startup. Hardware failure is a less frequent cause. Use the following checklist to troubleshoot startup problems:

- Are the processors fully seated in their connectors on the processor board?
- Is at least one memory board installed and fully seated?
- Are all add-in PCI boards fully seated in their slots on the baseboard?
- Are all switch and jumper settings on boards and drives correct?
- Are all switch and jumper settings on add-in cards and peripheral devices correct?

  To check these settings, see the manufacturer's documentation that comes with the add-in cards or peripheral devices. If applicable, ensure that there are no conflicts (for example, two add-in cards sharing the same interrupt).
- Are all DIMMs installed correctly?
- Are all memory board voltage modules installed correctly?
- Are all peripheral devices installed correctly?
- Is the hard disk drive properly formatted or configured?
- Are all device drivers properly installed?

- Did you press the system power on/off switch on the front panel to turn the system on (power-on light should be lit)?
- Are the system power cords properly connected to the system and plugged into an outlet for 110-240 VAC?
- Is AC power available at the wall outlet?

Verifying Proper Operation of Key System Lights

As POST determines the system configuration, it tests for the presence of each mass-storage device installed in the system. As each device is checked, its activity light should light briefly.

Check for following:

- Does the diskette drive activity light illuminate briefly? If not, see "SuperDisk (Floppy) Drive Activity Light Does Not Activate or Drive Is Not Detected" on page 83.
- Does the hard disk drive activity light on the control panel light briefly? If not, see "Hard Disk Drive Activity Light Does Not Activate" on page 83.

PCI Installation Tips

The following are two common PCI installation tips:

- Certain devices may require resources that are not shared. It may be necessary to alter settings where applicable to minimize resource contention or conflicts.
- Check PCI resource interdependencies among slots and onboard devices, relocating adapters to other slots (for example, PXB bus 0 to WXB bus 1).

Note: PCI peripherals will not operate if used with 32-bit drivers. At this time a limited number of 64-bit drivers are available for PCI peripherals. Do not install any additional PCI peripherals that do not have current 64-bit drivers.

Note: The WXB PCI buses (S2 and slots 1, 2, 3, and 4) support 3.3 V cards, while the PXB PCI bus (slots 5 and 6) support 5 V cards. Both WXB and PXB PCI buses support universal cards. Be certain that the PCI slot used is compatible with the PCI card inserted in that slot.

Note: In order for the system to remain EMC compliant, peripheral devices having an external output connector (for example, audio, video, SCSI) must be marked as FCC tested for home or office use (FCC Class B), and marked as Canada ICES-003 Class B compliant. For European installations, these devices are required to be CE marked with declaration of conformity to the EMC directives (89/336/EEC).

Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

- Power light does not activate.
- No characters appear on the screen (after 90 seconds).
- Characters on the screen appear distorted or incorrect.
- System cooling fans do not rotate.
- SuperDisk (floppy) drive activity light does not activate, or drive is not detected.
- Hard disk drive activity light does not activate.
- CD-ROM drive activity light does not activate.
- CD-ROM drive is not detected.

Try the solutions in the order given. If you cannot correct the problem, contact your service representative.

Power Light Does Not Activate

Check the following:

- Is the power supply plugged in? Is the power to the outlet turned on? Is there a blown fuse or breaker?
- Is the system connected to a 110-240 VAC source?
- Is the system operating normally? If so, the power LED is probably defective or the cable from the front panel to the I/O board is loose.
- Are there other problems with the system? If so, see the items in “System Cooling Fans Do Not Rotate Properly” on page 82.

No Characters Appear on the Screen

Check the following:

- Is the keyboard working? Check to see that the **Num Lock** light is functioning by pressing the `Num Lock` key.
- Is the video monitor plugged in and turned on? Many modern video monitors shut down when inactive and may require a moment to warm up when activated.
- Are the brightness and contrast controls on the video monitor properly adjusted?
- Are the video monitor switch settings correct?

Characters Are Distorted or Incorrect

Check the following:

- Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer's documentation.
- Are the video monitor signal and power cables properly installed?

If the problem persists, the video monitor may be faulty or it may be the incorrect type. Contact the manufacturer's service representative for further monitor assistance.

System Cooling Fans Do Not Rotate Properly

If the system cooling fans are not operating properly, system components could be damaged. Check the following:

- Is AC power available at the wall outlet?
- Are the system power cords properly connected to the system and the wall outlet?
- Did you press the power on/off push-button switch?
- Is the power-on light activated?
- Are the fan power connectors properly connected to the baseboard?
- Are there any shorted/open wires caused by pinched cables or power connector plugs forced incorrectly into sockets?

SuperDisk (Floppy) Drive Activity Light Does Not Activate or Drive Is Not Detected

Check the following:

- Are the SuperDisk drive power and signal cables properly installed?
- Was a floppy diskette in the drive on boot? (Disk media is required to be in the drive on boot-up or the SuperDisk drive will not be recognized by the system.)
- Are all relevant switches and jumpers on the SuperDisk drive set correctly?
- Is the SuperDisk drive properly configured as the master device, with the CD-ROM drive as the slave on the primary IDE channel?
- Is the SuperDisk drive activity light always on? If so, the signal cable may be plugged in incorrectly.

Hard Disk Drive Activity Light Does Not Activate

Check the following:

- Are the power and signal cables to the drive properly installed?
- Are all relevant switches and jumpers on the hard drive and I/O board set correctly?
- Is the onboard IDE controller enabled (IDE hard drives only)?
- Is the PCI SCSI controller enabled and configured correctly (SCSI only)?
- Is the hard disk drive properly configured?

Note: The front panel hard disk LED indicates IDE and SCSI devices. The hard disk drive activity light on the front panel lights when either an IDE hard disk drive or a SCSI device controlled by the PCI SCSI host controller is in use. This LED does not display CD-ROM activity.

CD-ROM Drive Activity Light Does Not Activate

Check the following:

- Are all relevant switches and jumpers on the drive set correctly?
- Is the drive properly configured as the master?
- Is the onboard IDE controller enabled?

Note: The front panel hard disk LED indicates IDE and SCSI devices. The hard disk drive activity light on the front panel lights when either an IDE hard disk drive or a SCSI device controlled by the onboard SCSI host controller is in use. This LED does not display CD-ROM activity.

Note: PCI peripherals will not operate if used with 32-bit drivers. At this time, there are a limited number of 64-bit drivers available for PCI peripherals, do not install any additional PCI peripherals that do not have current 64-bit drivers.

CD-ROM Drive Is Not Detected

Check the following:

- Was a compact disc in the CD-ROM drive during boot? (Disk media is required to be in the drive during the boot or the system will not recognize the CD-ROM drive.
- Is the peripheral bay fully seated against the chassis?

Configuration Manager Settings

This appendix contains the default Configuration Manager settings and allows you to record any changes you make to your Configuration Manager settings.

Table A-1 contains the default Configuration Manager settings and blank space to allow you to record any changes you make to your Configuration Manager settings.

Table A-1 Configuration Manager Settings

Element	Default	Your Setting
BIOS Build and PAL	Varies	
Itanium Processor(s) Build	Varies	
Case Lock & Key Number	Varies	
Selectable Options		
Boot Options		
Boot Files Programmed	EFI shell	
BootNext Set	None	
Auto Boot Timeout	Disabled	
Active Console Output	ACPI (pnp0A03,3)/pci(1:0) {Screen}	
Active Console Output	ACPI (pnp0A03,3)/pci(1:0) {Screen}	
Active Console Input	ACPI (PNP0303,0) {Keyboard}	
Active Standard Error	ACPI (PNP0500.3F8) {Serial Port}	
BIOS Configuration Manager		
System Event Log Tab		
Clear Event Log on Reboot	Disabled	
Event Log Control	Enable All Events	
IDE Tab		
Controller Enabled	Enabled	
Spin Delay	0	
Primary IDE	Enabled	
Secondary IDE	Enabled	

Table A-1 (continued) Configuration Manager Settings

Element	Default	Your Setting
Power Events Tab		
Power On Integrated LAN Enabled	Disabled	
Power On Serial Ring Enabled	Disabled	
Power On RTC Alarm Enabled	Disabled	
Power On Add-In PCI Enabled	Disabled	
General Tab		
Splash Screen Delay	10	
Integrated NIC Enabled	Enabled	
Integrated Audio Enabled	Enabled	
AC Power Failure Recovery	Disabled	
Keypad Num Lock	Enabled	
Time/Date Tab	Needs to be set to your local time zone	

Regulatory Specifications

This appendix contains information about how the Silicon Graphics 750 system complies with various regulatory agency rules.

Regulatory Compliance

The Silicon Graphics 750 system, when correctly integrated per this guide, complies with the following safety and electromagnetic compatibility (EMC) regulations.

Safety Compliance

- UL 1950 – CSA C22.2 No. 950 (US/Canada)
- EN 60950 A1 to A4, A11 (European Union)
- IEC 60950 A1 to A4, A11 (International)
- CE – Low Voltage Directive (73/23/EEC) (European Union)
- EMKO-TSE (74-SEC) 207/94 (Nordic Requirements)

EMC Compliance

- FCC (Class B) – Radiated & Conducted Emissions (USA)
- ICES-003 (Class B) – Radiated & Conducted Emissions (Canada)
- CISPR 22 (Class B) – Radiated & Conducted Emissions (International)
- EN55022:1994 (Class B) – Radiated & Conducted Emissions (European Union)
- EN50082-1:1992 Immunity Characteristics (European Union)
- VCCI (Class B) – Radiated & Conducted Emissions (Japan)
- AS/NZS 3548 (Class B) – Radiated & Conducted Emissions (Australia & New Zealand)
- CE – EMC Directive (89/336/EEC) (European Union)
- CNS 13438 (Class B) Radiated & Conducted Emissions (Taiwan)

Product Certification Markings

This product is provided with the following Product Certification Markings:

- U.S. and Canada UL and ULc listing mark
- European Union CE mark
- U.S. FCC declaration of compliance mark for Class B computer systems
- Industry Canada ICES-003 Class B compliance statement
- Japanese VCCI Class B mark
- Australian C-Tick mark
- Taiwanese BSMI Class B mark

Figure B-1 shows the location of the product nameplate label on the rear of the system. The nameplate label contains product identification, ratings, agency markings, and other regulatory compliance information.

Caution: Do not remove this nameplate label or the cover it is located upon. To do so is a violation of national and international product regulations.

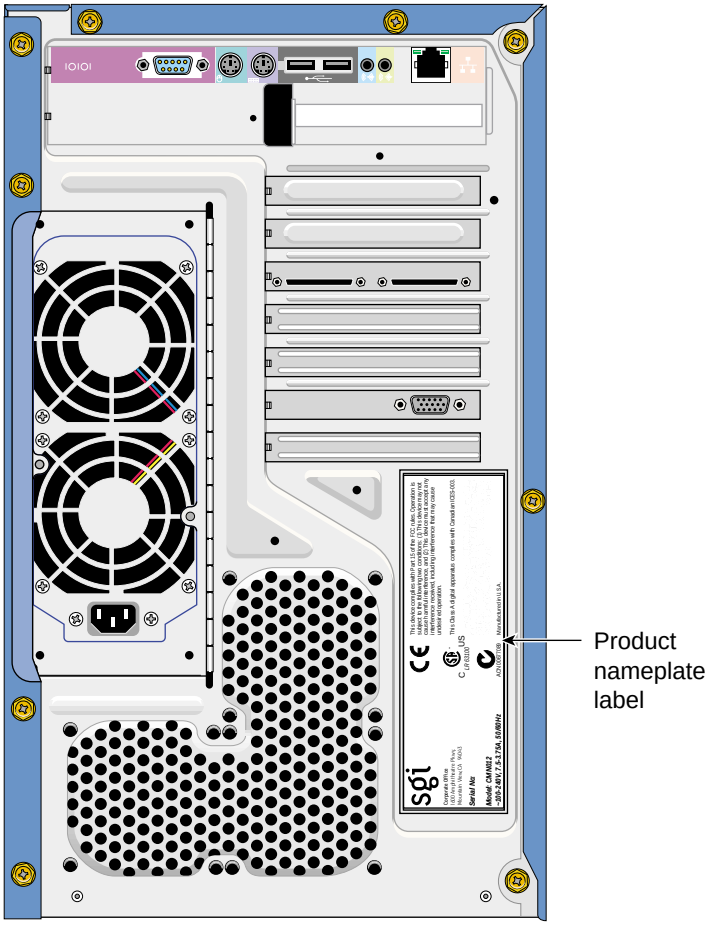

Figure B-1 Location of Product Nameplate Label on Rear of System

Product Specifications

Table B-1 shows other product specifications pertinent to the Silicon Graphics 750 system.

Table B-1 Product Specifications

Feature	Specification	Notes
ENVIRONMENTAL		
AC voltage, operating	90 to 132 volts and 180 to 264 volts	
Frequency	47 to 63 Hz	
Temperature operating non-operating	 +10 °C (+50 °F) to +35 °C (+95 °F) -40 °C (-40 °F) to +70 °C (+158 °F)	
Humidity, non-operating	95%	
Shock (non-operating): unpacked packed	 35 G, 200 inches/second (all axes) 18 inch drop height: 6 surfaces, 3 edges, 1 corner	
Vibration (non-operating): unpacked packed	 3 to 200 Hz, 1.15 G rms 3 to 200 Hz, 1.15 G rms	
RELIABILITY		
Thermal shock (operating)	-20 °C to +80 °C 600 > l fpm airflow, with 50-60 °C/min. ramp rates	Characterization
Power cycling/temp/humidity	1000 cycles 2.5 min. ON, 0.25 min. OFF at each of the temperature corners (40 °C and 10 °C at 85% and 10% RH)	2 or less cycles of 4000 cycles
4-Corner	+/- 6% of 3.3, 5, and 12 volts DC simultaneously, at 10 °C and 40 °C respectively.	

Table B-1 (continued) Product Specifications

Feature	Specification	Notes
Strife	+/- 10% of 3.3, 5, and 12 volts DC simultaneously, at 5 °C and 50 °C respectively. Then repeating +/- 15%.	
Power Sequencing / Ramping Characterization	Vary power-on sequence of 3.3, 5, and 12 volts DC from –300 to +300 msec. Vary power-good from -10 to +300 msec. Vary the rise time of 3.3, 5, and 12 volts DC from –10 to +300 msec.	Characterization

Electromagnetic Compatibility Notices

Note: If a Class A device is installed within this system, then the system is to be considered a Class A system. In this configuration, operation of this equipment in a residential area is likely to cause harmful interference.

FCC Declaration of Conformity

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions related to the EMC performance of this product, contact:

SGI
Product Compliance Group
1600 Amphitheater Parkway
Mountain View, CA 94043
(650) 933-1594

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Canadian Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numerique német pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Réglement sur le broullage radioélectrique édicté par le ministére des Communications du Canada.

VCCI (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

The English translation of this notice is as follows:

This is a Class B product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual. When used near a radio or TV receiver, it may become the cause of radio interference. Read the instructions for correct handling. This equipment has been tested for radio frequency emissions and has been verified to meet CISPR 22.2 Class B.

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