

# **HP VISUALIZE B2000 Owner's Guide**

## **HP VISUALIZE Workstations**



**Manufacturing Part Number: HP Part No. A5983-90001**

**Edition E1199**

---

## Notice

UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.

The information contained in this document is subject to change without notice.

Hewlett-Packard assumes no responsibility for the use or reliability of its software on equipment that is not furnished by Hewlett-Packard.

This document contains proprietary information that is protected by copyright. All rights reserved. No part of this document may be photocopied, reproduced or translated to another language without the prior written consent of Hewlett-Packard Company.

### HEWLETT-PACKARD WARRANTY STATEMENT

HP PRODUCT	HP VISUALIZE B2000 Workstations
REFERENCE	<i>Warranty and Services/Support Booklet,</i> Part Number A5014-90140 (E1199)

The warranty statement shipped with your product supersedes any and all previous workstation Warranty Statements for the Hewlett-Packard Workstations specified herein. Note: This Parts-Only Base Warranty is offered only in the US; for country-specific warranties, please contact your HP country sales representative.

## **Year 2000 Compliance**

This HP Year 2000 Warranty is in addition to the HP Standard Commercial Warranties contained in Exhibit E16, HP Terms and Conditions of Sale and Service. HP warrants that each HP hardware, software, and firmware Product delivered under this HP Year 2000 Warranty will be able to accurately process date data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000, including leap year calculations, when used in accordance with the Product documentation provided by HP (including any instructions for installing patches or upgrades), provided that all other products (e.g. hardware, software, firmware) used in combination with such HP Product(s) properly exchange date data with it.

If the Specifications require that specific HP Products must perform as a system in accordance with the foregoing warranty, then that warranty will apply to those HP Products as a system, and Customer retains sole responsibility to ensure the Year 2000 readiness of its information technology and business environment. The duration of this warranty extends through January 31, 2001. The remedies available under this warranty will be defined in, and subject to, the terms and limitations of the warranties contained in HP's standard commercial warranties. To the extent permitted by local law, this warranty applies only to branded HP Products and not to products manufactured by others that may be sold or distributed by HP. This HP Year 2000 Warranty applies only to HP Products shipped after the effective date, July 01, 1998, of this warranty. Nothing in this warranty will be construed to limit any rights or remedies provided elsewhere in the HP Terms and Conditions of Sale and Service with respect to matters other than Year 2000 compliance.

### **RESTRICTED RIGHTS LEGEND.**

Use, duplication, or disclosure by the U.S. government is subject to restrictions as set forth in subdivision (c) (1) (ii) of the Rights in Technical Data and Computer Software Clause in DFARS 252.227.7013. Hewlett-Packard Co., 3000 Hanover St., Palo Alto, CA 94304.



---

# Contents

## 1. Overview

Product Information . . . . .	17
Key Features. . . . .	17
Front Panel Components . . . . .	19
Rear Panel Components. . . . .	22
Memory . . . . .	31
Monitors . . . . .	31
Getting Started . . . . .	32
Operating System Overview . . . . .	32
Information You Need to Record . . . . .	33
Gathering Required Information. . . . .	34
Powering on the Workstation for the First Time . . . . .	35
Documentation . . . . .	37

## 2. Using Your CD Drive

CD Media Description . . . . .	41
Caring for CDs . . . . .	41
Operating the CD Drive . . . . .	42
CD Drive . . . . .	42
Loading and Unloading a CD . . . . .	45
Locating Help . . . . .	47
Mounting and Unmounting a CD . . . . .	48
Mounting a CD Using SAM . . . . .	48
Unmounting a CD Using SAM . . . . .	51
Verifying the CD Drive Operation . . . . .	54
Configuring the CD Driver . . . . .	55
Audio Control for the CD Drive . . . . .	56
Installing the xmcd Utility . . . . .	56
Using the xmcd Utility. . . . .	57

---

# Contents

## 3. Using Your 3.5-Inch Floppy Disk Drive

Operating the Floppy Drive . . . . .	61
Floppy Disk Drive . . . . .	61
Using the Floppy Diskette . . . . .	62
Using Device Files . . . . .	63
Formatting a New Diskette . . . . .	66
Transferring Data To and From a Floppy Diskette . . . . .	67
Listing the Files on a Floppy Diskette . . . . .	68
Troubleshooting . . . . .	68
Verifying the Floppy Drive Configuration . . . . .	69
Additional Floppy Drive Information . . . . .	70
Configuring the Floppy Driver . . . . .	70
For More Information . . . . .	70

## 4. Changing Your Workstation's Hardware Configuration

Front Panel . . . . .	76
Opening the Front Panel . . . . .	76
Closing the Front Panel . . . . .	77
Left Side Panel . . . . .	78
Opening the Left Side Panel . . . . .	78
Closing the Left Side Panel . . . . .	80
I/O Cards . . . . .	81
Removing I/O Cards . . . . .	83
Installing I/O Cards . . . . .	85
Fans . . . . .	87
Removable Media Devices . . . . .	88
Installing a CD Drive . . . . .	88
Removing a CD Drive . . . . .	95
Installing a Floppy Disk Drive . . . . .	101

---

# Contents

Removing a Floppy Disk Drive . . . . .	109
Hard Disk Drives . . . . .	116
Installing a Hard Disk Drive . . . . .	117
Removing a Hard Disk Drive . . . . .	123
Configuring a Hard Disk Drive as a File System . . . . .	127
Memory Cards . . . . .	132
Installing Additional Memory . . . . .	132
Removing Memory . . . . .	138
Monitor Type . . . . .	141
Setting the Monitor Type at Power On . . . . .	141
Setting the Monitor Type from the Boot Console Interface . . . . .	142
Setting the Monitor Type Using SAM . . . . .	142
Troubleshooting Monitor Problems . . . . .	145
<b>5. The Boot Console Interface</b>	
Accessing the Boot Console Interface . . . . .	149
Boot Console Interface Features . . . . .	151
Booting Your System . . . . .	156
Searching for Bootable Media . . . . .	159
Resetting Your System . . . . .	160
Displaying and Setting Paths . . . . .	161
Displaying and Setting the Monitor Type . . . . .	163
The Monitor Command . . . . .	163
Displaying the Current Monitor Configuration . . . . .	165
Setting the Monitor Type . . . . .	166
Setting the Monitor Type with SAM . . . . .	167
Setting the Monitor Type at Power On . . . . .	170
Troubleshooting Monitor Problems . . . . .	171

---

# Contents

Changing the Console to an External Terminal . . . . .	172
Displaying the Current Memory Configuration . . . . .	173
Memory Information Sample . . . . .	174
Displaying the Status of the System I/O . . . . .	175
Setting the Auto Boot and Auto Search Flags . . . . .	176
Displaying and Setting the Security Mode . . . . .	178
Displaying and Setting the Fastboot Mode . . . . .	179
Displaying the LAN Station Address . . . . .	180
Displaying System Information . . . . .	181
<b>6. Solving Problems</b>	
Common Problems and Solutions . . . . .	185
Dealing with a Boot Failure . . . . .	189
Memory Failures . . . . .	191
LCD Information . . . . .	192
LCD Fan Failures and Warnings . . . . .	193
Troubleshooting Monitor Problems . . . . .	195
Running System Verification Tests . . . . .	196
<b>A. Safety and Regulatory Statements</b>	
Declaration of Conformity . . . . .	199
Emissions Regulations . . . . .	200
For FCC B Applications: . . . . .	200
EMI Class A RRL (Korea) . . . . .	201
VCCI Class B ITE (Japan) . . . . .	201
EMI Class A (Taiwan) . . . . .	202

---

# Contents

Special Video Configuration Statement . . . . .	202
Third Party Emissions Regulations Compliance . . . . .	203
Special Regulatory and Safety Information . . . . .	204
Acoustics . . . . .	204
Laser Safety Statement (U.S.A. Only) . . . . .	204
LEDs . . . . .	204
Warnings and Cautions . . . . .	205
WARNING: . . . . .	205
WARNUNG: . . . . .	205
AVERTISSEMENT: . . . . .	205
WARNING: . . . . .	205
WARNUNG: . . . . .	205
ADVERTISSEMENT: . . . . .	205

## Glossary

---

# Contents

---

## **Preface**

This owner's guide describes how to use your HP VISUALIZE B2000 workstation.

This manual assumes that you have installed your workstation as described in the *HP VISUALIZE B2000 Installation Card*.

## **Audience**

This guide is intended for HP VISUALIZE B2000 workstation users.

## **Regulatory and Safety Statements**

See Appendix A for the regulatory and safety statements that apply to the HP VISUALIZE B2000 workstation.

## **Installation Notice**

Products designated in the applicable Hewlett-Packard price list as customer-installable can be installed by workstation-knowledgeable customers who carefully read and follow the instructions provided. Customers who elect to have the product installed by HP field personnel are charged the applicable field installation charge, as covered under the standard terms and conditions. For more information, please contact your local HP sales representative.

## **Related Documentation**

For more information, refer to the following documents:

- *Configuring HP-UX for Peripherals*
- *HP-UX System Administration Tasks*
- *HP CDE Getting Started Guide*
- *Managing Systems and Workgroups*
- *Using Your HP Workstation*

Note that the documents listed above can be viewed with a web browser using this URL:

<http://www.docs.hp.com>

## **Revision History**

The revision history for each edition of this manual is listed below.

<b>Printing Date</b>	<b>Edition</b>
November 1999	First

## **Problems, Questions, and Suggestions**

If you have any problems or questions with your hardware, software, or documentation, please contact either your HP Response Center or your local HP representative. If you have access to a web browser, you can get the latest software and hardware patches at the following URL:

`http://us-support.external.hp.com/`

## Documentation Conventions

Unless otherwise noted in the text, this guide uses the following symbolic conventions.

<i>user-supplied values (or) emphasis</i>	Italic words or characters in syntax and command descriptions represent values that you must supply. Italics are also used in text for emphasis.
screen display	Information that the system displays, commands that you must use literally, and path names appear in this typeface.
<b>Enter</b>	Keycaps are presented with a special keycap font as shown in the left column. (In this manual, we refer to the <b>Enter</b> key. On your keyboard, the key may be labeled either <b>Enter</b> or <b>Return</b> .)

## Electrostatic Discharge (ESD) Precautions

Electrostatic charges can damage the integrated circuits on printed circuit boards. To prevent such damage from occurring, observe the following precautions during board unpacking and installation:

- Stand on a static-free mat.
- Wear a static strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.
- Create a common ground for the equipment you are working on by connecting the static-free mat, static strap, routing nodes, and peripheral units to that piece of equipment.
- Keep uninstalled printed circuit boards in their protective antistatic bags.
- Handle printed circuit boards by their edges only once you have removed them from their protective antistatic bags.

---

# **1** **Overview**

This chapter provides an overview of the key features and components of the HP VISUALIZE B2000 workstation. It then explains how to get started using your B2000 workstation.

This chapter contains the following topics:

- **Product Information**
  - “Key Features” on page 17
  - “Front Panel Components” on page 19
  - “Rear Panel Components” on page 22
  - “Memory” on page 31
  - “Monitors” on page 31
- **Getting Started**
  - Operating System Overview
  - Information You Need to Record
  - Gathering Required Information
  - Powering on the Workstation for the First Time
  - Documentation

## Product Information

This section describes the key features and the components of the B2000 workstation. The purpose of this section is to familiarize you with your new workstation.

### Key Features

Table 1-1 lists the key features of the HP VISUALIZE B2000 workstation.

**Table 1-1**      **Key Features of the B2000 Workstation**

Feature	Description
Processor	400 MHz PA-Risc processor with 1.5 MB cache
Operating System	HP-UX 10.20 with the 9912 Additional Core Enhancements (ACE) software bundle (December 1999)
User Interface	HP Common Desktop Environment (CDE) graphical user interface
Compatibility	Source and binary code compatible with the B- and C-Class product families
Main Memory	Four memory slots supporting 128MB, 256MB and 512 MB memory DIMMs. Minimum memory configuration is 256 MB, and maximum is 2 GB.
Internal Storage Devices	<ul style="list-style-type: none"> <li>• One standard 9 GB 7200 RPM Ultra2 Wide Low-Voltage Differential (LVD) SCSI hard disk drive; a second 9 GB 7200 RPM Ultra2 Wide LVD SCSI hard disk drive is optional</li> <li>• One standard ATAPI CD drive, 32× ATAPI</li> <li>• One optional 3.5-inch floppy disk drive</li> </ul>

**Table 1-1 Key Features of the B2000 Workstation**

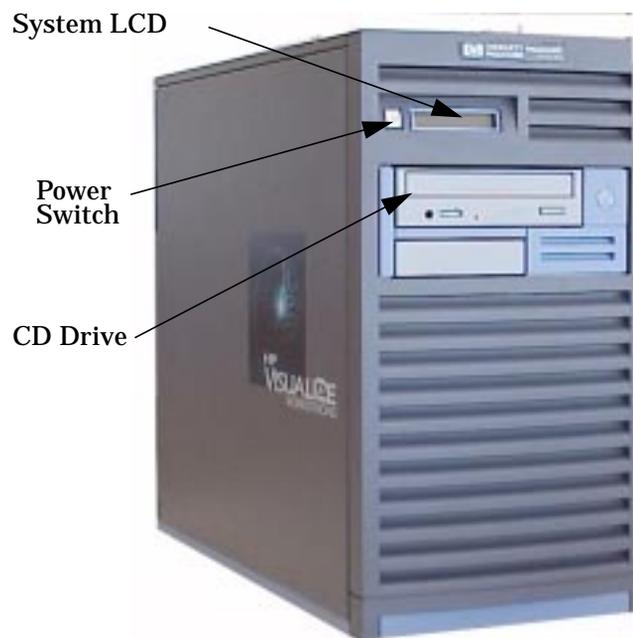
Feature	Description
Standard Networking	Ethernet IEEE 802.3, RJ45 Twisted Pair 10/100 BaseT
Standard I/O	<ul style="list-style-type: none"> <li>• Two Serial (RS-232) ports</li> <li>• Two USB (Universal Serial Bus) ports</li> <li>• One Parallel (IEEE 1284) port</li> <li>• Four Audio ports (Line In, Line Out, Microphone In, and Headphones Out)</li> </ul>
I/O Expansion Capabilities	Four PCI (Peripheral Connect Interface) slots: <ul style="list-style-type: none"> <li>• Two 64-bit PCI-2X slots at 5V, 33 MHz</li> <li>• Two 32-bit PCI-1X slots at 5V, 33MHz</li> </ul>
Monitors Currently Supported	<ul style="list-style-type: none"> <li>• 21-inch, 1280×1024 (stereo capable) color, 75 Hz</li> <li>• 21-inch, 1600×1200 color, 75 Hz</li> <li>• 19-inch, 1280×1024 color, 75 Hz</li> </ul>
Graphics	<ul style="list-style-type: none"> <li>• Integrated HP VISUALIZE <i>fxe</i> graphics chip on system board</li> <li>• HP VISUALIZE <i>fxe</i> graphics card (optional)</li> </ul>
Keyboard	USB (Universal Serial Bus) HP keyboard
Mouse	USB (Universal Serial Bus) HP 3 button mouse

## Front Panel Components

Figure 1-1 shows the components that are located on the front panel of the B2000 workstation. The following subsections describe the system LCD, power switch, and the internal storage devices (including the standard CD drive and optional floppy disk drive) that are located on the front panel.

**Figure 1-1**

### Front Panel Components

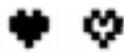


## System LCD

The Liquid Crystal Display (LCD) is located on the left side of the front panel. The LCD has a 2-line display, with up to 16 characters per line. The LCD displays progress messages and error messages. Error messages, known as chassis codes, are used in troubleshooting. The symbols in Figure 1-2 appear in the LCD, representing different system activities.

**Figure 1-2**

### LCD Symbols

	Operating system running
	Disk access in progress
	Network receive in progress
	Network transmit in progress

For more information, see the “LCD Information” section in Chapter 6.

## Power Switch

The power switch is also located on the left side of the front panel. Use the power switch to power your workstation on and off.

When you press the power switch to power off your workstation, the operating system executes an automatic `shutdown -q` command. This prevents any damage to programs and data on your system disk.

Pressing the power switch on again automatically boots up the HP-UX operating system, if your system has been configured to auto boot. For information on setting auto boot, see “Setting the Auto Boot and Auto Search Flags” in Chapter 5.

### Internal Storage Devices

The B2000 workstation has one 9 GB 7200 RPM Ultra2 Wide Low-Voltage Differential (LVD) SCSI hard disk drive as a standard component. Optionally, the workstation also supports a second 9 GB 7200 RPM Ultra2 Wide LVD SCSI hard disk drive.

In addition, the B2000 workstation has one ATAPI CD drive as a standard component. Optionally, the workstation also supports one 3.5-inch floppy disk drive.

---

**NOTE**

You cannot have two CD drives nor two floppy disk drives, since the B2000 workstation only supports one each of these devices.

---

Figure 1-1 on page 19 shows the workstation with one CD drive installed. See Chapter 2 for detailed descriptions of the CD drive controls and Chapter 3 for detailed descriptions of the floppy disk drive controls.

## Rear Panel Components

This section describes the following components on the rear panel of the B2000 workstation:

- Monitor connector
- Serial (RS-232) connectors
- USB (Universal Serial Bus) connectors
- LAN (Ethernet IEEE 802.3, RJ45 Twisted Pair 10/100 BaseT) connector
- Parallel (IEEE 1284) connector
- Audio connectors (Line In, Line Out, Microphone In, and Headphones Out)
- TOC (Transfer Of Control) button
- I/O slots
- Power cord connector
- Security loop

---

**NOTE**

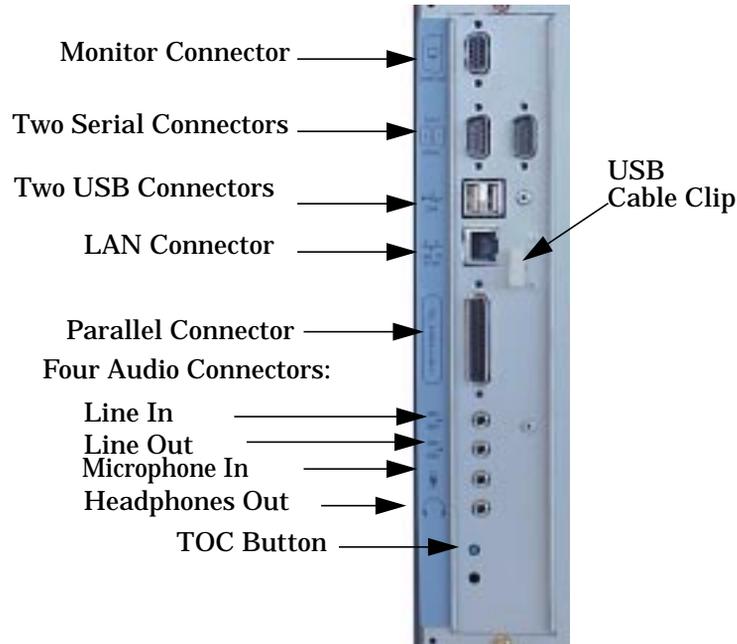
---

To maintain FCC/EMI compliance, verify that all cables are fully seated and properly fastened.

Figure 1-3 shows the locations of the components on the rear panel of the B2000 workstation.

**Figure 1-3**

**Rear Panel Components**



**Monitor Connector**

The B2000 workstation has an integrated HP VISUALIZE *fxe* graphics chip on the system board. Thus, the monitor connector on the rear panel of the workstation connects your monitor to this graphics chip on the system board.

## Serial Connectors

You can attach a variety of pointing devices (such as a mouse or trackball) or peripheral devices (including printers, plotters, modems, and scanners) to the two Serial Input/Output (SIO) RS-232 ports on the rear panel of this workstation. Consult the documentation that accompanies each pointing device or peripheral device for specific information concerning its use.

The SIO ports are programmable, allowing functions such as bit rate, character length, parity, and stop bits to be set. You can set these by using the HP-UX System Administration Manager (SAM) utility, or by selecting a system special device file with the functions already programmed. The SIO ports are used as an interface for serial asynchronous devices to the CPU.

Table 1-2 shows the SIO connector pin listings. The serial connectors are 9-pin D-sub connectors. Signal names are those specified in the EIA RS-232 standard.

**Table 1-2**                      **Serial I/O Pins**

Pin No.	Signal	Description
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

## USB Connectors

The USB connectors located on the rear panel of the workstation provide and interface for the keyboard and mouse to the system. These USB connectors support only the HP keyboard, HP mouse and USB hub. The keyboard and mouse may be plugged into either USB connector on the rear of the workstation or plugged into the USB hub. *No* other USB configuration is currently supported. Consult the documentation that accompanies each input device for specific information concerning its use.

For more information on USB, see the Universal Serial Bus website at the following URL:

<http://www.usb.org>

The following subsections briefly describe each of the three USB devices you can connect to the B2000 workstation's USB connectors. The mouse and keyboard were shipped with your workstation, and the USB hub can be ordered separately.

---

### CAUTION

Usage of devices other than USB specification may result in unpredictable functionality and inferior performance of the B2000 workstation.

---

---

### NOTE

The USB cable clip on the rear of the chassis provides strain relief for the USB cables. Open the cable clip, loop the cables through the clip and snap it closed to secure the USB cables. See Figure 1-3 on page 23.

---

### HP USB Keyboard

The HP USB keyboard provides the standard keycaps found on most PC keyboards.

---

### NOTE

The USB keyboard and mouse may be plugged into either USB connector on the rear of the B2000 workstation.

---

### HP USB Three Button Mouse

For general information on the various cursor shapes associated with different areas of HP CDE while using a mouse, see the *Using Your HP Workstation* manual.

### LAN Connector

Your workstation has one built-in, Ethernet IEEE 802.3, RJ45 Twisted Pair (TP) connector for 802.3 (Ethernet) or 10/100 BaseT networking. Your workstation will automatically select the correct network setting.

### Parallel Connector

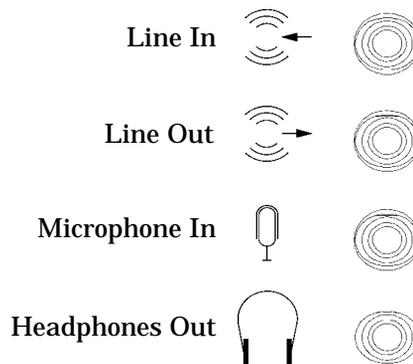
The 25-pin HP Parallel I/O interface uses IEEE 1284 I/O interface protocols to support peripheral devices such as printers and plotters. consult the documentation that accompanies each parallel peripheral device for specific information concerning its use.

### Audio Connectors

Your workstation has audio-input and -output capability through external input and output connectors on the rear panel and through an internal speaker. As shown in Figure 1-4 on the next page, the workstation's rear panel contains four audio connectors: Line In, Line Out, Microphone In, and Headphones Out.

Figure 1-4

### Audio Connectors



The audio connectors are standard stereo audio mini-jacks. Hewlett-Packard recommends using gold-plated plugs available through audio retailers for best quality recording and playback through the external connectors. The audio electrical specifications are summarized in Table 1-3.

**Table 1-3 Audio Electrical Specifications**

Frequency Response	25 Hz to 20 kHz
Input Sensitivity/Impedance: Line in Microphone in	2.8V <sub>p-p</sub> /10Kohm 40mV <sub>p-p</sub> /47Kohm
Maximum Output Level/Impedance: Line out Headphone out	2.8V <sub>p-p</sub> /920ohm 5.6V <sub>p-p</sub> /110ohm

### **TOC Button**

You can press the TOC (Transfer Of Control) button on the rear panel to interrupt the system.

### **I/O Slots**

The four I/O slots located on the rear panel are PCI (Peripheral Connect Interface) slots, which you can use for add-on I/O interface cards. There are two PCI-2X slots and two PCI-1X slots, which are defined as follows:

**Slot 1:** 64-bit PCI-2X at 5V, 33 MHz

**Slot 2:** 64-bit PCI-2X at 5V, 33 MHz

**Slot 3:** 32-bit PCI-1X at 5V, 33 MHz

**Slot 4:** 32-bit PCI-1X at 5V, 33 MHz

For more information, see the “I/O Cards” on page 81 in Chapter 4.

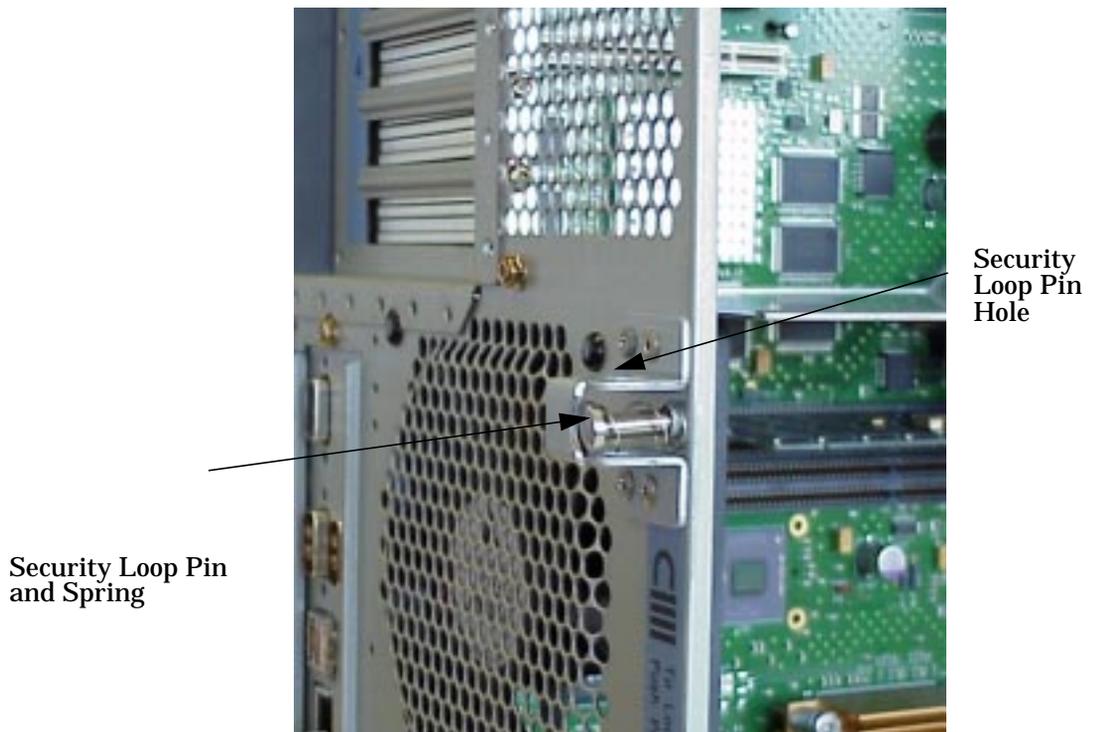
### **Power Cord Connector**

Plug the workstation’s power cord into the power cord connector to provide AC power to the workstation.

## Security Loop

There is also a security loop on the rear panel of the B2000 workstation. The security loop allows you to lock the workstation's left side panel, thus securing the internal components of your workstation. Figure 1-5 provides a view of the security loop.

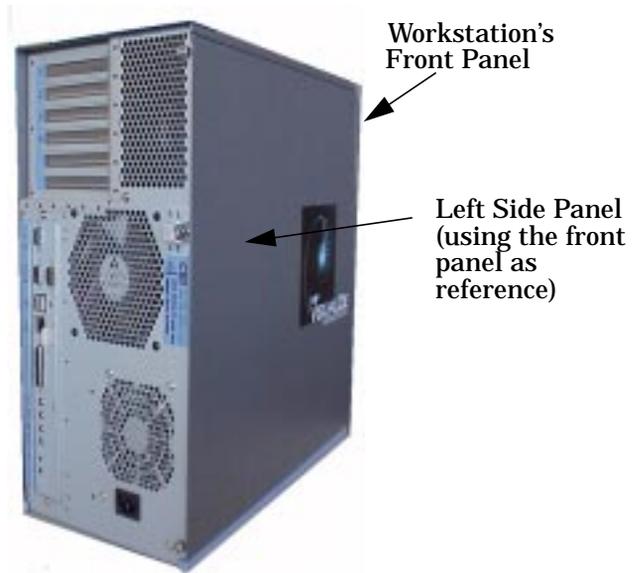
**Figure 1-5** Security Loop Components



To lock your workstation's left side panel, follow these steps:

1. Make sure the workstation's left side panel is closed. See Figure 1-6.

**Figure 1-6**      **Closed Left Side Panel**



2. Push the security loop's pin into the security loop pin hole, and insert the padlock's latch through the holes at the top and bottom of the security loop. This locks the left side panel.
3. Lock the padlock. Your workstation's left side panel is now secure.

## Memory

The B2000 workstation has four slots for memory DIMMs. You can install only 128 MB, 256 MB, or 512 MB DIMMs in these slots. The minimum memory configuration for a B2000 workstation is 256 MB, and the maximum is 2 GB.

To install memory DIMMs in your workstation, follow the procedure in the “Installing Additional Memory” on page 132. Please keep in mind that if memory is installed improperly or if it is bad, your workstation’s operating system will not boot-up, and a DIMM error message will appear on your workstation’s LCD. If a DIMM error does occur, please refer to the “Memory Failures” section in Chapter 6.

## Monitors

Your HP monitor should be set to one of the following resolutions:

- 1280×1024 color (stereo capable), 75Hz, VESA
- 1600×1200 color, 75Hz, VESA
- 1280×1024 color, 75 Hz, VESA

Your workstation must have either an HP-supported monitor running at 75 Hz with a 1280×1024 resolution, or a full multi-mode color monitor. Monitors with EVC, D-Sub, or 5 BNC connectors (RGB, vertical sync, horizontal sync) will function.

---

### NOTE

The HP VISUALIZE *fxe* graphics card will not function with older HP monitor types that use a sync on green signal. This includes monitors such as the HP 1097A/B/C/D, A2088A, and A2828A/B that only have 3 BNC connectors.

---

Note that you can connect the B2000 workstation to earlier HP monitors with 15-pin miniature D-Sub cables using the A4168A adapter shipped with your workstation’s accessory kit.

Before using your monitor, you should become familiar with its controls, connectors, and indicators. For information about using your monitor, see the documentation that came with the monitor.

## Getting Started

### Operating System Overview

Your B2000 workstation runs the HP-UX 10.20 operating system with the 9912 Additional Core Enhancements (ACE) software bundle (December 1999).

The B2000 is an Instant Ignition system (that is, a workstation with preloaded software). It has X-Windows, HP's graphical user interface, and HP CDE (Common Desktop Environment) installed and configured. Please refer to the "System Information" sheet that came with your workstation for details on configuration. If your Instant Ignition system does not have the kernel preconfigured with all of the required device drivers, refer to the *Managing Systems and Workgroups* manual to configure your kernel. If you have any questions about Instant Ignition, refer to the *Using Your HP Workstation* manual for more information.

---

#### NOTE

You can find the documents mentioned in the previous paragraph on HP's documentation website at the following URL:

<http://www.docs.hp.com/>

---

## Information You Need to Record

Before you begin using your workstation, take a moment to gather the following important information and record it in the appropriate subsection for future use:

- LAN Station ID
- IP (Internet Protocol) address
- Subnet mask

### LAN Station ID

Locate the contents label that came with your workstation's shipping carton. Find the LAN Station ID listed there and record it here:

LAN Station ID: \_\_\_\_\_

The LAN Station ID can also be found on the back of the workstation near the LAN connector. If the previous methods for locating your LAN Station ID do not work, you can get your LAN Station ID by executing the `lanscan` command in a terminal window.

### IP Address and Subnet Mask Information

Get the IP address and the subnet mask information for your workstation from either your system administrator or your network administrator and note them here:

IP Address: \_\_\_\_\_

Subnet Mask: \_\_\_\_\_

## Gathering Required Information

The start-up procedure for your workstation will require you to supply the following information. Therefore, you should gather the following information before you power on the workstation for the first time.

---

**NOTE**

If you are not the system administrator for your workstation, and you do not know the required information, ask your system administrator for the information.

---

- *Hostname* \_\_\_\_\_  
The hostname is sometimes called the “system name.”
- *IP (Internet Protocol) address* \_\_\_\_\_  
You will need this address if you are connecting the workstation to a local area network (LAN).
- *Time zone* \_\_\_\_\_  
This is the time zone where the workstation is located.
- *Optional networking parameters*  
Ask your system administrator if you need to configure these parameters.

*Subnet mask* \_\_\_\_\_

*Network gateway IP address* \_\_\_\_\_

*Local domain name* \_\_\_\_\_

*DNS server host name* \_\_\_\_\_

*DNS server IP address* \_\_\_\_\_

*Network Information Service domain name* \_\_\_\_\_

- *Optional font server parameters*  
You need to supply these parameters if you want the workstation to obtain its fonts from a network server. Ask your system administrator if you need to configure these parameters.

*Font server name* \_\_\_\_\_

*Font server IP address* \_\_\_\_\_

## Powering on the Workstation for the First Time

After you have connected the various parts of your workstation by following the *HP VISUALIZE B2000 Installation Card*, you are ready to power on the workstation.

---

### NOTE

Your B2000 workstation may be powered on in the minitower, upright position, or powered on while laying on the right-side panel.

---

The HP Instant Ignition process has already installed the HP-UX operating system on your workstation. When you power on the workstation, you will be presented with a series of questions. When you have answered these questions, the HP CDE login screen will appear. Once the HP CDE login screen appears, you can log in as `root`—initially there is no password.

Follow these steps when powering on your B2000 workstation for the first time:

1. Power on the monitor and any external peripherals (for example, printers) that are connected to the workstation.
2. Power on the workstation.

The workstation will run a series of self-tests.

---

### NOTE

Your display monitor may appear blanked for a few moments while the system is booting. Messaging will appear in approximately two minutes.

---

3. A series of messages are displayed as various hardware and software subsystems are activated.

During the initial boot process you will be asked to:

- Select a monitor type
  - Select the appropriate keyboard type
4. Enter the required information about your workstation when prompted for it. This is the information you gathered in the previous subsection, such as your workstation's hostname, IP address, and time zone.

---

**NOTE**

You should enter the hostname when requested; otherwise, you will get an error message when you log in.

If you do not have other required pieces of information, press **Enter** to use the default value. You can provide missing information later by logging into a terminal emulator window as `root` and executing this command:

```
/sbin/set_parms
```

- 
5. Specify the `root` password when prompted for it. The `root` password is the password used for the superuser account. (The superuser, `root`, is a special user who has permission to perform all system administration tasks.)

When you have finished answering all of the questions, the workstation completes its start-up sequence and displays the HP CDE login screen.

6. Log into your first HP CDE session as `root`. For information on logging into HP CDE, see the *Common Desktop Environment User's Guide*.

---

**NOTE**

You must log into the first session as `root`. This is because the system contains no other user accounts. Once you have created user accounts, you should log out as `root` and log back in as one of the other users.

---

7. After you log into your first HP CDE session you can customize the desktop user interface for your specific language. For detailed information to configure localized desktop sessions, see the *Common Desktop Environment User's Guide*.
8. Use the HP-UX System Administration Manager (SAM) utility to set-up user accounts.

## **Documentation**

Additional documentation for your system is located on the “Instant Information” CD that is shipped with the keyboard accessory kit. To view this CD, follow the special mounting instructions that came with the CD.

Overview

**Getting Started**



Here are the topics covered in this chapter:

- Operating the CD Drive
- Mounting and Unmounting a CD
- Verifying the CD Drive Operation
- Configuring the CD Driver
- Audio Control for the CD Drive
- CD Media Description

The instructions in this chapter assume you are using the HP-UX 10.20 operating system and Workstation Additional Core Enhancements for HP-UX 10.20 (December 1999) with the HP CDE interface.

For information about installing or removing a CD drive, see Chapter 4 of this document.

---

**NOTE**

Be sure you have read and understand the information on mounting and unmounting CDs before you begin using your CD drive.

---

---

**NOTE**

This chapter requires you to be superuser (`root`). If you cannot log in as `root`, contact your system administrator.

---

In this chapter, the terms “CD” and “CD drive” are used rather than “CD-ROM” and “CD-ROM drive” because the CD drive used in the B2000 can read the original CD-ROM disks, plus CD-R disks and the newer CD-RW disks (also called “CD-RAM” because they are rewriteable). Thus, since not all CDs are ROMs any longer, that portion of the term has been dropped.

Incidentally, the CD drives also are multisession-capable.

## CD Media Description

CDs, which can be CD-ROMs, CD-Rs, or CD-RWs, are 120mm (4.7 inches) in diameter, and use one data surface with a capacity of 600 megabytes. The data surface contains pits and flat spots arranged in a continuous spiral track, which is read at a constant speed. You may access files and data stored on a CD, but you may not write files or data to a CD.

---

### CAUTION

Handle CDs by the edges only. Always be sure a CD is either in the CD drive or its protective case when not in use. This will reduce the chance of exposing the disk surface to dust. Over time, dust reduces the reliability of the read head in the CD drive.

---

## Caring for CDs

Observe the following guidelines to help prevent data loss and prolong the life of your CD and CD drive:

- Use CDs in a clean environment to prevent dust particles from scratching disc surfaces.
- Store CDs in a cool, dry place to prevent moisture and heat damage.
- Do not try to clean the surface of a CD with cleaning solvents, as some cleaning solvents may damage the disk.

## **Operating the CD Drive**

This section provides a description of the CD drive and it describes how to perform tasks with your CD drive.

### **CD Drive**

The CD drive is a mass storage device that can read removable CD-ROM, CD-R, and CD-WR media. The drive supports the ISO 9660 and High Sierra format standards. You can access information from the drive like any other disk drive, except you cannot write to the drive. The drive contains a semiconductor laser for reading data optically, and includes an embedded controller with an ATAPI interface.

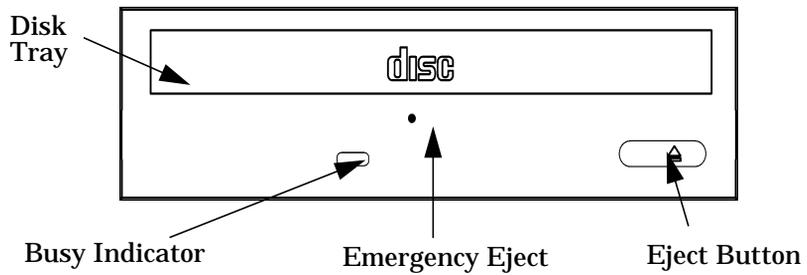
**Controls and Features**

Figure 2-1 and Table 2-1 describe the operating controls and features of the CD drive.

**NOTE**

The exact positioning of CD Drive controls/features may vary depending on the model of the device.

**Figure 2-1 CD Drive Controls and Features**



**Table 2-1 CD Drive Operating Controls and Features**

Control/Feature	Purpose
Headphone Jack	Accommodates mini-headphones with a 3.5 mm diameter miniature stereo plug.
Volume Control	Adjusts the audio output volume to the headphone.
Busy Indicator	The Busy Indicator blinks during a data transfer.
Eject Button	The Eject Button when pressed opens the Disk Tray for removal or insertion of a disk. When the drive is in use, you must press the eject button for more than one second to open the Disk Tray.
Emergency Eject	You can open the Disk Tray when the workstation does not have power by inserting the end of a paper clip into this opening.
Disk Tray	The Disk Tray holds the CD. This style of CD drive does not use a disk caddy.

## Using Your CD Drive

### Operating the CD Drive

To listen to an audio CD, use the headphone jack on the rear panel, and control the sound volume via software called “xmcd” (for details, see “Audio Control for the CD Drive” on page 56).

## Loading and Unloading a CD

This section explains how to load or unload a CD.

---

### NOTE

To use the file system on a CD, you must be superuser (`root`) and mount the disk as discussed in the section “Mounting a CD Using SAM.” Once the CD has been mounted, you must unmount it before removing the CD. Unmounting a CD is discussed in the section “Unmounting a CD Using SAM.”

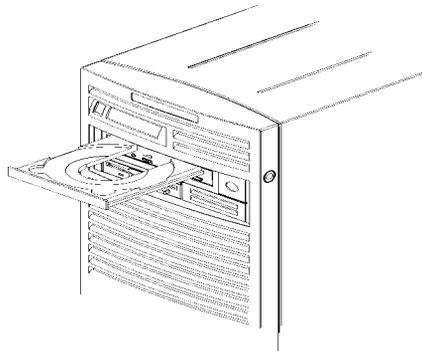
---

### Loading a CD

This CD drive has an automatic loading/ejecting feature. To load a CD in the CD drive, follow these steps:

1. Press and release the eject button on the CD drive. The disk tray opens as shown in Figure 2-2.

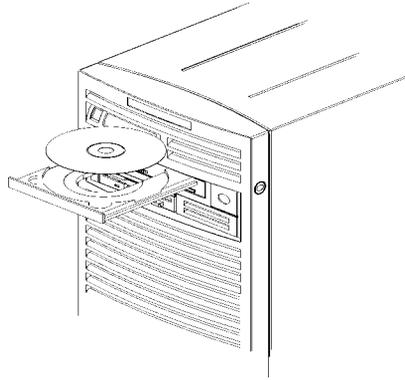
**Figure 2-2** Open CD Tray



Using Your CD Drive  
**Operating the CD Drive**

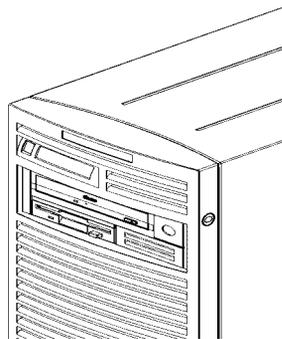
2. Hold the disk by the edges with the label side up and place it in the disk tray as shown in Figure 2-3.

**Figure 2-3**      **Placing the CD in the Disk Tray**



3. Press the eject button to close the tray as shown in Figure 2-4.

**Figure 2-4**      **Closed Disk Tray**



### **Unloading a CD**

To unload a disk from the Disk Tray, follow these steps:

1. Press and release the eject button on the CD drive to open the disk tray.
2. Grasp the disk by the edges and lift it out of the disk tray.
3. Press the Eject Button to close the disk tray.

### **Locating Help**

If you have trouble with any of the procedures for using your CD drive, see the chapter “Solving Problems” in this document.

## **Mounting and Unmounting a CD**

This section of the chapter explains how to mount and unmount a CD drive using the System Administration Manager (SAM).

The procedures in this section require you to log in as `root`. If you cannot log in as `root`, contact your system administrator.

### **Mounting a CD Using SAM**

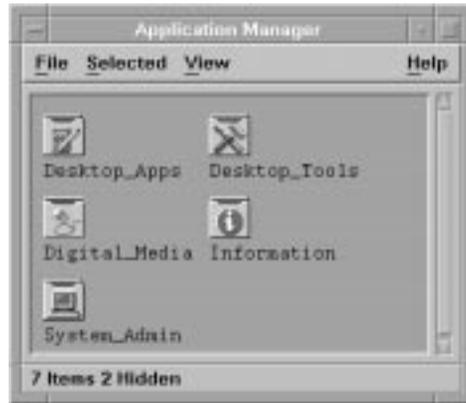
To access your CD drive, you must mount a CD every time you insert it into the drive. This applies to CDs with file system information only. If you wish to load a music CD, for example, you would not need to mount the disk. See “Installing the `xmcd` Utility” on page 56 for playing audio CDs. Mounting a disk with file system information gives the disk a path name that allows your workstation to communicate with it. You must unmount the CD before removing it from the drive.

To mount a CD on an HP-UX 10.20 operating system with the Workstation Additional Core Enhancements for HP-UX 10.20 (December 1999), perform the steps covered in this section.

1. Log in as `root`.
2. Move the mouse pointer to the **Application Manager** control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



4. Double click on the Sam icon in the **Application Manager -- System\_Admin** window. If you are root, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Disks and File Systems** icon.



## Using Your CD Drive

### Mounting and Unmounting a CD

6. Double click on the **Disk Devices** icon.



The following screen message is displayed:

Scanning the system's hardware...

The **Disk and File Systems** window opens containing a list of devices installed in this system. From the list of devices, choose the CD drive you would like to configure as a file system by clicking on the device to highlight it.

7. Click on **Add** in the **Actions** menu. For this example you will select the item **Not Using the Logical Volume Manager**.
8. Enter the mount directory name (for example, `/disk1`) in the **Mount Directory** field of the **Add Disk without LVM** window.
9. Click on the **Modify Defaults...** button. In the **Modify Defaults** window, select the **Read Only** item from the Access button menu. Next, unselect the **Create New File System** item by clicking on it. Exit the **Modify Defaults** window by clicking on the **OK** button.
10. Click on the **OK** button in the **Add Disk without LVM** window. You will need to wait for a short time for the CD to be mounted. When the **Add Disk without LVM** window disappears and **CDFS** appears in the Use column of the **Disks and File Systems** window, you have mounted the CD.

## Unmounting a CD Using SAM

You must unmount a CD before it will eject from the drive.

---

### NOTE

Before you unmount a CD, make sure that your working directory is set to a directory other than the one under which the disk was mounted.

---

To unmount a CD on an HP-UX 10.20 operating system with the Workstation Additional Core Enhancements for HP-UX 10.20 (December 1999), perform the steps covered in this section.

1. Log in as `root`.
2. Move the mouse pointer to the **Application Manager** control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



## Mounting and Unmounting a CD

4. Double click on the **Sam** icon in the **Application Manager -- System\_Admin** window. If you are **root**, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Disks and File Systems** icon.



6. Double click on the **Disk Devices** icon.



The following screen message is displayed:

```
Scanning the system's hardware...
```

The **Disks and File Systems** window opens containing a list of devices installed in this system. From the list of devices, choose the CD drive you would like to remove (unmount) by highlighting that device.

7. Click on **Remove** in the **Actions** menu. In the window that next appears, click on the **Yes** button. This will unmount the CD. You will need to wait for a short time before the CD is unmounted. The CD is successfully unmounted when you see `Unused` in the `Use` column of the **Add Disk without LVM** window.

## Verifying the CD Drive Operation

To verify that your workstation can communicate with the CD drive, follow the steps covered in this section. Note that to perform the steps required in this section, you must be superuser (`root`). If you cannot log in as `root` contact your system administrator.

1. Log in as `root`.
2. Type the following command at the shell prompt and press **Enter**:

```
/usr/sbin/iocan -d sdisk
```

After a few seconds the `iocan` utility lists all of the I/O devices that use the “`sdisk`” driver. Your CD drive should be among the devices listed. The list appears similar to the following:

H/W Path	Class	Description
10/0/15/1.5.0	disk	SEAGATE ST39102LC
10/0/15/1.6.0	disk	SEAGATE ST39102LC
10/0/14/0.0.0	disk	TEAC CD-532E-B

If `iocan` does not detect any usable I/O system devices, such as the CD drive, nothing is output and you are returned to the system prompt. Since this indicates possibly that the driver for the CD drive is not configured, read the section “Configuring the CD Driver” in this chapter.

## Configuring the CD Driver

If you reload software or rebuild the Instant Ignition system on your workstation, you may need to reconfigure the HP-UX kernel to add the CD driver. Use the **SAM** utility to add the CD driver and build a new HP-UX kernel.

For more information about how to reconfigure the kernel using **SAM**, see the following manuals:

- *Managing Systems and Workgroups*
- *Using HP-UX*

## Audio Control for the CD Drive

In order to control the playing of audio CDs on your CD drive, you will need a third party “CD player” application. One such application that supports HP workstations is `xmcd`. This is a third-party “CD player” utility that runs on an X window system using the Motif graphical user interface. The `xmcd` utility is not supported by Hewlett-Packard. Since the `xmcd` utility is not a part of HP-UX, you will need to download it off the web using your web browser and this URL:

`http://metalab.unc.edu/tkan/xmcd`

### Installing the `xmcd` Utility

Here is the procedure for downloading the `xmcd` utility to your system:

1. Log in as `root`.
2. Type the previously given URL into the entry box on your web browser and press **Enter**.
3. Select the menu item labeled **Downloads** found on the `xmcd` homepage.
4. Scroll down to the section “Select your platform:” on the **Downloads** web page and select the item labeled “HP-UX 9.x and later (HP PA-RISC).”
5. Wait for a few seconds for the **Save As...** pop-up window to appear. In this window, click in the **Selection** entry box and type the following path and file name:

`/tmp/xmcdbin.tar.gz`

Next, click the **OK** button. This completes the download of `xmcd` to your system.

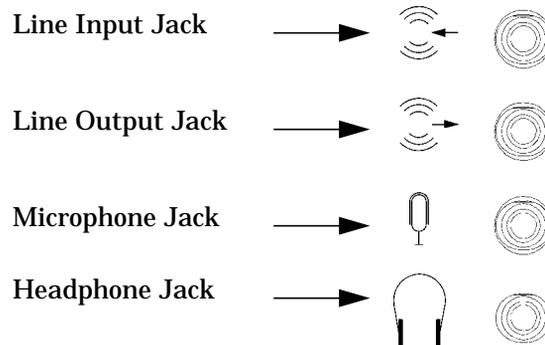
6. Follow the instructions in the section “Instructions to unpack `xmcd` binary” found on this **Binary Downloads** web page. This will complete the installation of the `xmcd` utility.

## Using the xmcd Utility

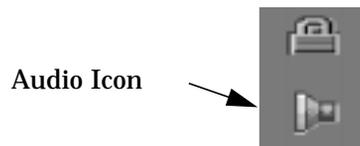
The instructions in the section assume that you are using the HP-UX 10.20 operating system and the Workstation Additional Core Enhancements (ACE) for HP-UX 10.20 (December 1999) with the HP CDE interface. The `xmcd` utility must also be installed on your system. See the section “Installing the xmcd Utility.”

To load and play an audio CD, follow the steps in this procedure.

1. Load the audio CD. See the section “Loading a CD” in this chapter.
2. Insert the headphone plug into the headphone jack located on the back of your system unit.



3. Click on the **Audio** icon located on your HP CDE control panel.



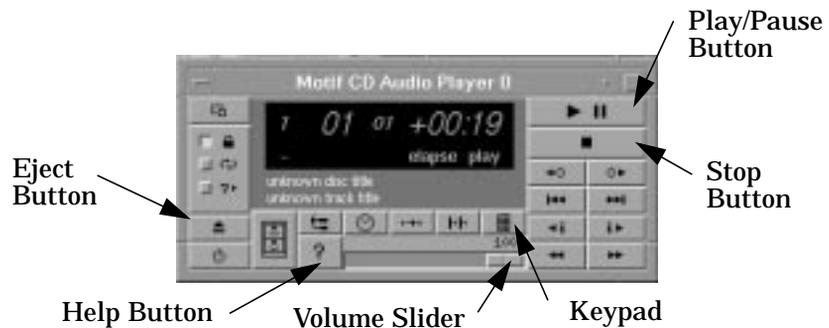
## Using Your CD Drive

### Audio Control for the CD Drive

4. Click on the **Monitoring** checkbox in the **Audio** window to select it. Then select the **Output** menu and click on the **Headphones** item in the menu list. In the **File** menu select the item **Close**, this will close the **Audio** window and save your settings. Note that the **Output Volume** slider in the **Audio** window does not control the CD drive's volume level. To control the CD drive's volume, you need to use the volume slider on the `xmcd` user interface. See the window in step 5.



5. Start the utility by typing `xmcd` at the prompt and pressing **Enter**.



Now that you have your audio CD player started, put on your headphones and press the **Play** button to listen to the audio CD. Note that pressing the **Help** button will give you information on how to use the rest of the CD player's buttons.

---

## **3** **Using Your 3.5-Inch Floppy Disk Drive**

This chapter describes how to perform tasks that allow you to archive to or transfer data from the 3.5-inch floppy disk drive.

The instructions in this chapter assume you are using the HP-UX 10.20 operating system and the Workstation Additional Core Enhancements for HP-UX 10.20 (December 1999) with the HP CDE interface.

---

**NOTE**

When examples of user input are given in this chapter, enter them at the command-line prompt in an HP CDE terminal window.

Some procedures in this chapter require you to log in as superuser (`root`). If you cannot log in as `root`, contact your system administrator.

---

Here are the topics covered in this chapter:

- Operating the Floppy Drive
- Verifying the Floppy Drive Configuration
- Additional Floppy Drive Information.

For information on installing and removing a floppy disk drive, see Chapter 4 of this document.

---

## Operating the Floppy Drive

This section describes how to perform tasks with your 3.5-inch floppy disk drive.

### Floppy Disk Drive

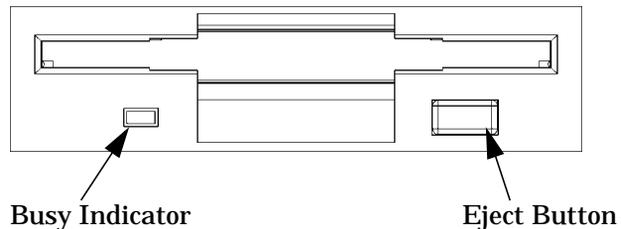
The floppy disk drive is a random access read/write mass storage device that uses removable floppy diskettes. The drive supports the 1.44 Mbyte High Density standard. You can access information from the drive like any other disk drive, that is you can write information to it and read information from it.

### Controls and Features

Figure 3-1 and Table 3-1 describe the operating controls and features of the floppy disk drive.

**Figure 3-1**

**Floppy Disk Drive Controls and Features**



**Table 3-1**

**Floppy Disk Drive Operating Controls and Features**

Control/Feature	Purpose
Busy Indicator	The Busy Indicator illuminates during a data access operation and blinks during a data transfer.
Eject Button	The Eject Button, when pressed, ejects the floppy diskette from the floppy disk drive.

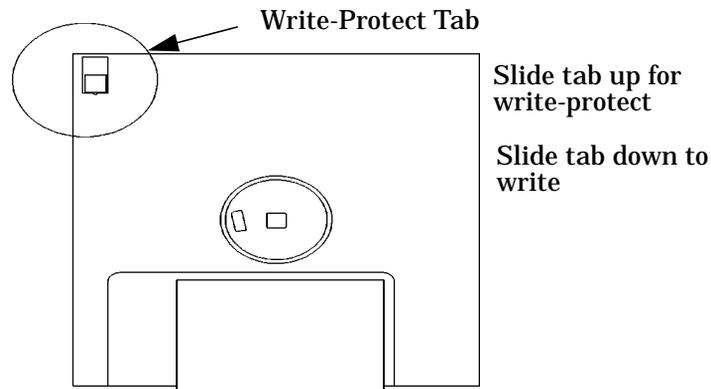
## Using the Floppy Diskette

This section describes basic information needed to use your floppy diskettes.

### Setting the Write-Protect Tab on a Diskette

You can only store or change information on a diskette when the write-protect tab is in the write position. So, before trying to write to the diskette, make sure that the write-protect tab is in the write position, as shown in Figure 3-2.

**Figure 3-2**      **Setting the Write-Protect Tab on a Floppy Diskette**



To protect files on a diskette from being overwritten, set the write-protect tab to the write-protect position.

---

**NOTE**

The write-protect tab should always be in the write position for formatting a new diskette and transferring data to a diskette.

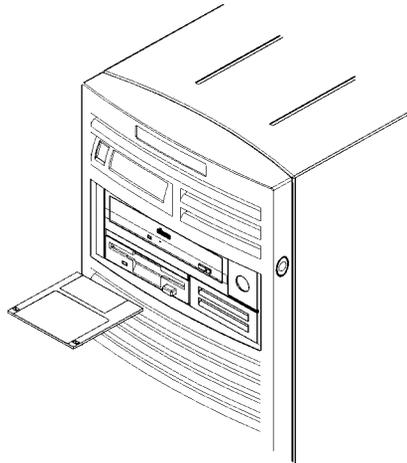
---

### Inserting and Removing a Diskette

Follow these steps to insert and remove a diskette from the floppy disk drive.

1. Insert the diskette into the drive, as shown in Figure 3-3.

**Figure 3-3**      **Inserting and Removing a Floppy Diskette**



2. Push the diskette into the floppy drive until it clicks into place.
3. Remove the diskette by pressing the eject button (see Figure 3-1) and taking it out of the drive.

### Using Device Files

Device files are special files that tell your system which pathway through the system hardware to use when communicating with a specific device. Device files also describe the type of device. You will need to know the special device file associated with your floppy disk drive so that you can write data to it or read data from it.

---

**NOTE**

The device file names depend on the naming conventions of your particular system.

---

## Using Your 3.5-Inch Floppy Disk Drive

### Operating the Floppy Drive

To determine what device files are available for use with your floppy drive, use the following procedure:

1. Log in as `root`.
2. Move the mouse pointer to the **Application Manager** control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



4. Double click on the **Sam** icon in the **Application Manager -- System\_Admin** window. If you are **root**, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Disks and File Systems** icon.



6. Double click on the **Disk Devices** icon.



The following screen message is displayed:

```
Scanning the system's hardware...
```

The **Disks and File Systems** window opens containing a list of devices installed in this system. From the list of devices, choose the floppy disk drive you would like to configure as a file system by clicking on the device to highlight it.

7. Select the **Actions** menu and then select the menu item **View More Information**. A window opens with a list of information for the floppy drive, including the device files.

## Formatting a New Diskette

If you have floppy diskettes that have been previously formatted using the `mediainit` utility, you can skip this section. Otherwise, you must always format a new floppy diskette with the `mediainit` utility before using the diskette. To format a new floppy diskette, follow these steps:

1. Log in as `root`.
2. Make sure that the write-protect tab on the floppy diskette is in the write position, as shown in Figure 3-2.
3. Insert the diskette into the floppy disk drive.
4. Type the following at the prompt and press **Enter**:

```
mediainit -f 16 devicefile
```

where `16` is the High Density (HD) format option and *devicefile* is the device file as listed by SAM. See the section “Using Device Files” in this chapter. For a listing of format options, see the `floppy` manual page. To view this manual page, type the following at the prompt and press **Enter**:

```
man floppy
```

## Transferring Data To and From a Floppy Diskette

This section describes how to transfer data (reading and writing) to and from your floppy diskette using the HP-UX `tar` command with your floppy drive's device file.

You need to set the write-protect tab to the *write* position to transfer data to the diskette. The write-protect tab can be in either position when restoring data from a diskette or listing the files on a diskette.

### Saving Files to a Floppy Diskette

Use the following instructions to save files to a floppy diskette:

1. Check the write-protect tab on the floppy diskette to ensure that it is in the *write* position.
2. Load the formatted floppy diskette into the disk drive.
3. Type the following command in a terminal window at the prompt and press **Enter**:

```
tar -cvf devicefile pathname
```

where *devicefile* is the device file as listed by SAM (see the section “Using Device Files” in this chapter), and *pathname* is the path name of the file or directory containing files that you want to write to the diskette.

### Restoring Files from a Floppy Diskette to Your System

Use the following instructions to restore files from a floppy diskette to your system:

1. Load the floppy diskette into the disk drive.
2. Type the following command in a terminal window at the prompt and press **Enter**:

```
cd directory_path
```

This command changes you to the directory in which you want the files to reside.

3. Enter the following command at the prompt and press **Enter**:

```
tar -xvf devicefile pathname
```

where *devicefile* is the device file as listed in **SAM** (see the section “Using Device Files” in this chapter) and *pathname* is the path name of the file or directory containing files that you want to restore from the diskette. If you do not specify *pathname*, everything on the floppy diskette is restored.

### Listing the Files on a Floppy Diskette

Use the following instructions to list the files on a floppy diskette:

1. Load the floppy diskette into the disk drive.
2. Enter the following command in a terminal window at the prompt and press **Enter**:

```
tar -tvf devicefile
```

where *devicefile* is the device file as listed by **SAM**. See the section “Using Device Files” in this chapter. Note that this command will list all files on the floppy diskette.

### Troubleshooting

If you have trouble with any of the procedures for using your floppy disk drive, see Chapter 6 of this document, “Solving Problems.”

---

## Verifying the Floppy Drive Configuration

To verify that your workstation can communicate with the floppy drive, use the `ioscan` command in a terminal window to see which devices are currently in use on your system. Note that you will have to be superuser or root to use the `ioscan` command.

Enter the following command at the prompt and press **Enter**:

```
/usr/sbin/ioscan -fnC floppy
```

After a few seconds, the `ioscan` utility lists all of the I/O devices that use the “floppy” class. Your floppy drive should be among the devices listed. The list appears similar to the following:

```
Class  I  H/W Path      Driver  S/W State  H/W Type  Description
=====
floppy 0  10/0/14/1/4.1  sioflop CLAIMED   DEVICE    HP_PC_FDC_FLOPPY
                /dev/floppy/c0t1d0 /dev/rfloppy/c0t1d0
```

If `ioscan` does not detect any usable I/O system devices that use the “floppy” class, such as the floppy disk drive, nothing is output and you are returned to the system prompt. If this is the case, refer to Chapter 6, “Solving Problems.”

If the floppy disk driver is not configured, `ioscan` returns the following message:

```
ioscan: Device driver floppy is not in the kernel
```

If you receive this message, go to the section, “Configuring the Floppy Driver” in this chapter for information on adding the `sioflop` driver to the HP-UX kernel configuration.

## Additional Floppy Drive Information

This section provides information about configuration of the floppy disk driver and information about useful HP-UX commands for copying and listing floppy disk files.

### Configuring the Floppy Driver

If you reload software or rebuild the Instant Ignition system on your computer, you may need to reconfigure the HP-UX kernel to add the floppy disk driver. Use the **SAM** utility to add the `sioflopp` disk driver and build a new HP-UX kernel.

For more information about how to reconfigure the kernel using **SAM**, see the following manuals:

- *Managing Systems and Workgroups*
- *Using HP-UX*

### For More Information

For more information on using `tar` and a complete list of the command arguments, refer to the `tar` man page by typing the following command in a terminal window at the prompt and pressing **Enter**:

```
man tar
```

You can mount the floppy drive as a file system using the SAM utility. Be sure to unmount the drive before removing it as a file system. For more information about how to mount and unmount the floppy drive, see the manual *Using HP-UX*.

For more information on copying data to or from your system to other media, including your floppy diskette, refer to the `cpio` man page by typing the following command in a terminal window at the prompt and pressing **Enter**:

```
man cpio
```

For more information on copying to or from DOS files, refer to the `doscpc` man page by typing the following command in a terminal window at the prompt and pressing **Enter**:

```
man doscpc
```

For more information on listing DOS directories, refer to the `dosls` man page by typing the following command in a terminal window at the prompt and pressing **Enter**:

```
man dosls
```

For more information on using your floppy disk drive and floppy diskettes, refer to the `floppy` man page by typing the following command in a terminal window at the prompt and pressing **Enter**:

```
man floppy
```

For more information on using the `mediainit` command, refer to the `mediainit` man page by typing the following command in a terminal window at the prompt and pressing **Enter**:

```
man mediainit
```

Using Your 3.5-Inch Floppy Disk Drive  
**Additional Floppy Drive Information**

---

## **4** **Changing Your Workstation's Hardware Configuration**

This chapter contains the procedures to change the hardware configuration for your HP VISUALIZE B2000 workstation.

This chapter contains the following topics:

- Front Panel
- Left Side Panel
- Power Supply
- I/O Cards
- Fans
- CD Drive and Floppy Drive
- Hard Disk Drives
- Memory Cards
- Monitor Type

The instructions in this chapter assume you are using the HP-UX 10.20 operating system with the Additional Core Enhancements software bundle (December 1999) with the HP CDE interface. Information for the HP CDE interface can be found in the *HP CDE Getting Started Guide*.

---

**CAUTION**

Always wear a properly grounded wrist strap when reconfiguring your workstation with internal devices. For details on electrostatic discharge, read the section “Electrostatic Discharge (ESD) Precautions” in the Preface of this manual.

---

---

**WARNING**

**Always unplug the workstation's power cord from the electrical outlet or power source before opening the workstation.**

---

Use the following tools to remove or replace hardware parts when changing your configuration:

- Light-duty flat blade screwdriver with 150mm (6 inch) long shaft
- T-15 Torx drivers. Note that the screws these drivers are used on have a recessed slot for use by flat-bladed screwdrivers.
- Needle-nose pliers

---

**NOTE**

Many of the HP-UX commands in this chapter will require that you become superuser (`root`). If you cannot log in as `root`, contact your system administrator.

---

## **Front Panel**

This section explains how to open and close the workstation's front panel.

### **Opening the Front Panel**

Perform the following steps to open the workstation.

1. Power off the workstation, and unplug the workstation's power cord from the electrical outlet. Note that when you press the workstation's power switch, the workstation automatically performs a shutdown -q.
2. Attach the static-grounding wrist strap by following the instructions on the package. Attach the sticky end of the wrist strap to bare metal on the back panel of the workstation.
3. Unlatch the front panel (also known as the front bezel) by pressing in on the two latch buttons located on the right side of the front panel. See Figure 4-1. If the front panel does not open, you may have to locate the front panel key and unlock it.

**Figure 4-1**      **Opening the Front Panel**



4. Swing the panel outward on its left snap hinges until the panel comes free and place the front panel in a location where it cannot get broken.

### **Closing the Front Panel**

Perform the following steps to close the workstation.

1. Locate the hinges on the left side of the front panel, and insert them into the holes located along the left edge of the workstation.
2. Rotate the front panel inward until you hear the two latch buttons snap in place. The front panel is now closed. If there is a need to lock the front panel, use the keys that came with your workstation to lock the panel. These keys are located inside the front bezel below the floppy disk drive.
3. Plug in the workstation's power cord, and power on the workstation.

## **Left Side Panel**

This section explains how to open and close the left side panel of the workstation. This side panel will have to be opened whenever you need access to the internal components of the workstation.

### **Opening the Left Side Panel**

Perform these steps to open the left side panel.

---

**WARNING**

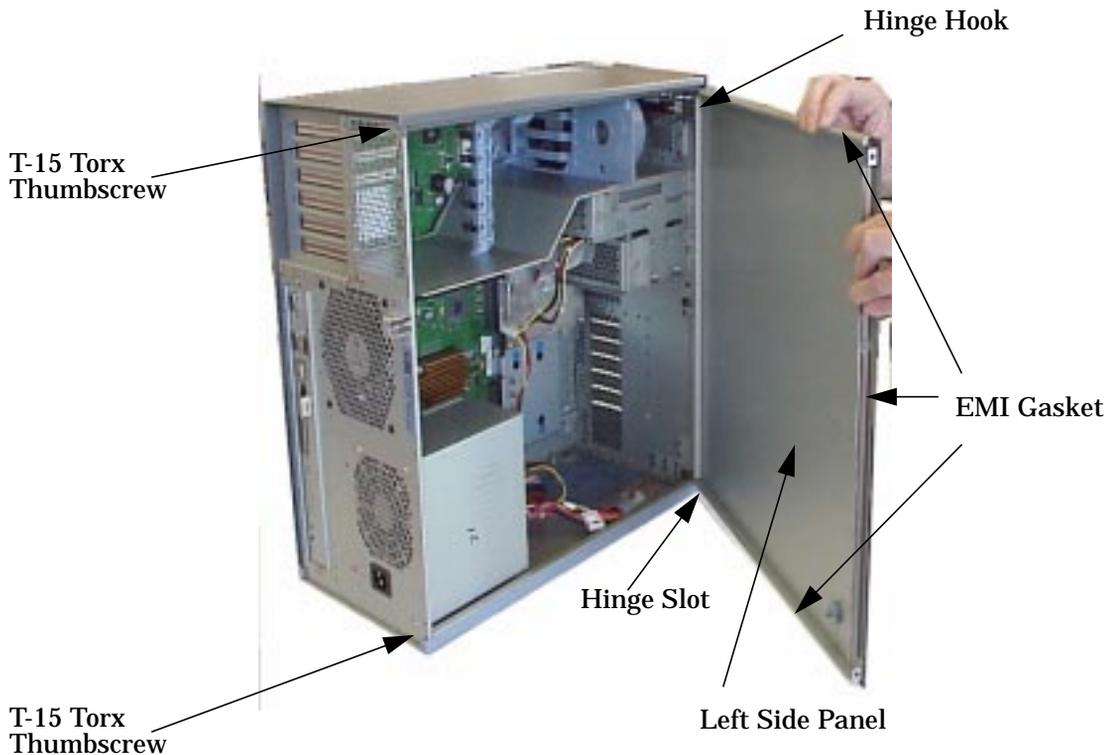
---

**Always unplug the workstation's power cord from the electrical outlet or power source before opening the workstation.**

1. Power off the workstation, and unplug the workstation's power cord from the electrical outlet.
2. Attach the static-grounding wrist strap by following the instructions on the package. Attach the sticky end of the wrist strap to bare metal on the back panel of the workstation.
3. Turn the workstation around so its back is facing you. On the right edge of the workstation, there are two T-15 Torx thumbscrews as shown in Figure 4-2. Remove the two T-15 Torx thumbscrews.

4. Grasp the back edge of the left side panel and rotate it outward approximately 30 degrees to the workstation. Next, pull the panel toward you as shown in Figure 4-2. This releases the panel's top and bottom left side hook hinges from their hinge slots. See Figure 4-2.

**Figure 4-2**      **Opening the Left Side Panel**



---

**NOTE**

The EMI gasket, as shown in Figure 4-2, must not be removed from the side panel.

---

## **Closing the Left Side Panel**

Perform these steps to close the left side panel.

1. Hold the left side panel so that the top and bottom hinge hooks can be inserted into their hinge slots. See Figure 4-2. Note that the hinge slots are located on the far right edge of the workstation (using the back of the workstation as the reference).
2. Swing the back edge of the panel toward the workstation's back edge and press the outside edges of the side panel tightly against the workstation. This will ensure a tight seal of the EMI gaskets.
3. Secure the side panel in place and tighten the two T-15 Torx thumbscrews you previously removed.

---

## I/O Cards

Your B2000 workstation's system board has four Peripheral Connect Interface (PCI) slots for option boards. Slots 1 and 2 are full-size PCI slots. Slots 3 and 4 are half-size PCI slots.

---

### NOTE

The graphics boards supported by your workstation are designed to be electrically compatible with PCI option slots. See Table 1-1 on page 17 for graphics option boards supported in the B2000 workstation.

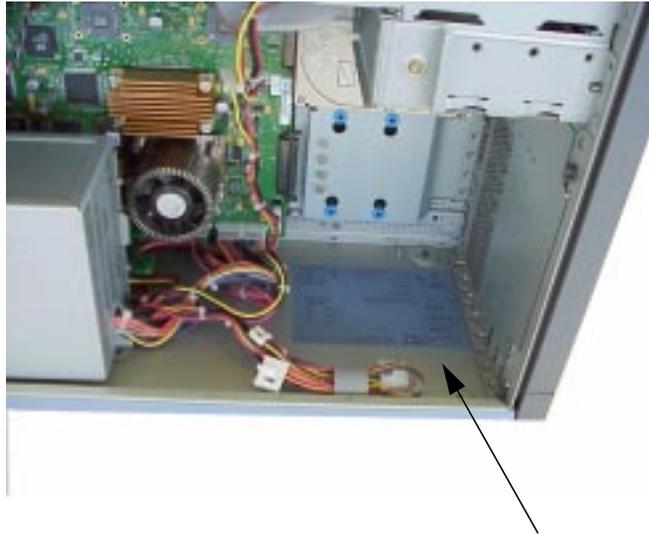
See Figure 4-3 for a brief description of slot capabilities.

**Figure 4-3** PCI Card Slot Numbering and Capabilities

<b>Slot 1</b>	<b>64 bits, 33MHz, 5V</b>
<b>Slot 2</b>	<b>64 bits, 33MHz, 5V</b>
<b>Slot 3</b>	<b>32 bits, 33MHz, 5V</b>
<b>Slot 4</b>	<b>32 bits, 33MHz, 5V</b>

The information described in Figure 4-3 is located inside your workstation on the chassis floor. See Figure 4-4 for the physical location of the B2000 workstation label.

**Figure 4-4**      **Location of B2000 System Label**



B2000 System Label

---

**CAUTION**

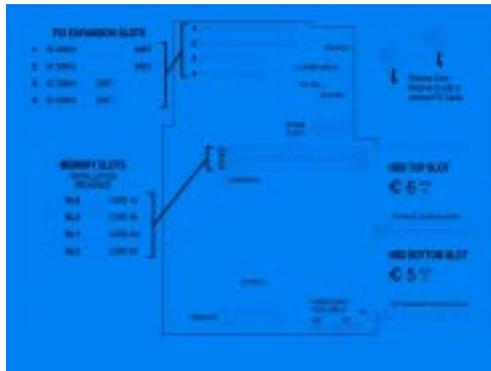
If you are installing an additional graphics card, you **must** insert the *fx* card in Slot 1 for optimal performance.

After you connect the monitor to the additional graphics card, you will need to change the graphics path for that monitor. To do this read the section “Displaying and Setting the Monitor Type” in the chapter “The Boot Console Interface.”

---

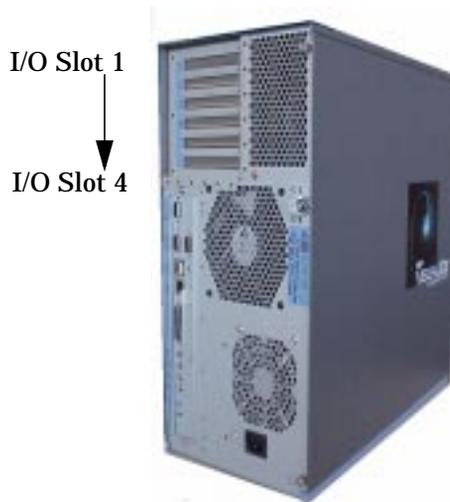
The label on the chassis floor of your workstation contains important information for I/O configuration. See Figure 4-5.

**Figure 4-5** B2000 System Label



Note that the four I/O slots as seen from the back of the workstation are labeled from top to bottom starting with one. See Figure 4-6.

**Figure 4-6** I/O Slot Numbering



### Removing I/O Cards

You will need a T-15 Torx driver or flathead screwdriver to remove the I/O slot bulkhead screws.

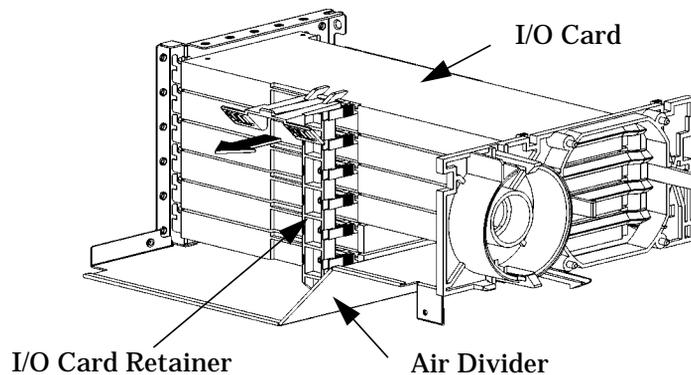
Here are the steps required to remove an I/O card from the workstation.

## Changing Your Workstation's Hardware Configuration

### I/O Cards

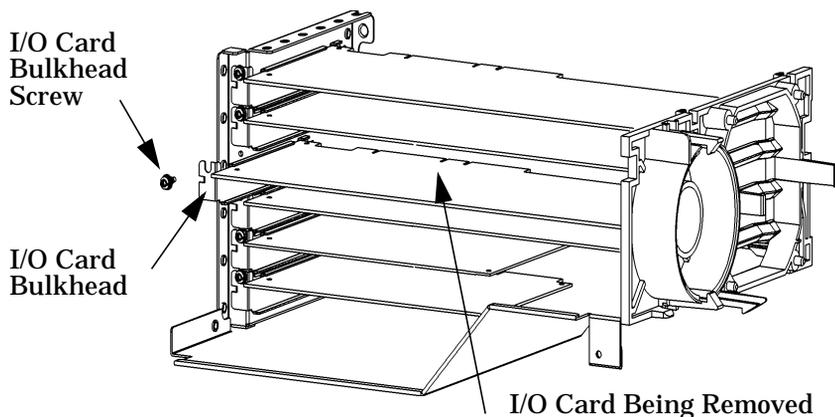
1. Power off the workstation, and unplug the workstation's power cord from the electrical outlet. Note that when you press the workstation's power switch, the workstation automatically performs a shutdown -q.
2. Open the side panel of the workstation as explained in the section "Opening the Left Side Panel" in this chapter.
3. Pull evenly in the direction of the arrow on both PULL tabs of the I/O card retainer to remove it. See Figure 4-7.

**Figure 4-7** Removing the I/O Card Retainer



4. Locate the I/O card you want to remove and using a T-15 Torx driver remove the I/O card's bulkhead screw as shown in Figure 4-8.

**Figure 4-8** Removing the I/O Card



5. Pull evenly on the outside edges of the I/O card to remove it. See Figure 4-8.

## Installing I/O Cards

To install an I/O card into your workstation, follow these steps.

---

### NOTE

The built-in VISUALIZE *fxe* graphics is the primary graphics slot (slot 0). Use the secondary graphics slot (PCI slot 1) for the highest performance graphics card and PCI slot 2 for the second graphics card and then any of the remaining 32 bit slots for the third PCI graphics card.

---

1. Open the left side panel of the workstation as explained in the section “Opening the Left Side Panel” in this chapter.
2. Locate the appropriate slot for the I/O card that is to be installed. See Figure 4-3.
3. Unscrew the T-15 Torx screw and remove the bulkhead blank of the slot you have chosen. If no blank is present, you may skip to step four.
4. Pull evenly in the direction of the arrow on both PULL tabs of the I/O card retainer to remove it. See Figure 4-7.
5. Insert the I/O card into the slot you have chosen with the bulkhead

## Changing Your Workstation's Hardware Configuration

### I/O Cards

appropriately positioned. See Figure 4-8. If the card is full length, the non-bulkhead end of the card should be placed in the I/O card guide. Press firmly and evenly on the I/O card until it is in the connector. Secure the I/O card to the bulkhead with the T-15 Torx screw.

6. Replace the I/O card retainer by placing the bottom retainer hook in the slot on the air divider and the clips on the PULL tabs into their slots on the chassis wall. See Figure 4-7.
7. Close the left side panel of the workstation by following the procedure in the section “Closing the Left Side Panel” in this chapter.

---

**NOTE**

If you connect a monitor to a graphics card, you will need to change the console path as described in “Displaying and Setting Paths” on page 161.

---

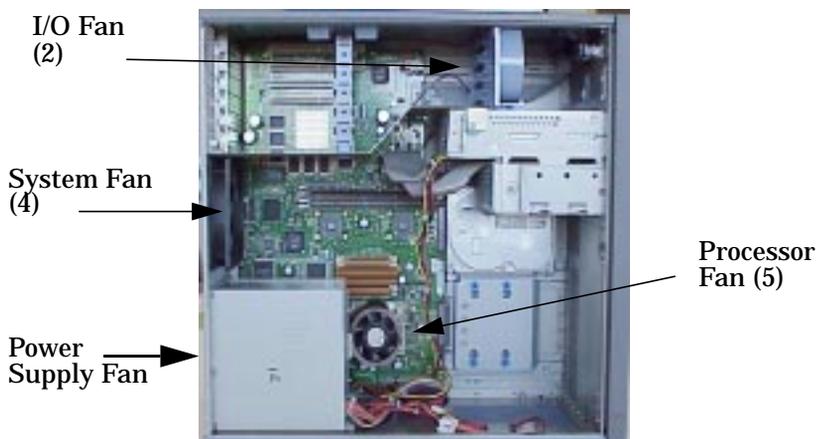
---

## Fans

The B2000 has three internal fans; processor turbo cooler fan, memory fan and the I/O fan. The power supply fan is integrated with the power supply circuitry and is not a stand alone component. Note the turbo cooler fan is mounted to the processor substrate and is not considered a user replaceable part. However, if the system indicates a processor fan failure, the complete system board is replaced.

**Figure 4-9**

### Fan Cooling Areas for the Workstation



---

#### CAUTION

If one of the fans in the fan areas shown in Figure 4-9 is not working as indicated by an LCD error message, you need to call your local Hewlett-Packard support representative. Continuing to operate your workstation with a bad fan will cause damage to the workstation. To determine the fan that needs to be replaced, see “LCD Fan Failures and Warnings” on page 193.

---

## Removable Media Devices

There are only two internal removable media devices allowed in a B2000 workstation:

- CD drive
- 3.5-inch floppy disk drive.

The procedures provided in the subsequent sections explain how to install and remove removable media devices.

### Installing a CD Drive

Install the CD drive by following the procedure covered in this section.

---

#### WARNING

**Turn the workstation off and unplug the power cord before installing the CD drive.**

---

Note that the installed CD drive will not need any jumpers set on the back of your CD drive, as they are set at the factory. However, if you bought a new CD drive to install in your workstation, you will have to make sure that the master/slave/CSEL jumper is set in the CSEL position. Since different manufacturers of CD drives have different locations for the CSEL jumper, look at the documentation that comes with your CD drive for the proper location of this jumper.

---

#### CAUTION

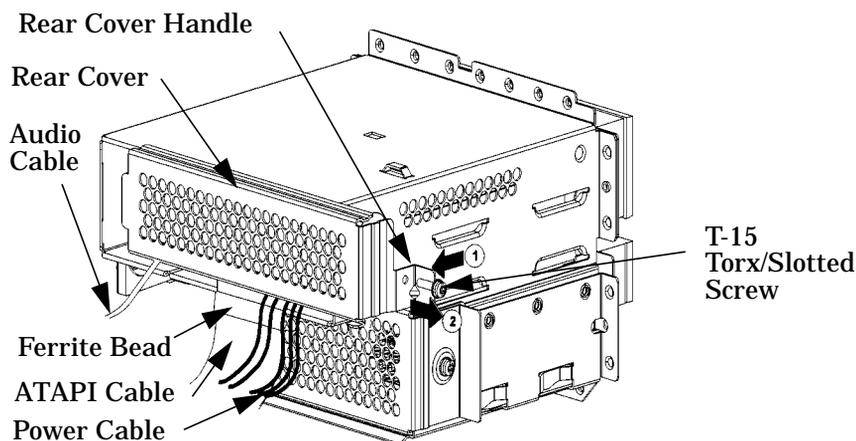
CD drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the CD drive kit. Always handle the drive carefully.

---

1. Perform the procedures in the sections “Opening the Front Panel” and “Opening the Left Side Panel.” The front panel needs to be opened so you can insert the CD drive into its proper location in the chassis. The left side panel needs to be opened so you can get to the CD drive's audio, ATAPI and power connectors.

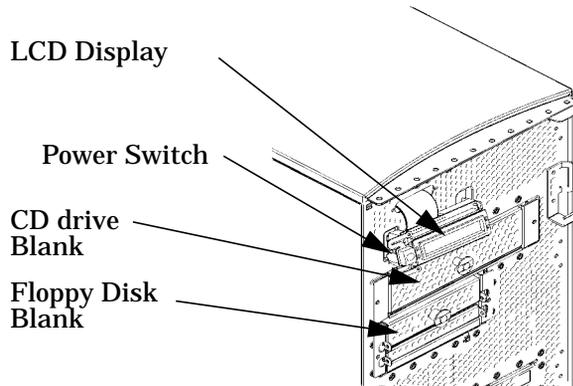
2. Remove the CD drive bay's rear cover by unscrewing the T-15 Torx/slotted screw as shown in Figure 4-10. Note that the CD drive's rear cover is located on the rear of the removable media chassis inside the workstation. Push the cover handle away from the rear of the removable media chassis approximately one inch. Next pull the cover handle toward you. The audio, ATAPI and power cables are now accessible to you.

**Figure 4-10** Removing the CD Drive Bay's Rear Cover



3. Rotate the workstation around until you see the front of the workstation as shown in Figure 4-11.

**Figure 4-11** Front of Workstation with the Front Panel Removed



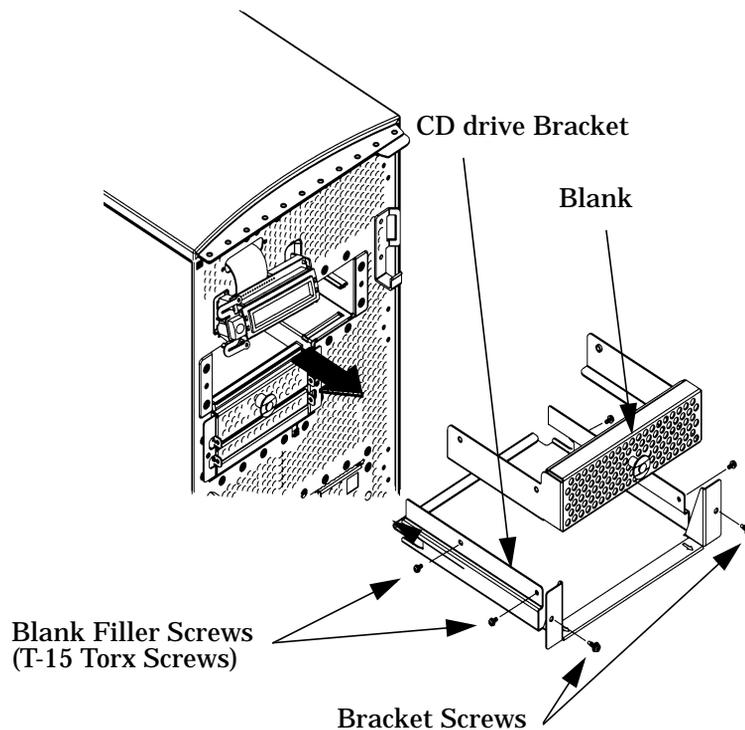
4. Remove both CD drive bracket screws (T-15 Torx/slotted screws) and pull the CD drive bracket out of the chassis assembly as shown in

## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

Figure 4-12. Next remove the four CD drive blank filler screws (T-15 Torx/slotted screws) as shown in Figure 4-12 and remove the blank filler from the bracket. You are now ready to mount the CD drive into the CD drive bracket. Note you will need the blank filler screws to mount the CD drive.

**Figure 4-12** Removing the CD Drive Bracket and Blank



---

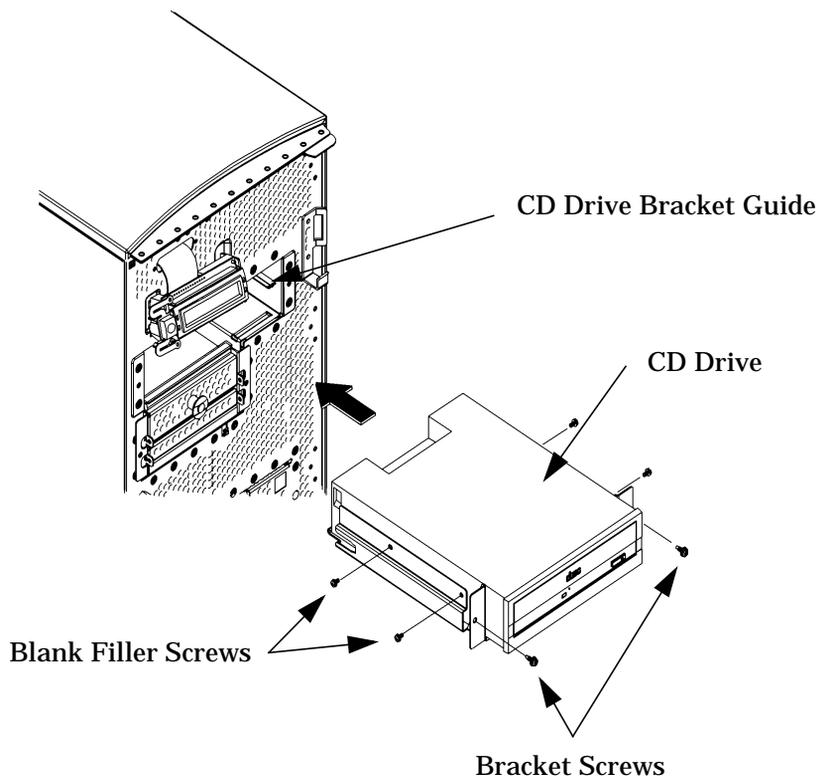
#### CAUTION

CD drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the CD drive kit. Always handle the drive carefully.

---

- Remove the CD drive from its shipping container and check to see that the jumper on the back of the CD drive is set to the C Select position. Using the four blank filler screws (T-15 Torx/slotted screws) that were just removed, mount the disk drive to the bracket as shown in Figure 4-13. The screws should be tightened using 6 inch-pounds of torque. Note that the CD drive should extend approximately one inch out from the front of the CD drive bracket.

**Figure 4-13** Installing the CD Drive



- Slide the CD drive and its bracket into the workstation chassis as shown in Figure 4-13. There are runners on the side of each bracket and guides inside the CD drive chassis that will help the assembly to slide into place.

## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

7. Plug the audio, ATAPI and power cables into their appropriate connectors. Note that the connectors are keyed for proper insertion. See Figure 4-14. To help with plugging in the audio connector, you can pull its cable through the back of the CD drive chassis to the front of the CD drive chassis and connect it. Note that you should connect the audio cable first.

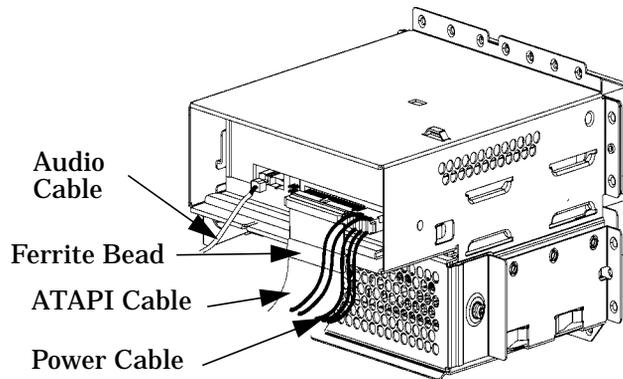
---

**NOTE**

The red striped side of the data cable should be positioned next to the power cable.

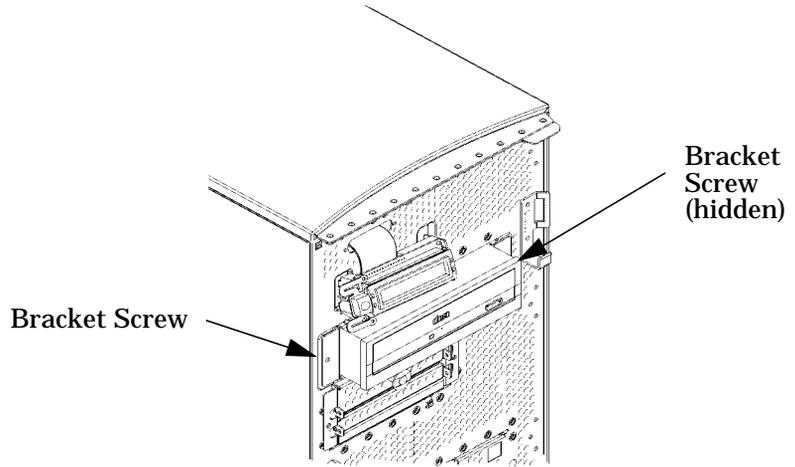
---

**Figure 4-14** Plugging in the Audio, ATAPI and Power Cables



8. Tighten the two CD drive bracket screws as shown in Figure 4-15. The screws should be tightened using 6 inch-pounds of torque.

**Figure 4-15**     **Tightening the Bracket Screws**

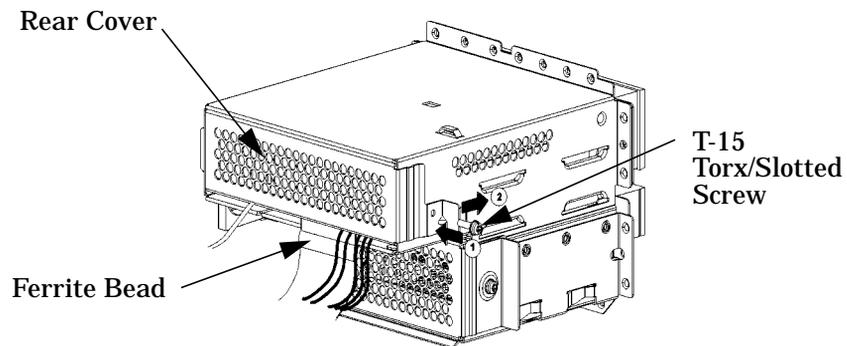


## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

9. Make sure that the audio, ATAPI and power cables are positioned so that they come out of the bottom edge of the CD drive bay's rear cover. This edge is rounded to prevent cutting of the cables. See Figure 4-16. Next, secure the CD drive bay's rear cover using the T-15 Torx/slotted screw. The screw should be tightened using 6 inch-pounds of torque. When you replace the rear cover, the ferrite bead on the ATAPI cable must remain outside of the CD drive bay's rear cover.

**Figure 4-16** Replacing the CD Drive Bay's Rear Cover



10. Remove the plastic CD drive blank from the workstation's front panel.
11. Complete the installation of the CD drive by replacing the front and side panels of the workstation as explained in the sections "Closing the Left Side Panel" and "Closing the Front Panel" in this chapter. You should also make sure that all cables are positioned within the workstation so that they cannot be damaged.
12. Verify that the CD drive is recognized by the system. See the section "Verifying the CD Drive Operation" in Chapter 2, "Using Your CD Drive."

## Removing a CD Drive

This section explains how to remove a CD drive from your workstation.

---

**WARNING**

**Turn the workstation off and unplug the power cord before removing the CD drive.**

---

---

**CAUTION**

CD drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the CD drive kit. Always handle the drive carefully.

---

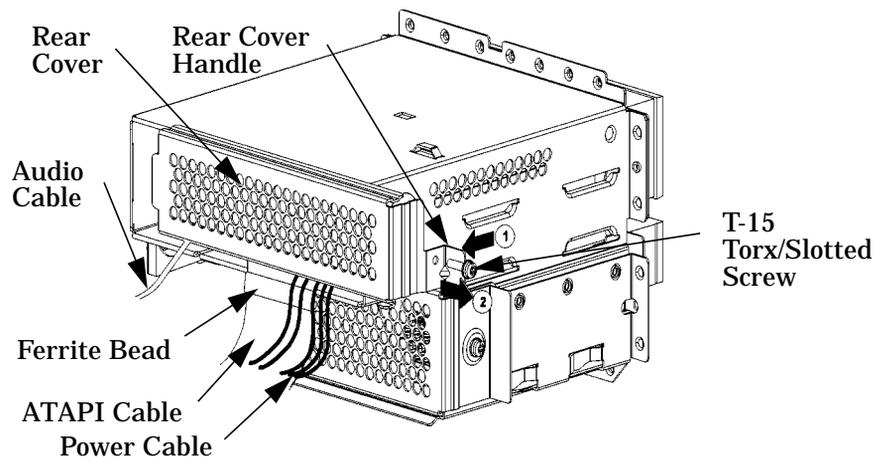
1. Perform the procedures in the sections “Opening the Front Panel” and “Opening the Left Side Panel.” The front panel needs to be opened so you can remove the CD drive from the workstation chassis. The left side panel needs to be opened so you can get to the CD drive’s audio, ATAPI and power connectors.

## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

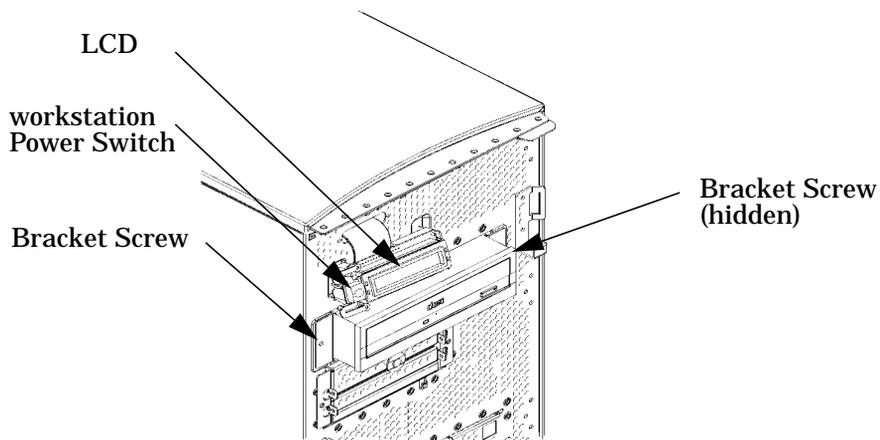
2. Remove the CD drive bay's rear cover by unscrewing the T-15 Torx/slotted screw as shown in Figure 4-17. Note that the CD drive bay's rear cover is located on the back of the removable media chassis inside the workstation. Push the cover handle away from the back of the removable media chassis approximately one inch. Next pull the cover handle toward you. The audio, ATAPI and power cables are now accessible to you. Disconnect these cables from the CD drive.

**Figure 4-17** Removing the CD Drive Bay's Rear Cover



3. Rotate the workstation around until you see the front of the unit as shown in Figure 4-18.

**Figure 4-18 Front of the Workstation with the Front Panel Removed**

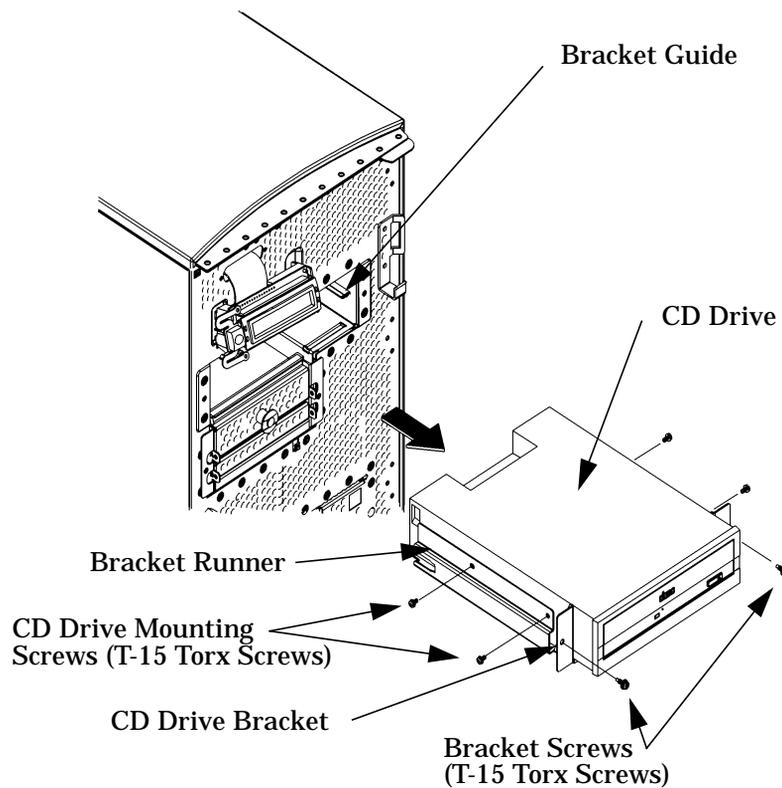


## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

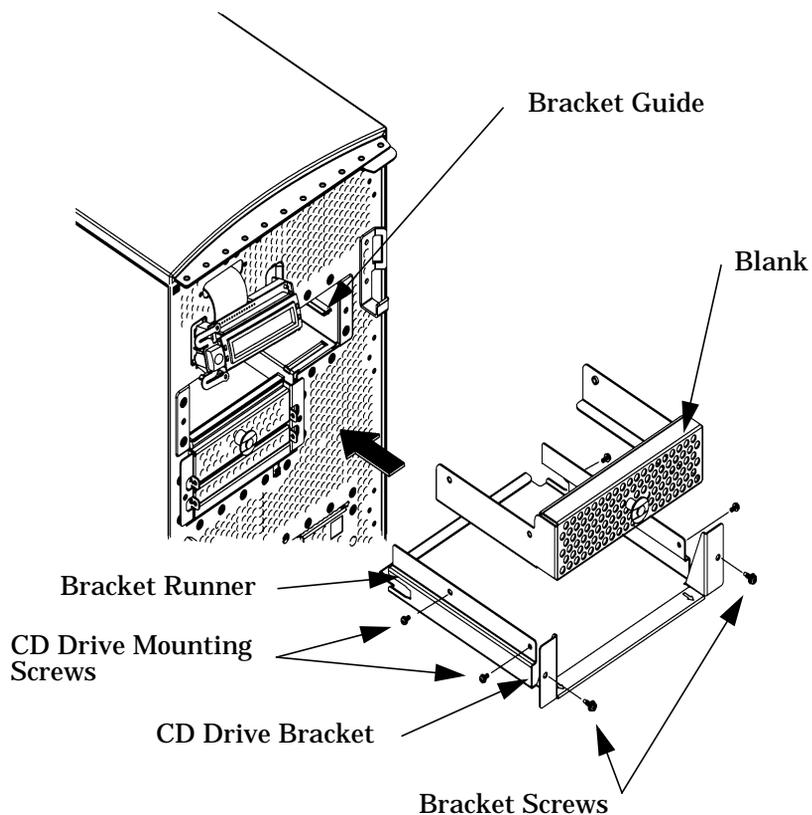
4. Remove both CD drive bracket screws (T-15 Torx/slotted screws) and pull the CD drive out of the chassis assembly as shown in Figure 4-19. Next remove the four CD drive mounting screws (T-15 Torx/slotted screws) as shown in Figure 4-19 and remove the CD drive from the bracket. You are now ready to attach the CD drive blank to the CD drive bracket.

**Figure 4-19** Removing the CD Drive



5. Insert the CD drive blank in the CD drive bracket and tighten the four CD drive mounting screws (T-15 Torx/slotted screws) using 6 inch-pounds of torque. This will secure the CD drive blank in place. Align the bracket runners and bracket guides and slide the CD drive blank and bracket into place. See Figure 4-20.

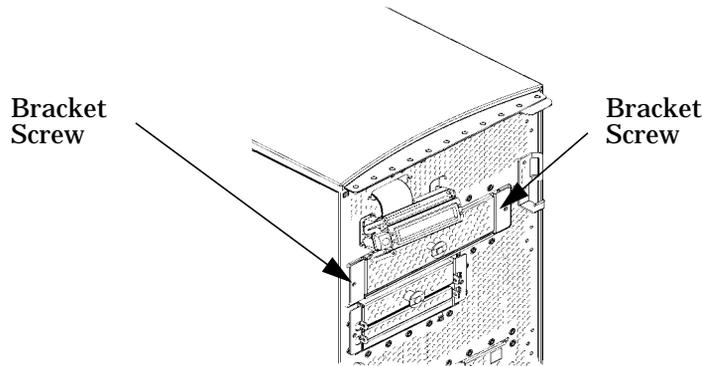
**Figure 4-20** Installing the CD Drive Blank



## Changing Your Workstation's Hardware Configuration Removable Media Devices

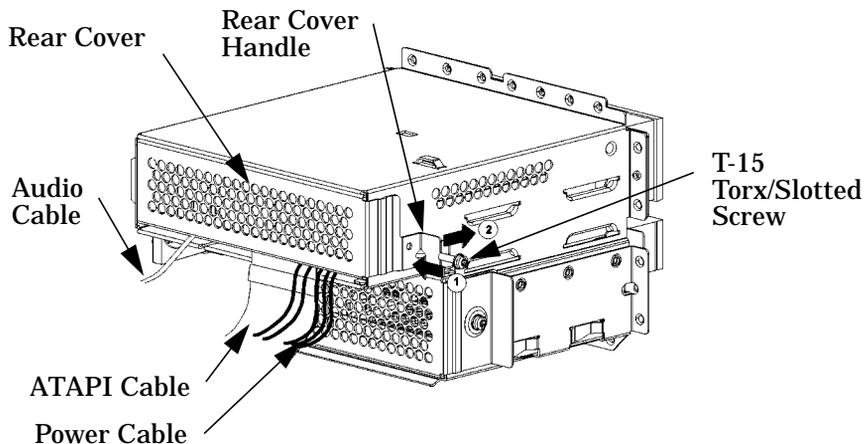
6. Tighten the two CD drive bracket screws as shown in Figure 4-21. These should be tightened using 6 inch-pounds of torque.

**Figure 4-21** Tightening the Bracket Screws



7. Place the audio, ATAPI and power cables inside the CD drive bay, and position the cables so that they go under the bottom edge of the CD drive bay's rear cover. The CD drive bay's rear cover's edge is rounded to keep you from cutting the cables. See Figure 4-22. Next, place the end opposite the rear cover handle into the cover slot, rotate it into place, and tighten the T-15 Torx/slotted screw using 6 inch-pounds of torque. This will secure the rear cover in place. See Figure 4-22. You have completed the removal of the CD drive.

**Figure 4-22** Replacing the CD Drive Bay's Rear Cover



8. Replace the plastic CD drive blank in the workstation's front panel.
9. Replace the left side panel and front panel of the workstation as explained in the sections "Closing the Left Side Panel" and "Closing the Front Panel" in this chapter.

## Installing a Floppy Disk Drive

Install the floppy disk drive by following the procedure covered in this section. Note that there are no jumper settings required for the installation of the floppy disk drive.

---

**WARNING**

**Turn the workstation off and unplug the power cord before installing the floppy disk drive.**

---

---

**CAUTION**

Floppy disk drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the floppy disk drive kit. Always handle the drive carefully.

---

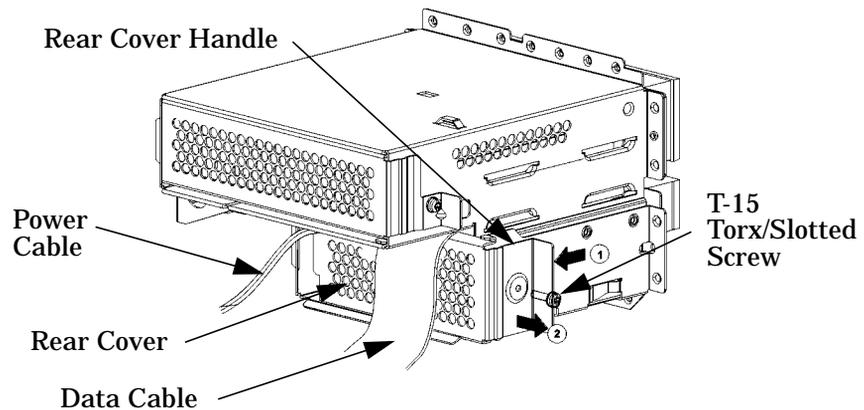
1. Perform the procedures in the sections "Opening the Front Panel" and "Opening the Left Side Panel." The front panel needs to be opened so you can insert the floppy disk drive into its proper location in the chassis. The left side panel needs to be opened so you can get to the floppy's data connector and its power connector.

## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

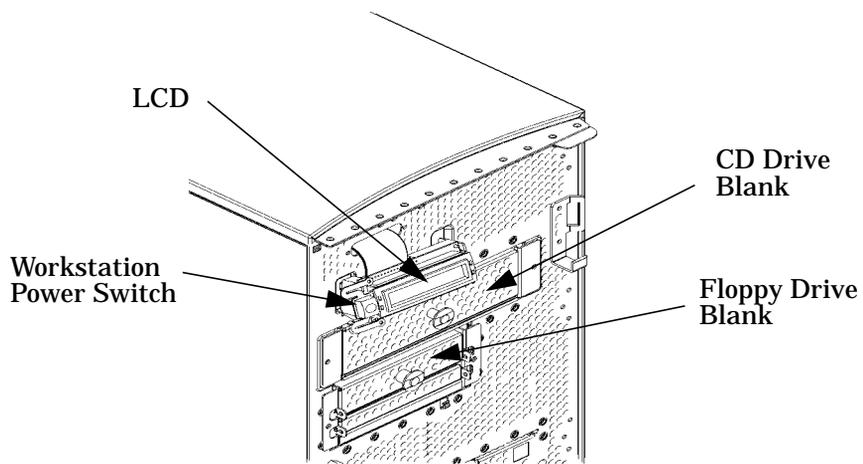
2. Remove the floppy disk drive bay's rear cover by unscrewing the T-15 Torx screw as shown in Figure 4-23. Note that the floppy disk drive bay's rear cover is located on the rear of the removable media chassis inside the workstation. Push the cover handle away from the rear of the removable media chassis approximately one inch. Next pull the cover handle toward you. The floppy data cable and power cable are now accessible to you.

**Figure 4-23** Removing the Floppy Disk Drive Bay's Rear Cover



3. Rotate the workstation around until you see the front of the workstation as shown in Figure 4-24.

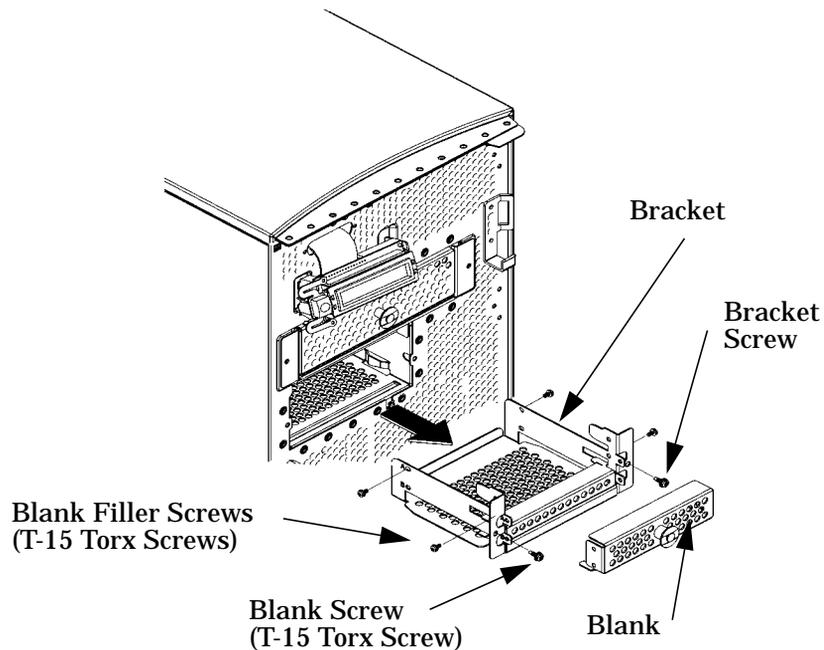
**Figure 4-24** Front of Workstation with the Front Panel Removed



## Changing Your Workstation's Hardware Configuration Removable Media Devices

4. Remove both floppy disk bracket screws (T-15 Torx/slotted screws) and pull the floppy disk bracket out of the chassis assembly as shown in Figure 4-25. Next remove the four floppy disk blank filler screws (T-15 Torx/slotted screws) as shown in Figure 4-25 and remove the blank from the bracket. You are now ready to mount the floppy disk drive into the floppy disk bracket.

**Figure 4-25** Removing the Floppy Disk Bracket and Blank



---

### CAUTION

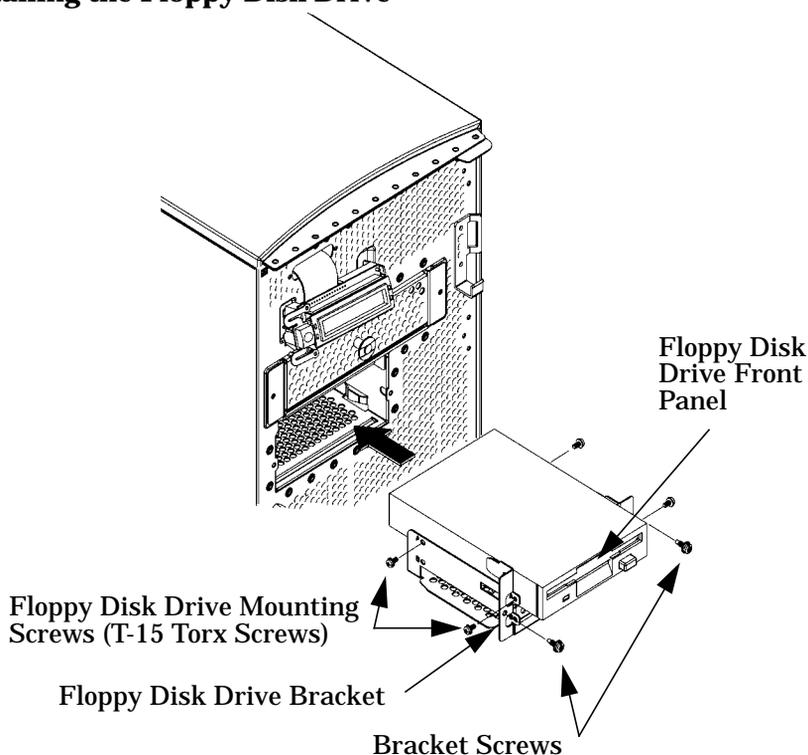
Floppy disk drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the floppy disk drive kit. Always handle the drive carefully.

---

5. Remove the floppy disk drive from its shipping container. Using the four T-15 Torx/slotted blank filler screws, mount the disk drive to the bracket as shown in Figure 4-26.

To help you properly install the floppy disk drive, you need to use the floppy disk drive holes labeled “A” on the bracket sides. The first T-15 Torx screws should be inserted through the tab holes of the floppy disk drive bracket that are located on the front part of both sides of the bracket. These T-15 Torx screws should then be screwed into the screw holes located on both sides of the floppy disk drive. These holes are located near the floppy disk drive’s front panel. The remaining T-15 Torx screws should be inserted through the holes labeled “A” at the back part of the floppy disk drive bracket. These screws should then be screwed into the rear screw holes located on both sides of the floppy disk drive. The front of the floppy disk drive should extend one inch from the front of the floppy disk drive bracket. See Figure 4-26.

**Figure 4-26** Installing the Floppy Disk Drive



6. Slide the floppy disk drive and its bracket into the workstation

## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

chassis as shown in Figure 4-26.

7. Plug the floppy power cable into its connector. Next, plug the data cable into its connector. Note that the connectors are keyed for proper insertion. See Figure 4-27.

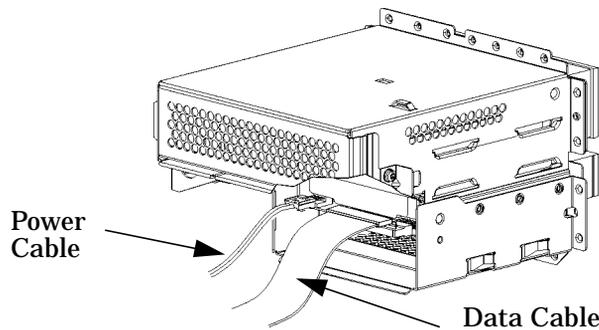
---

**NOTE**

The red striped side of the floppy data cable is positioned toward the power cable.

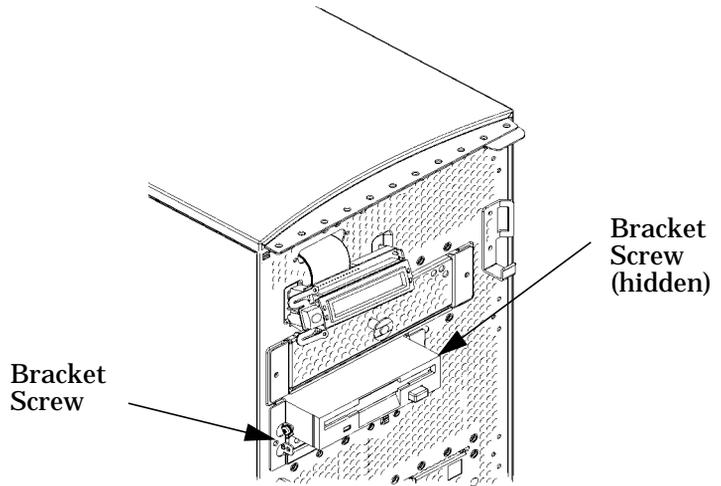
---

**Figure 4-27**     **Plugging in the Floppy Data and Power Cables**



8. Tighten the two floppy disk drive bracket screws as shown in Figure 4-28.

**Figure 4-28**     **Tightening the Bracket Screws**

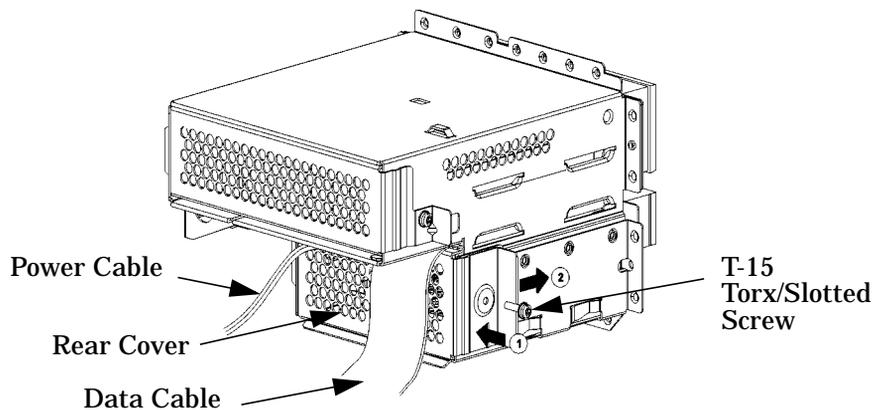


## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

9. Make sure that the floppy data and power cables are positioned so that they come out of the top edge of the floppy disk drive bay's rear cover. This edge is rounded to prevent cutting of the cables. See Figure 4-29. Next, secure the floppy disk drive bay's rear cover using the T-15 Torx/slotted screw. You should tighten the screws using 6 inch-pounds of torque. When you replace the rear cover, the ferrite bead on the data cable must remain inside of the floppy disk drive bay's rear cover.

**Figure 4-29** Replacing the Floppy Disk Drive Bay's Rear Cover



10. Remove the plastic floppy disk drive blank from the workstation's front panel.
11. Complete the installation of the floppy disk drive by replacing the front and side panels of the workstation as explained in the sections "Closing the Left Side Panel" and "Closing the Front Panel" in this chapter. You should also make sure that all cables are positioned within the workstation so that they do not hang loosely. This will prevent damage to the cables.
12. Verify that the floppy disk drive is recognized by the system. See the section "Verifying the Floppy Drive Configuration" in Chapter 3, "Using Your 3.5-Inch Floppy Disk Drive."

## Removing a Floppy Disk Drive

This section explains how to remove a floppy disk drive from your workstation.

---

**WARNING**

**Turn the workstation off and unplug the power cord before removing the floppy disk drive.**

---

---

**CAUTION**

Floppy disk drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the floppy disk drive kit. Always handle the drive carefully.

---

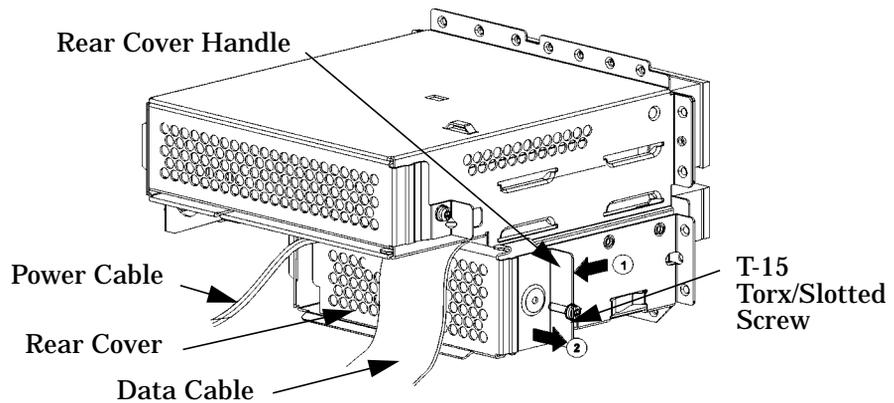
1. Perform the procedures in the sections “Opening the Front Panel” and “Opening the Left Side Panel.” The front panel needs to be opened so you can remove the floppy disk drive from the workstation chassis. The left side panel needs to be opened so you can get to the floppy disk drive’s data connector and its power connector.

## Changing Your Workstation's Hardware Configuration

### Removable Media Devices

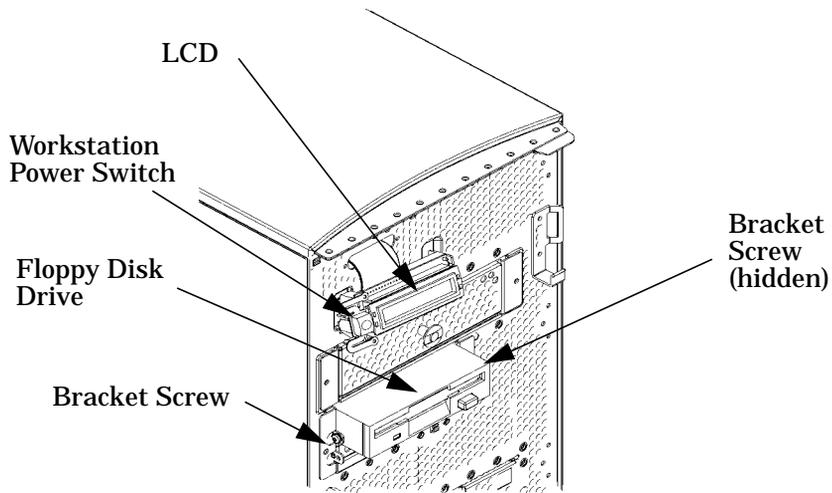
2. Remove the floppy disk drive bay's rear cover by unscrewing the T-15 Torx/slotted screw as shown in Figure 4-30. Note that the floppy disk drive bay's rear cover is located on the rear of the removable media chassis inside the workstation. Push the cover handle away from the rear of the removable media chassis approximately one inch. Next pull the cover handle toward you. Remove the floppy data and power cables from their connectors.

**Figure 4-30** Removing the Floppy Disk Drive Bay's Rear Cover



3. Rotate the workstation around until you can see the front of the workstation as shown in Figure 4-31.

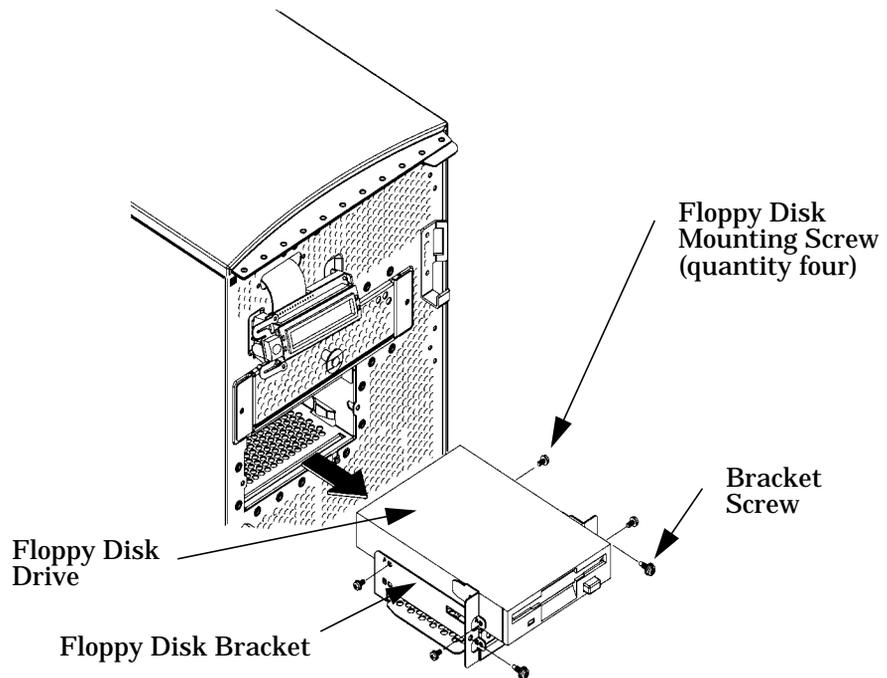
**Figure 4-31 Front of Workstation with the Front Panel Removed**



Changing Your Workstation's Hardware Configuration  
**Removable Media Devices**

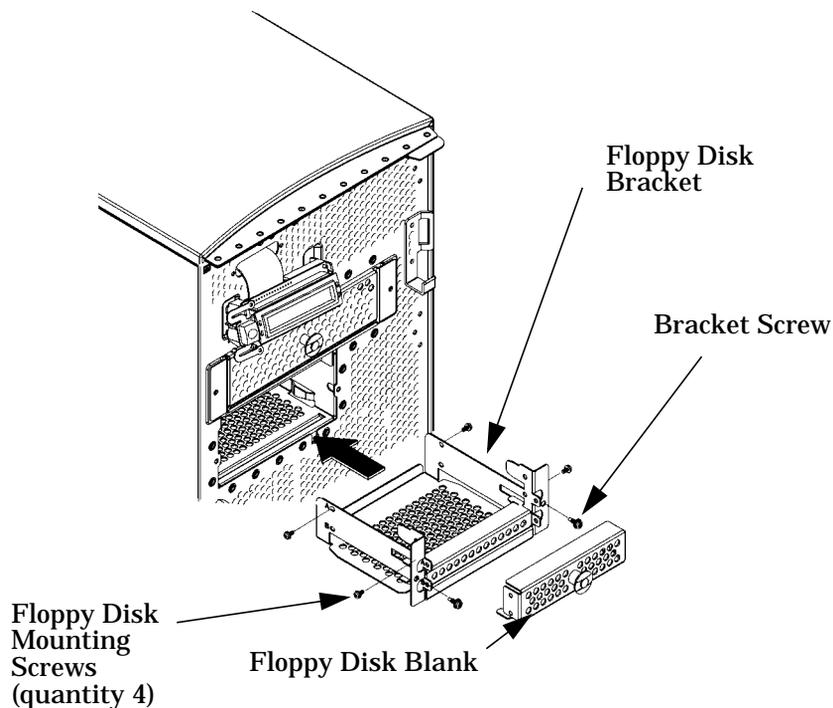
4. Remove both floppy disk bracket screws (T-15 Torx/slotted screws) and pull the floppy disk drive out of the chassis assembly as shown in Figure 4-32. Next remove the four floppy disk drive mounting screws (T-15 Torx/slotted screws) as shown in Figure 4-32 and remove the floppy disk drive from the bracket. You are now ready to attach the floppy disk drive blank to the floppy disk drive bracket.

**Figure 4-32** Removing the Floppy Disk Drive



5. Place the floppy disk blank in the floppy disk bracket and insert the four floppy disk mounting screws (T-15 Torx/slotted screws) into the bracket and tighten. See Figure 4-33.

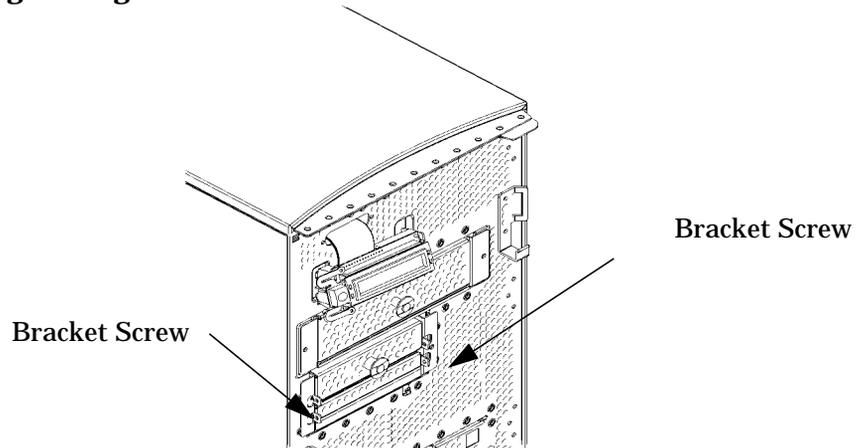
**Figure 4-33** Installing the Floppy Disk Blank and Bracket



6. Slide the floppy disk blank and its bracket into the workstation chassis as shown in Figure 4-33.

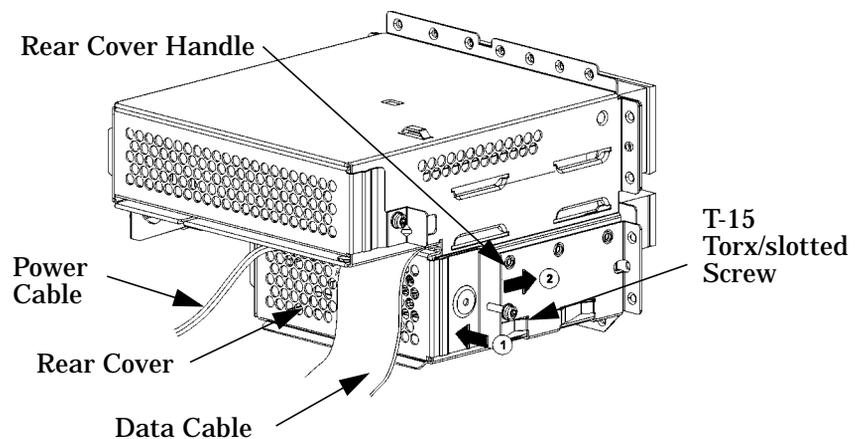
7. Tighten the two floppy disk bracket screws as shown in Figure 4-34.

**Figure 4-34** Tightening the Bracket Screws



8. Make sure that the floppy data and power cables are positioned so that they come out of the top edge of the rear floppy disk drive bay's cover. This edge is rounded to prevent cutting of the cables. See Figure 4-35. Put the rear cover in place and tighten the T-15 Torx/slotted screw.

**Figure 4-35** Replacing the Rear Floppy Disk Drive Bay's Cover



9. Replace the plastic floppy disk drive blank in the workstation's front

panel.

10. Complete the removal of the floppy disk drive by replacing the front and side panels of the workstation as explained in the sections “Closing the Left Side Panel” and “Closing the Front Panel” in this chapter. You should also make sure that all cables are positioned within the workstation so that they do not hang loosely. This will prevent damage to the cables.

## Hard Disk Drives

This section describes how to install a hard disk drive in your workstation and how to remove it from your workstation. The first section details how to install a hard disk drive. The second section details how to remove a hard disk drive. The final section explains how to configure your hard disk after it is installed.

Your workstation can have two internal hard disk drives. These internal hard disk drives are devices on the Ultra2 Wide Low-Voltage Differential SCSI bus. The hard disk drive that came with your workstation was set to SCSI ID 6 on the Ultra2 Wide Low-Voltage Differential SCSI bus. If you are adding a second internal hard disk drive, the second hard disk drive will use SCSI ID 5 on the Ultra2 Wide Low-Voltage Differential SCSI bus. Note that the two slots for the hard disk drives have SCSI ID numbers 5 and 6 preassigned to them and SCSI ID 6 is the system disk. You will not be able to change these SCSI ID numbers.

---

### CAUTION

Hard disk drives are susceptible to mechanical and electronic shock. When handling the drive, always wear the static-grounding wrist strap that came in the disk drive kit. Always handle the drive carefully.

---

## Installing a Hard Disk Drive

This procedure explains how to install your hard disk drive in the slot that has been preassigned SCSI ID 5. On internal hard disk drives, the slot determines the addressing. There are no cables required when installing a hard disk drive. Note that to install the hard disk drive, your workstation must be turned off.

---

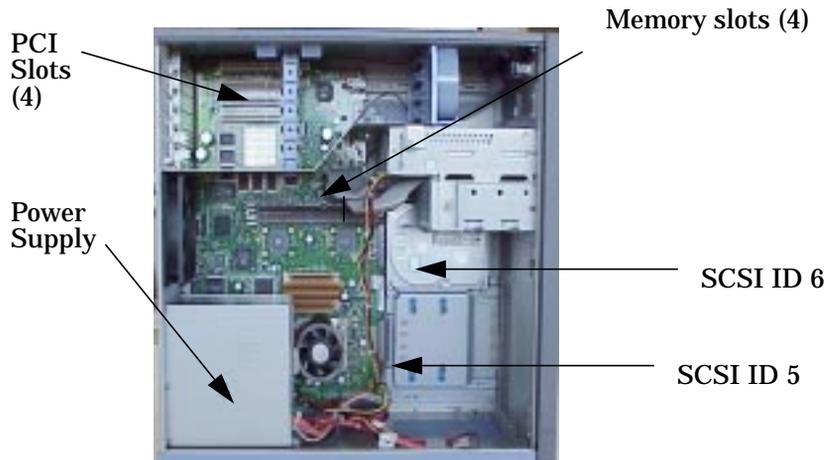
### NOTE

If you are installing a hard disk drive, you will need to mount it and create a file system on it. See “Configuring a Hard Disk Drive as a File System” on page 127. This should be done after you have installed the hard disk drive.

To mount a hard disk drive and create a file system on it use the procedure provided in the section “Adding a Hard Disk Drive as a File System Using SAM” found in this chapter.

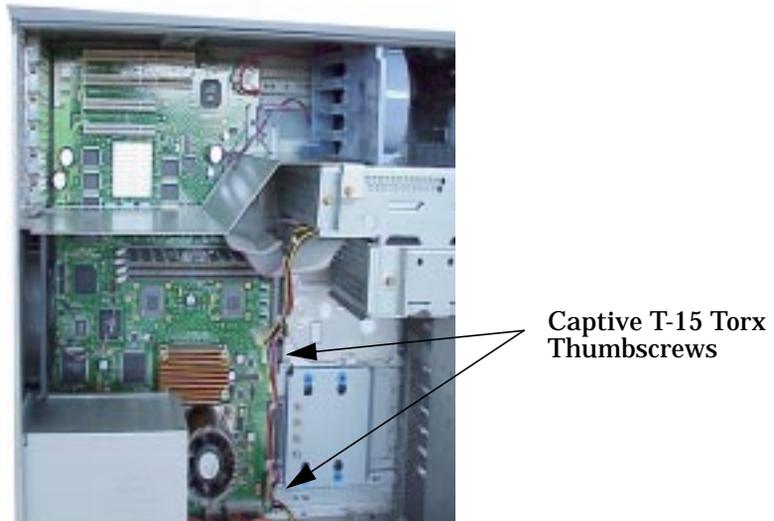
- 
1. Remove the side panel of your workstation using the instructions found in the section “Opening the Side Panel.” As you face the workstation system board, the hard disk drives are on the right side. The hard disk drive plugged into the lower SCSI connector (ID 5) is the one discussed in this section. See Figure 4-36.

**Figure 4-36** The Hard Drive Slots



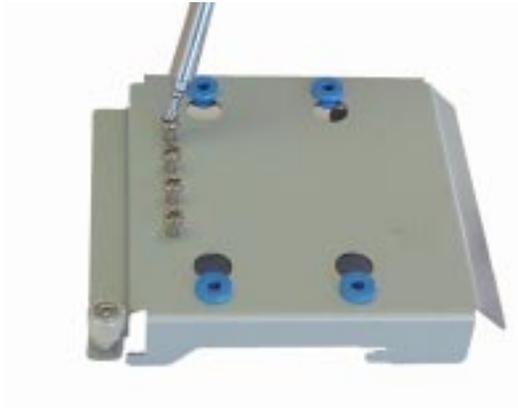
2. Loosen the captive T-15 Torx thumbscrew securing the disk drive tray to the system board. As you grasp the tray and slide to the front of the workstation, the tray will unseat from the chassis rail. See Figure 4-37. You may need to angle the disk drive tray slightly to disengage the hooks as you slide it along the rail.

**Figure 4-37**    **Removing the Hard Disk Drive Bracket**

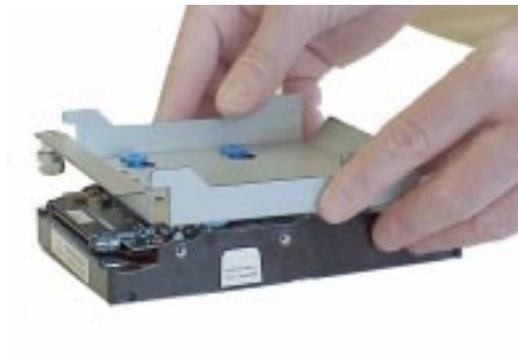


3. Mount the hard disk drive on the hard drive bracket using the four T-15 Torx shoulder screws that are stored on the mounting bracket. See Figure 4-38 for location of the shoulder screws and Figure 4-39 for positioning the bracket to the hard disk drive.

**Figure 4-38** T-15 Torx Shoulder Screws

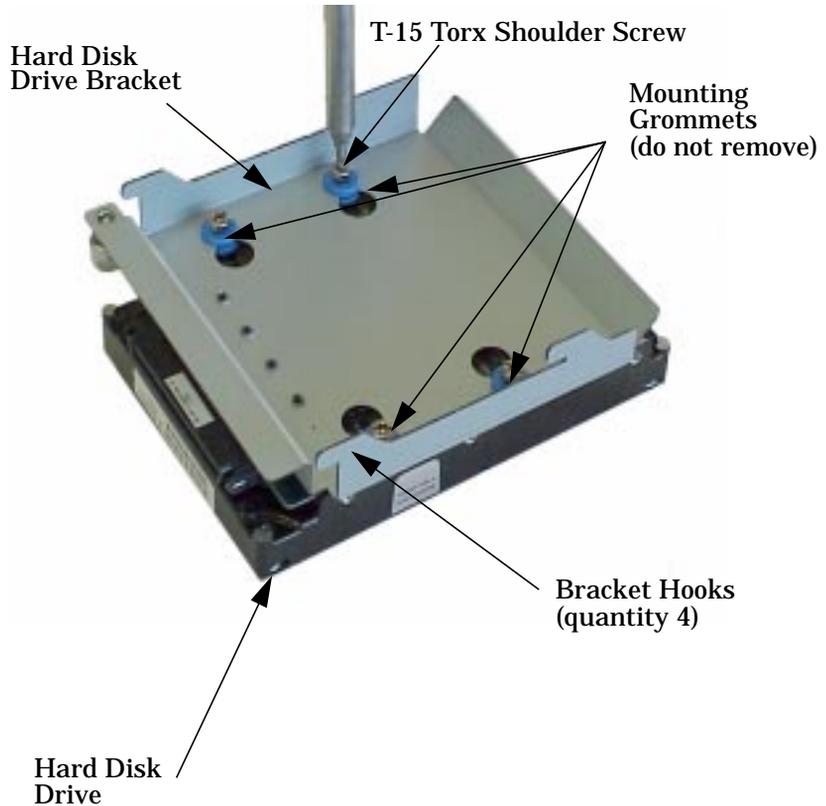


**Figure 4-39** Positioning the Bracket to the Hard Disk Drive



4. Insert the T-15 Torx Hard Disk Mounting Screws through the rubber mounting grommets and into the screw holes located on the sides of the hard disk drive. See Figure 4-40.

**Figure 4-40**    **Inserting the Hard Disk Drive**



5. Slide the assembly into its hard drive slot, and push inward firmly until the front of the hard disk drive bracket is flush with the disk drive connector on the system board. See Figure 4-41. The bracket hooks will lock into the chassis rail. The side panel should now be replaced as described in the section “Closing the Side Panel” in this chapter.

Changing Your Workstation's Hardware Configuration  
**Hard Disk Drives**

**Figure 4-41** Positioning the Hard Disk Drive Assembly



## Removing a Hard Disk Drive

This procedure explains how to remove your hard disk drive. Note that there are no cables to disconnect when removing a hard disk drive. To remove a hard disk drive, your workstation must be turned off.

---

### NOTE

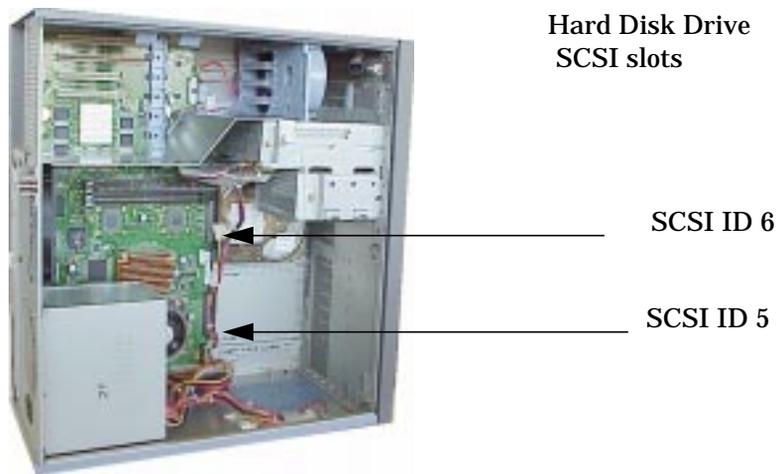
If you are removing a hard disk drive that has a mounted file system on it, you will need to unmount it. This should be done before you remove the hard disk drive.

To unmount a file system on a hard disk drive use the procedure provided in the section “Removing a Hard Disk Drive as a File System Using SAM” found in this chapter.

---

1. Open the side panel of your workstation using the instructions found in the section “Opening the Side Panel.” As you face the workstation system board, the hard disk drives are on the right side. The lower slot (ID5) on the right is the one discussed in this section. See Figure 4-42.

**Figure 4-42** The Hard Drive Slots

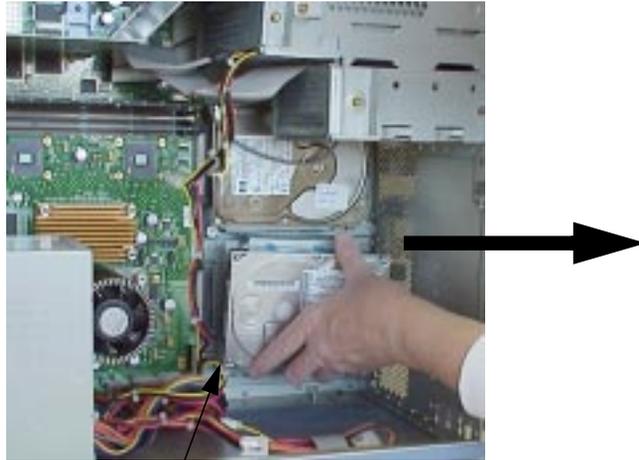


## Changing Your Workstation's Hardware Configuration

### Hard Disk Drives

2. Loosen the T-15 Torx thumbscrew securing the disk drive tray to the system board. As you grasp the bracket and slide to the front of the workstation, the bracket will unseat from the chassis rail. See Figure 4-43. You may need to angle the disk drive bracket slightly to disengage the hooks as you slide it along the rail.

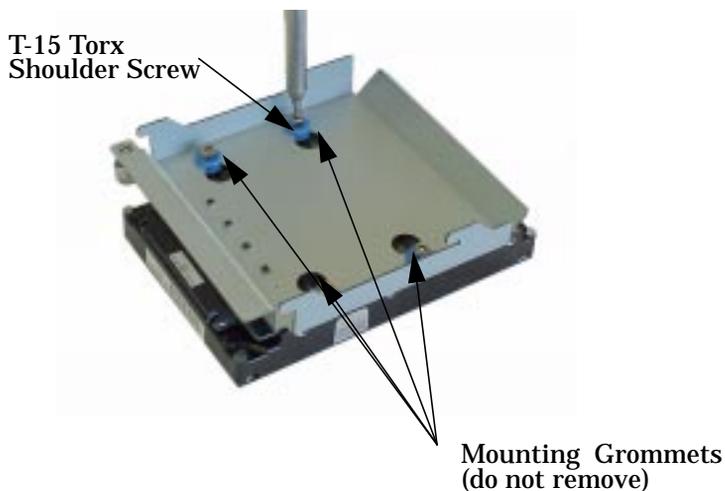
**Figure 4-43** Removing the Hard Disk Drive



Captive T-15 Torx Thumbscrew

3. Remove the four T-15 Torx shoulder screws from the hard disk drive and bracket. See Figure 4-44. You should be careful when removing the hard disk drive from its mounting bracket to avoid damaging it. Note that in order to remove the T-15 Torx screws from the sides of the hard disk drive you will have to have a T-15 Torx driver that is long enough to fit through the access holes on the sides of the hard disk drive bracket.

**Figure 4-44** Removing the Hard Disk Drive from Its Bracket



## Changing Your Workstation's Hardware Configuration

### Hard Disk Drives

4. Replace the four mounting screws on the hard disk drive bracket to store them for future use. Slide the mounting bracket into its hard drive slot, and push firmly inward to secure the hard drive bracket to the system board connector. Tighten the T-15 Torx thumbscrew to secure the bracket to the system board. See Figure 4-45. The side panel should now be replaced as explained in the section “Closing the Left Side Panel” on page 80 in this chapter.

**Figure 4-45** Replacing the Hard Disk Drive Bracket



## Configuring a Hard Disk Drive as a File System

This section describes how to add a hard disk drive to your workstation as a file system using SAM and how to remove the hard disk drive from your workstation. For more information about configuring a hard disk drive, refer to the manual *Managing Systems and Workgroups*.

The procedures in this section require you to log in as `root`. If you cannot log in as `root`, contact your system administrator.

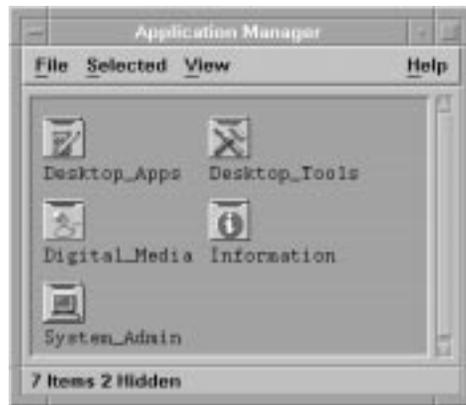
### Adding a Hard Disk Drive as a File System Using SAM

Here is the procedure you need to follow to add a hard disk drive as a file system using SAM.

1. Log in as `root`.
2. Move the mouse pointer to the **Application Manager** control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



## Changing Your Workstation's Hardware Configuration

### Hard Disk Drives

4. Double click on the **Sam** icon in the **Application Manager -- System\_Admin** window. If you are root, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Disks and File Systems** icon.



6. Double click on the **Disk Devices** icon.



The following screen message is displayed:

```
Scanning the system's hardware...
```

The **Disk and File Systems** window opens containing a list of drives installed in this workstation. From the list of devices, choose the hard disk drive you would like to configure as a file system by clicking on the device to highlight it.

7. Click on **Add** in the Actions menu. For this example you will select the item **Not Using the Logical Volume Manager**. However, you can select any appropriate item from the **Actions** menu.

8. Enter the mount directory name (for example, /disk1) in the **Mount Directory** field of the **Add Disk without LVM** window.
9. Click on the **OK** button in the **Add Disk without LVM** window. You will need to wait for a short time before the new file system is created and the hard disk drive is mounted. When the **Add Disk without LVM** window disappears and HFS appears in the Use column of the **Disk and File Systems** window, your task will be complete.

### Removing a Hard Disk Drive as a File System Using SAM

Here is the procedure you need to follow to remove a hard disk drive as a file system using SAM.

1. Log in as root.
2. Move the mouse pointer to the **Application Manager** control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



## Changing Your Workstation's Hardware Configuration

### Hard Disk Drives

4. Double click on the Sam icon in the **Application Manager -- System\_Admin** window. If you are root, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Disks and File Systems** icon.



6. Double click on the **Disk Devices** icon.



The following screen message is displayed:

```
Scanning the system's hardware...
```

The **Disk and File Systems** window opens containing a list of devices installed in this workstation. From the list of devices, choose the hard disk drive you would like to remove (unmount) by highlighting that device.

7. Click on **Remove** in the **Actions** menu. In the window that next appears, click on the **Yes** button. This will unmount the file system located on the hard disk drive you are removing from the workstation. You will need to wait for a short time before the new file system is unmounted. The file system is successfully unmounted when you see Unused in the Use column.

## Memory Cards

This section contains information regarding the installation and removal of memory (DIMM<sup>1</sup> cards). However, before continuing with this section, please take time to read the following list of considerations:

- Use the procedure described in Chapter 5, “The Boot Console Interface,” to determine the current memory configuration for this workstation. This should be done before trying to install additional memory DIMMs in your workstation.
- Read over the steps in the section “Installing Additional Memory” before you begin the installation of your DIMM cards.

### Installing Additional Memory

Perform the following steps to add memory (DIMM cards) to your workstation.

---

**WARNING**

**Turn the workstation off and unplug the power cord before installing additional memory.**

---

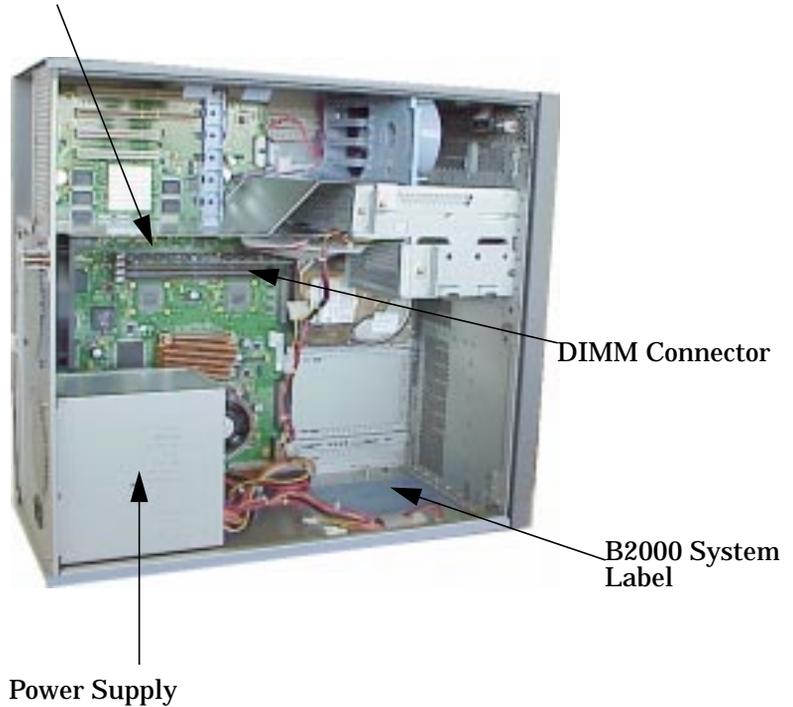
1. Open the side panel of the workstation as explained in the section “Opening the Left Side Panel” on page 78 in this chapter.

---

1. Dual In-Line Memory Module

**Figure 4-46** View of System Board

DIMM Card



---

**NOTE**

Reference the B2000 system label for the correct memory loading sequence.

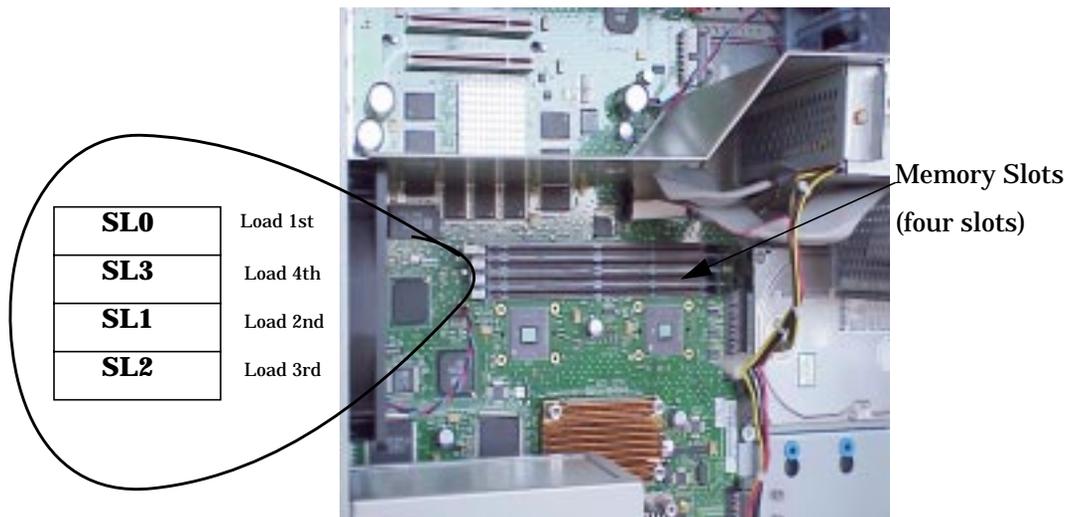
---

## Changing Your Workstation's Hardware Configuration

### Memory Cards

2. Position the memory slots so they face you as shown in Figure 4-47. Note that Figure 4-47 also provides the loading sequence for the DIMM cards. This loading sequence must be maintained when you install the DIMM cards, but the size of the DIMM card put in each slot can vary. For example, you can install a 256Mbyte card before a 512Mbyte card and then follow the installation of the 512Mbyte card with another 256Mbyte card. The B2000 workstations supports 128 Mbyte, 256 Mbyte and 512 Mbyte DIMM cards.
3. Locate the four internal memory slots, and load the DIMM cards in the slots using the loading sequence provided in Figure 4-47. Note that the label located on the floor of the chassis describes the installation sequence.

**Figure 4-47** Memory Card Slot Numbers and Loading Sequence



---

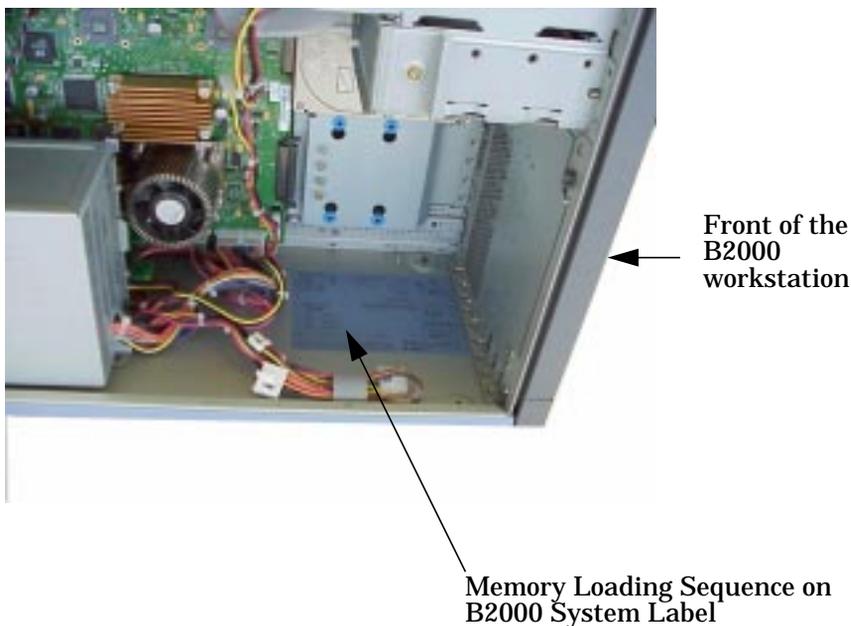
**NOTE**

When installing memory, you need to orient the notches on the bottom edge of the DIMM card so that they are aligned with the keys on the DIMM connector. See Figure 4-49. The keyed DIMM connectors prevent you from installing the DIMM cards backwards.

---

For referencing the DIMM loading sequence see the label on the chassis floor. See Figure 4-48.

**Figure 4-48 B2000 System Label**

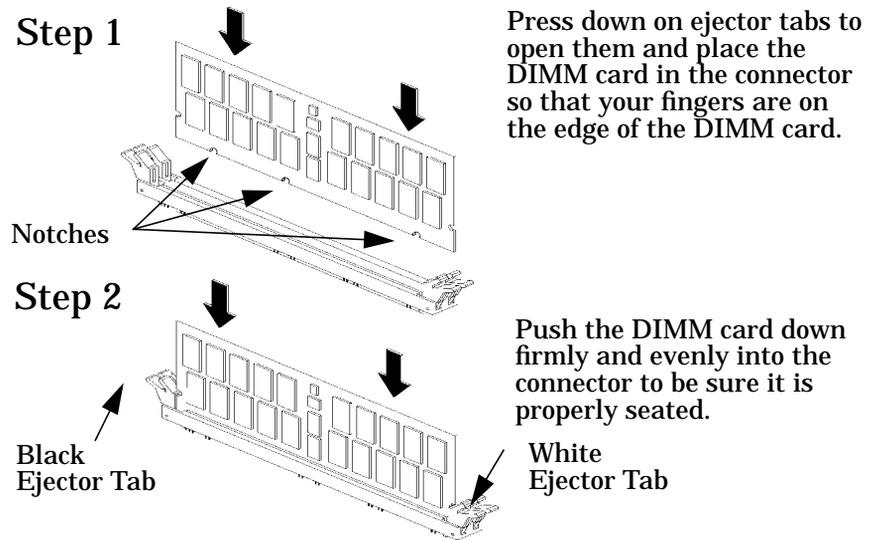


## Changing Your Workstation's Hardware Configuration

### Memory Cards

4. Press downward on the ejector tabs located on both sides of the DIMM connector. See Figure 4-49. This opens the connector for DIMM card insertion.

**Figure 4-49** Installing Memory Cards



5. Place the DIMM card in the connector, lining it up with the guides. Make sure you align the notches on the bottom edge of the DIMM card with the DIMM connector keys. See Figure 4-49.
6. Press firmly and evenly on the DIMM card to ensure that it seats properly.

---

**NOTE**

The ejector tabs will return to the locked position when the DIMM card is fully seated in the connector.

---

7. Replace the left side panel as explained in the section “Replacing the left side panel” in this chapter. Plug the power cord back in to the electrical outlet.
8. Verify that this installation was successful by following the steps in the section “Displaying the Current Memory Configuration” on page 173 in Chapter 5, “The Boot Console Interface.”

Once you have completed the steps listed above, your DIMM cards are properly loaded.

## Removing Memory

Perform the following steps to remove memory (DIMM cards) from your workstation.

---

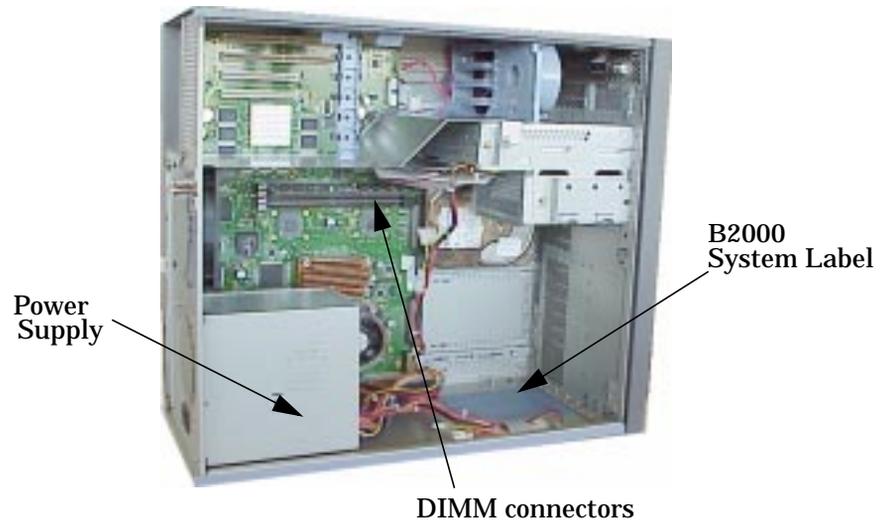
**WARNING**

---

**Always unplug the workstation's power cord from the electrical outlet or power source before opening the workstation.**

1. Open the side panel of the workstation as explained in the section "Opening the Left Side Panel" on page 78 in this chapter.

**Figure 4-50** System Board View



**Figure 4-51** DIMM Slot Close-Up on System Board



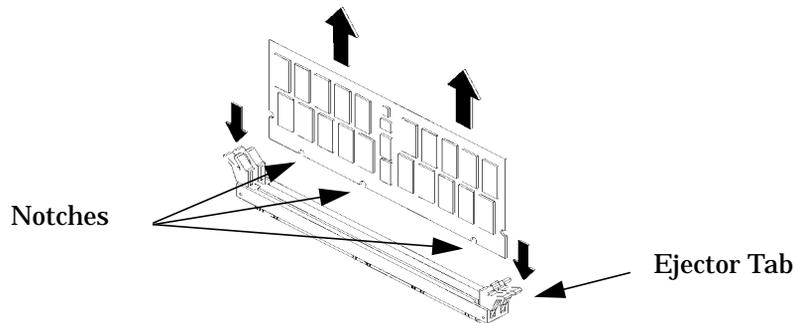
DIMM Connectors  
(4 slots)

## Changing Your Workstation's Hardware Configuration

### Memory Cards

2. Press downward on the ejector tabs located on both sides of the DIMM connector. See Figure Figure 4-52. This raises the DIMM card for easy extraction.

**Figure 4-52** Removing Memory Cards



3. Lift up evenly on the outside edges of the DIMM card to remove it. See Figure 4-52.
4. Install the remaining DIMM cards in the correct order. See Figure 4-47 or the system label.
5. Replace the left side panel as explained in the section “Replacing the Left Side Panel” in this chapter. Plug the power cord back in to the electrical outlet.
6. Verify that this removal was successful by following the steps in Chapter 5, “The Boot Console Interface.” Note that you can also use SAM and select the **Performance Monitor** icon, then the **System Properties** icon, and in the window that appears, select the tab labeled **Memory**.

## Monitor Type

Your workstation ships from the factory preset to use a monitor with a specific resolution and frequency. If you replace your monitor with a different type, you must reconfigure your workstation to support it.

There are three ways to configure your workstation to support a different monitor type. They are discussed in the subsequent sections.

### Setting the Monitor Type at Power On

If you replace your workstation's monitor with a different type of monitor, and you have not set the workstation's graphics parameters by using the Boot Console Interface's `monitor` command, you can still configure your workstation's new monitor type when you reboot the workstation.

To set the monitor type, you will need to:

1. Press the **Tab** key after your keyboard's Num Lock light comes on during the boot process to initiate the automatic monitor selection process. Your system will query you for a new monitor type. Note that if you have waited more than 2 minutes for a monitor type to appear, go to the section "Troubleshooting Monitor Problems" in this chapter.
2. Select one of the monitor types listed on the screen and press **Enter**. If your monitor is not listed in the section "Monitors" in Chapter 1, "Overview," a common monitor type to select is 12.
3. Answer yes, by pressing **Y**, to the system query to confirm your selection. Note that if you do not make a selection, the workstation cycles through a limited number of monitor types continuously until you do make your selection. See the section "Displaying and Setting the Monitor Type" on page 163.

## **Setting the Monitor Type from the Boot Console Interface**

To change your system's graphics parameters before you replace your monitor, go to the section "Displaying and Setting the Monitor Type" on page 163 in Chapter 5.

## **Setting the Monitor Type Using SAM**

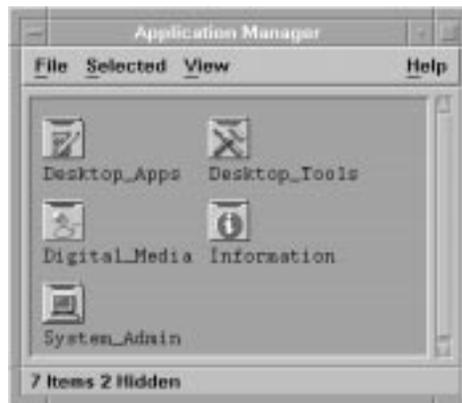
This method for setting the monitor type requires the use of the HP CDE interface. This means that you should have already set your monitor type using one of the methods defined in a previous section, or you have an Instant Ignition workstation that boots up using the HP CDE interface.

To use the **System Administration Manager** (SAM) to set the monitor type, follow the steps in this procedure:

1. Log in as `root`.
2. Move the mouse pointer to the Application Manager control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



4. Double click on the **Sam** icon in the **Application Manager -- System\_Admin** window. If you are **root**, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Display** icon.



6. Double click on the **Monitor Configuration** icon in the **Display** window.



The **Monitor Configuration** window will have a monitor icon(s) in it that is/are associated with the graphics card(s) in your workstation's I/O card slot(s).

7. Click on the monitor icon in the **Monitor Configuration** window whose monitor type you want to set.

### Monitor Type

8. Select the action **Modify Monitor Type** from the **Action** menu. You will see a window with a list of monitor type selections in it. Here is an example of a monitor type entry you may see:

Entry	Width	Height	Hz	Font	Description
1	1280	1024	75	10x20	PCI

9. Select an entry from the list in the **Modify Monitor** window. In that same window, select the check box labeled **Make monitor type '*n*' the default** where *n* is the number of the entry you selected. To finish your monitor type selection, select the **Modify Monitor** window's **OK** button. A pop-up window will appear to confirm your monitor type selection. Press the **Yes** button in that pop-up window. This causes the monitor to reset, possibly hiding existing windows. You will then be given 15 seconds after the monitor type changes to configure this setting. Press the **OK** button to configure the setting. This completes the process for setting the monitor type. Note that this change takes effect immediately.
10. Connect your monitor cable to the graphics card you selected.

## **Troubleshooting Monitor Problems**

In the event that your console stops displaying to your graphics device, use the following procedure to set the console for displaying to an external terminal.

Here are the steps to follow:

1. Power off the workstation.
2. Disconnect the workstation's keyboard connector from the rear panel.
3. Connect a serial terminal emulator to the Serial 1 connector (the left serial connector) on the rear panel.
4. Power on the workstation. The workstation will now display the console to the terminal connected to Serial 1 port. Note that you can use a 9-pin to 9-pin serial cable (HP F1044-80002) to connect an HP OmniBook serial port to the workstation.
5. Set the monitor type and path using the Boot Console Interface. For information see Chapter 5, "Displaying and Setting the Monitor Type" on page 163.

**Monitor Type**

---

## **5** **The Boot Console Interface**

This chapter describes the different features of the boot console interface and how to use them with your HP VISUALIZE B2000 workstation.

## The Boot Console Interface

This chapter contains the following topics:

- Accessing the Boot Console Interface
- Boot Console Interface Features
- Booting Your System
- Searching for Bootable Media
- Resetting Your System
- Displaying and Setting Paths
- Displaying and Setting the Monitor Type
- Changing the Console to an External Terminal
- Displaying the Current Memory Configuration
- Displaying the Status of the System I/O
- Setting the Auto Boot and Auto Search Flags
- Displaying and Setting the Security Mode
- Displaying and Setting the Fastboot Mode
- Displaying the LAN Station Address
- Displaying System Information

## Accessing the Boot Console Interface

If the workstation has crashed or power was turned off for some reason, press the power switch and proceed to step 3. Otherwise, to access the boot console interface, follow these steps:

---

**NOTE**

This procedure should be done by a system administrator or superuser with `root` login permissions.

1. Close any files and applications on your workstation.
2. Press the power switch on the front panel of the workstation.

---

**NOTE**

There is no need to login as `root` and execute the `shutdown -q` command to shut down the HP-UX operating system on your workstation before powering it off. When you turn off the power switch, your workstation automatically shuts down the operating system before terminating the power.

Make sure you do not unplug the system's power cord or otherwise interrupt power to the workstation at this time.

When the operating system has been properly shut down, the following message will appear:

```
Shutdown complete
```

3. Power on your workstation after your system has completely shut down.

If `auto boot` is turned off, the boot sequence automatically stops at the boot console Main Menu.

If `auto boot` is turned on, you will see the following message:

```
Processor is starting auto boot process. To  
discontinue, press any key within 10 seconds.
```

## The Boot Console Interface

### Accessing the Boot Console Interface

If `auto boot` and `auto search` are both turned on, you will see the following message:

```
Processor is booting from first available de-
vice. To discontinue, press any key within 10
seconds.
```

---

**NOTE**

---

If you are using a power-saving monitor, you will have less than 10 seconds from the time this message appears to press a key.

4. Press a key. You will then see the message:

```
Boot terminated
```

The Main Menu of the boot console appears.

## Boot Console Interface Features

There are times when you want to interact directly with the hardware of your workstation before it boots the operating system. Your workstation provides a menu-driven boot console interface that allows you to perform special tasks, display information, and set certain system parameters, even if the operating system is unavailable.

Here are some of the things you can do:

- Boot your system
- Search for bootable media
- Reset your system
- Display and set boot paths
- Display and set your monitor type
- Display memory configuration information
- Display the status of the PCI slots
- Set Auto Boot, Auto Search and Auto Start
- Set Fastboot
- Display LAN information
- Display system information

The boot console menus follow, showing the various tasks you can perform and the available information.

The shortened version of each command is indicated by the uppercase letters.

Help is available for all the menus and commands by using either **help**, **he**, or **?** and the menu or command for which you want help.

## The Boot Console Interface

### Boot Console Interface Features

```
----- Main Menu -----  
  
Command                                Description  
-----  
BOot [PRI|ALT|<path>]                 Boot from specified path  
PAth [PRI|ALT|CON|KEY|[<path>]       Display or modify a path  
SEArch [DISplay|IPL] [<path>]        Search for boot devices  
  
COntfiguration [<command>]           Access Configuration menu/commands  
INformation [<command>]             Access Information menu/commands  
SERvice [<command>]                 Access Service menu/commands  
  
DISplay                               Redisplay the current menu  
HElp [<menu>|<commands>]           Display help for menu or command  
RESET                                 Restart the system  
  
-----  
Main Menu: Enter command >
```

```

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

Command                Description
-----

AUto [B0ot|SEArch] [ON|OFF]    Display or set specified auto flag
BootID [<proc>] [<boot ID>]    Display or modify processor boot ID
BootINfo                  Display boot-related information
BootTimer [0 - 200]          Seconds allowed for boot attempt
CPUconfig [<proc>] [ON|OFF]    Config/deconfig processor
DEfault                    Set the system to predefined values
FastBoot [ON|OFF]           Display or set boot tests execution
LanConfig                  Display or set LAN Configuration
MONitor [LIST|<path> <type>]   Change the current monitor type
PAth [PRI|ALT|CON|KEY] [<path>] Display or modify a path
SEArch [DISplay|IPL] [<path>]  Search for boot devices
SECure [ON|OFF]             Set/show security mode
Time [c:y:m:d:h:m:s]         Read or set real time clock in GMT
PreviousPower [ON|OFF]       Set previous power state

B0ot [<menu>|<command>]        Boot from specified path
DISplay                      Redisplay the current menu
HElp [<menu>|<command>]       Display help for menu or command
RESET                         Restart the system
MAin                           Return to Main Menu
-----
Configuration Menu: Enter command >

```

## The Boot Console Interface

### Boot Console Interface Features

----- Information Menu -----

Command	Description
ALL	Display all system information
BootINfo	Display boot-related information
CAche	Display cache information
ChipRevisions	Display revisions of VLSI and firmware
COprocessor	Display coprocessor information
FwrVersion	Display firmware version
IO	Display I/O interface information
LanAddress	Display built-in system LAN address
MEemory	Display memory information
PRocessor	Display processor information
SysConfig	Display the system configuration
WArnings	Display selftest warning messages
BOot [PRI ALT <path>]	Boot from specified path
DIspay	Redisplay the current menu
HElp [<menu> <command>]	Display help for menu or command
RESET	Restart the system
MAin	Return to Main Menu

-----  
Information Menu: Enter command >

```
----- Service Menu -----  
  
Command                Description  
-----  
  
ChassisCodes[<proc>|ON|OFF]  Display/enable/disable chassis codes  
CLEARPIM                   Clear (zero) the contents of PIM  
EepromRead [<addr>] {<len>}  Read EEPROM locations  
MemRead <addr> [<len>] [<type>] Read memory locations  
PCIDelay [<value>]          Display or set PCI delay value  
PDT [CLEAR]                Display or clear  
                             the Page Deallocation Table  
PIM [<proc> [HPMC|LPMC|TOC]]  Display PIM information  
ScRoll [ON|OFF]            Display or change scrolling ability  
  
BOot [PRI|ALT|<path>]      Boot from specified path  
DIsplay                    Redisplay the current menu  
HElp [<menu>|<command>]    Display help for menu or command  
RESET                       Restart the system  
MAIn                        Return to Main Menu  
-----  
Service Menu: Enter command >
```

## Booting Your System

You usually start your system by turning it on and waiting for HP-UX to boot automatically. However, you may not always want the usual boot sequence to occur.

For example, you may want to start your system from an operating system that is stored on a device that is different from your usual boot device. If your normal operating system kernel or the disk on which it resides becomes damaged or unusable, you may wish to boot from a different disk or perhaps another type of device, such as a CD drive.

Here are some possible booting scenarios you may encounter:

- If you know which device you want to boot from, and you know that it contains a bootable operating system, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt:

```
Main Menu: Enter command > boot device
```

where *device* is the hardware path to the device, specified in Mnemonic Style Notation. For example, if you wish to boot an operating system that is stored on a DDS-format tape drive that is located at the hardware path `scsi.1.0`, you would type the following command at the prompt and press **Enter**:

```
Main Menu: Enter command > boot scsi.1.0
```

- If you do not know which device or the hardware path for the device you want to boot from, then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command > search
```

A message similar to the following will be displayed:

Path Number	Device Path	Device Type
-----	-----	-----
P0	IDE	TEAC CD-532E-B
P1	SCSI.6.0	SEAGATE ST39102LC

At the prompt, you might type the following and press **Enter**:

```
Main Menu: Enter command > boot P1
```

Note that the operating system on the specified device (P1) is used to boot your system (also see the section “Searching for Bootable Media”).

- If you wish to interact with the Initial System Loader (ISL) before booting your system, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt:

```
Main Menu: Enter command > boot device
```

The following prompt will appear:

```
Interact with ISL (Y,N,Q)>
```

Answering yes (Y) causes the ISL to be loaded from the specified device. After a short time, the following prompt appears on your screen:

```
ISL>
```

ISL is the program that actually controls the loading of the operating system. By interacting with ISL, you can choose to load an alternate version of the HP-UX operating system. If you do not want to interact with ISL, you must enter no (N).

## The Boot Console Interface

### Booting Your System

For example, if the usual kernel (`/stand/vmunix`) on your root disk (`scsi.6.0`) has become corrupted, and you wish to boot your system from the backup kernel (`/stand/vmunix.prev`), type the following at the `ISL>` prompt and press Enter:

```
ISL> hpux /stand/vmunix.prev
```

- If you do not know which media in your file systems have bootable operating systems, you can find them with the `search ipl` command. See the subsequent section “Searching for Bootable Media.”

## Searching for Bootable Media

To list devices that contain bootable media, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> search ipl
```

The search command searches all buses. The search may turn up more devices than there are lines on your display. If you are using a text terminal, you may control the progress of the search from your terminal's keyboard by using these keystrokes:

**Ctrl S**                      Temporarily suspends the search.

**Ctrl Q**                      Continues the search.

**Any Other Key**      Stops the search.

These flow-control keystrokes do not work with a bitmapped display, but such a display can show more than forty lines of text, so you are unlikely to need them.

To search for devices of just one type that actually contain bootable media, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> search ipl device_type
```

where *device\_type* is one of the following:

*scsi*                      Is the built-in Ultra2 Wide LVD SCSI bus.

*lan*                      Is all connections to the built-in LAN.

*pcin*                      Is an optional SCSI interface in slot number *n*.

*ide*                      Is a built-in IDE bus.

*disk*                      Is all connections except LAN (ex. built-in SCSI, PCI cards, etc.)

## **Resetting Your System**

To reset your system to its predefined values, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

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

When the Configuration Menu appears, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> default
```

When the Configuration Menu appears again, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> reset
```

## Displaying and Setting Paths

A path is the hardware address of a device that is attached to the I/O system of your system. The path command sets the system paths shown in Table 5-1.

The path command sets and displays the hardware address of a specified device attached to the I/O bus of your system.

**Table 5-1**      **System Paths**

Path Type	Device
primary or pri	Your system's default boot device (usually the root disk)
alternate or alt	Your system's alternate boot device (usually a DDS-format tape device)
console or con	Your system's primary display device
keyboard or key	Your system's primary input ASCII device

To display the current settings for the system paths, type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> path
```

The paths are displayed in Mnemonic Style Notation, as shown in Table 5-2.

**Table 5-2**      **Mnemonic Style Notation for Boot Paths**

I/O Type	Specification Format
Built-in LVD SCSI	<i>fwscsi.scsi_address.logical_unit_number</i>
Plug-in device	<i>pcin.scsi_address.logical_unit_number</i>
Built-in LAN	<i>lan.server_address.init_timeout.io_timeout</i>
Built-in IDE	<i>ide</i>

## The Boot Console Interface

### Displaying and Setting Paths

To display the current setting for a particular system path, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> path path_type
```

where *path\_type* is one of the path types listed in Table 5-1.

For example, to get the path to the primary boot device, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> path primary
```

To set a system path to a new value, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> path path_type path
```

where *path\_type* is one of the path types listed in Table 5-1 and *path* is the specification of the path in Mnemonic Style Notation (as described in Table 5-2). For example, to set the primary boot path to a SCSI disk with ID of 6.0, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter, and then type the following at the prompt and press **Enter**:

```
Main Menu: Enter command> path pri scsi.6.0
```

---

#### NOTE

The default B2000 paths are:

```
pri scsi.6.0
```

```
alt scsi.5.0
```

---

## Displaying and Setting the Monitor Type

Your system ships from the factory preset to use a monitor with a specific resolution and frequency. If you replace your workstation's monitor with a different type of monitor, you may have to reconfigure your system to support the new monitor.

### The Monitor Command

The `monitor` command lets you change your system's graphics configuration. This command is available in the Configuration Menu of the boot console interface.

---

#### NOTE

The `monitor` command lets you change your system's graphics configuration before you replace your monitor. For information about changing the configuration after you replace your monitor, refer to "Changing Your Monitor Type" in Chapter 4.

---

To display the current graphics and console information, type the following set of commands and press **Enter** at the prompt:

```
Main Menu: Enter command> configuration
```

```
Configuration Menu: Enter command> monitor
```

## The Boot Console Interface

### Displaying and Setting the Monitor Type

The correct usage for setting the graphics configuration is:

```
monitor graphics_path type
```

where valid `graphics_path` parameters are:

```
graphics(0)  Built-in (or core) graphics adapter (primary slot)
graphics(1)  Graphics adapter installed in slot 1 (secondary slot)
graphics(2)  Graphics adapter installed in slot 2
graphics(3)  Graphics adapter installed in slot 3
graphics(4)  Graphics adapter installed in slot 4
```

and `type` is the numerical monitor type. See “Setting the Monitor Type” in a subsequent section for a list of types. For example, an HP VISUALIZE *fxe* graphics card (A4982A) installed in option slot 2 would be `graphics(2)`. Note that you can have `graphics(0)` through `graphics(4)` for your `graphics_path`.

## Displaying the Current Monitor Configuration

To display the current monitor configuration for your system from the Configuration Menu of the boot console interface, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter. Once you are in the Boot Console Interface Main Menu, type the following command and press **Enter**:

```
Main Menu: Enter command> configuration
```

This places you in the Configuration Menu. From here, type the following command at the prompt and press **Enter**:

```
Configuration Menu: Enter command> monitor
```

The message on your display is a list of the current graphics adapters and their monitor types configured for your workstation.

### MONITOR INFORMATION

Path	Slot	Head	HPA	Resolution	Freq	Type	Class
GRAPHICS(2)	2	1	fffa000000	1280x1024	75Hz	1	PCI

```
Configuration Menu: Enter command>
```

In this example, only the graphics adapter (located in slot 2) GRAPHICS(2) is configured. The monitor type for GRAPHICS(2) is set to type 1, which is a 1280×1024 monitor that uses a frequency of 75 Hz.

## Setting the Monitor Type

You can set the monitor type for a graphics adapter by typing the following at the prompt and pressing Enter:

```
Configuration Menu: Enter command> monitor graphics(n) tt
```

where *n* is the number of the graphics adapter and *tt* is the monitor type. To display a list of supported monitors that are used by your graphics card, type the following command at the prompt and press Enter:

```
Configuration Menu: Enter command> monitor list
```

A list of valid monitor types similar to the following is displayed:

### MONITOR INFORMATION

Path	Slot	Head	Type	Size	Freq	Class
GRAPHICS(0)	0	1	1	1280x1024	75Hz	VESA
GRAPHICS(0)	0	1	2	1024x768	75Hz	VESA
GRAPHICS(0)	0	1	3	1600x1200	75Hz	VESA
GRAPHICS(0)	0	1	4	1600x1200	75Hz	VESA

```
Configuration Menu: Enter command>
```

To set the monitor type for GRAPHICS(2) to monitor type 1, type the following at the command prompt and press Enter:

```
Configuration Menu: Enter command> monitor graphics(2) 1
```

This will take effect on the next reboot or reset of the system.

```
MONITOR INFORMATION
```

Path	Slot	Head	HPA	Resolution	Freq	Type	Class
GRAPHICS(0)	0	1	fffa000000	1280x1024	75Hz	1	VESA

```
Configuration Menu: Enter command>
```

The boot console displays a message that tells you that your new monitor selection will take effect the next time you reboot your system. The boot console also displays the new monitor information.

Trying to change the monitor type to a number not listed for that graphics device fails and gives you the following warning message:

```
Value of monitor type n out of range (n - nn)
```

Trying to change the monitor type on an empty slot fails and gives you the following warning message:

```
No such graphics card.
```

## Setting the Monitor Type with SAM

The System Administration Manager (SAM) allows you to change the monitor type after the HP-UX 10.20 operating system with the 9912 Additional Core Enhancements (ACE) software bundle (December 1999) have been installed on your workstation. This section provides a brief explanation on how to set the monitor type using SAM. Note that you will need to be logged in as `root` to run SAM.

Here are the steps for setting your monitor type with SAM:

1. Log in as `root`.

## The Boot Console Interface

### Displaying and Setting the Monitor Type

2. Move the mouse pointer to the **Application Manager** control for tools and click the left mouse button. Alternatively you can execute `sam` at a terminal window command prompt and skip to step 5.



3. Double click on the **System\_Admin** icon in the **Application Manager** window.



4. Double click on the Sam icon in the **Application Manager -- System\_Admin** window. If you are root, the **System Application Manager (SAM)** will appear on your screen.



5. Double click on the **Display** icon.



6. Double click on the **Monitor Configuration** icon in the **Display** window.



The **Monitor Configuration** window will have a monitor icon(s) in it that is/are associated with the graphics card(s) in your workstation's I/O card slot(s).

7. Click on the monitor icon in the **Monitor Configuration** window whose monitor type you want to set.
8. Select the action **Modify Monitor Type** from the **Actions** menu. You will see a window with a list of monitor type selections in it. Here is an example of a monitor type entry you may see:

Entry	Width	Height	Hz	Font	Description
1	1280	1024	75	10x20	VESA

9. Select an entry from the list in the **Modify Monitor** window. In that same window, select the check box labeled **Make monitor type 'n' the default** where **n** is the number of the entry you selected. To finish your monitor type selection, select the **Modify Monitor** window's **OK** button. A pop-up window will appear to confirm your monitor type selection. Press the **Yes** button in that pop-up window. This causes the monitor to reset, possibly hiding existing windows. You will then be given 15 seconds after the monitor type changes to configure this setting. Press the **OK** button to configure the setting. This completes the process for setting the monitor type. Note that this change takes effect immediately.
10. Connect your monitor cable to the graphics card you selected, and your screen contents will appear. You are now done selecting your monitor type.

## Setting the Monitor Type at Power On

If you replace your workstation's monitor with a different monitor type, you need to let the workstation's firmware know you made this change. To do this, reboot the system and use either the automatic monitor selection process or the boot console interface's `monitor` command. The `monitor` command is described in the section "Setting the Monitor Type" in this chapter. The automatic monitor selection process is described in this section.

Once you have rebooted the system by turning it off, wait for a short time for the hard disk drive's disk to stop spinning. Next, turn the workstation on and watch for the Num Lock light to come on.

---

### NOTE

It takes a short amount of time (approximately 40 seconds) after powering on the workstation before the Num Lock light comes on.

Wait two seconds after the Num Lock light comes on, which is near the end of the boot sequence, then press **Tab** to initiate the automatic monitor selection process. If your screen remains blank after two minutes of waiting for something to be displayed, see the section "Troubleshooting Monitor Problems" in this chapter. Otherwise, if you see information similar to the following displayed on your screen and it is the correct monitor type, press the **Enter** key to select it.

Path	Slot	Head	Type	Size	Freq	Class
GRAPHICS(0)	0	1	n	nnnnxn	nnHz	VESA

Press [Return] to select this monitor type (type *n* of *n* types).

Note that if you do not select this monitor type, the system cycles through a limited number of monitor types one at a time until you find one that meets your needs.

Once you have made your monitor type selection, the system queries you to confirm your selection. Press **Y** to save this monitor type.

If you press any key other than **Y**, the following message is displayed:

```
Monitor type not saved.
```

At this point, the new monitor type is active, but not saved. Because you did not save the monitor type, the next time you reboot the system the original monitor type will be used.

Next, the following message is displayed:

```
To select a new Graphics Monitor Type press the <TAB> key now, otherwise EXIT by  
entering any other key (or will time out in 15 seconds)...
```

To restart the monitor selection process, press **Tab**.

## Troubleshooting Monitor Problems

In the event that your console stops displaying to your graphics device, use the following procedure to set the console for displaying to an external terminal.

Here are the steps to follow:

1. Turn system power off.
2. Disconnect the workstation's keyboard connector from the rear panel.
3. Connect a serial terminal emulator to the Serial 1 connector (the left serial connector) on the system rear panel. Configure the terminal for: 9600 baud, No Stop Bits, No Parity, 8 Bits.
4. Power on the system. The system will now display the console to the terminal connected to Serial 1 port. Note that you can use a 9-pin to 9-pin serial cable (HP F1044-80002) to connect an HP OmniBook serial port to the workstation.
5. Set the monitor type and path using the Boot Console Interface. For information on doing this see the section "Setting the Monitor Type with SAM."

## Changing the Console to an External Terminal

In the event that your console stops displaying to your graphics device, use the following procedure to display the console to an external serial terminal so that you can configure the graphics console:

1. Turn the system's power off.
2. Disconnect the USB keyboard connector from the system rear panel.
3. Connect a serial terminal to the "Serial 1" connector on the system back panel. Configure the terminal for: 9600 baud, No Stop Bits, No Parity, 8 Bits.
4. Power on the system.

The system will now display the console to the terminal connected to Serial 1 port.

## Displaying the Current Memory Configuration

The following sample screen output uses the `memory` command to show a memory configuration table with properly-installed and configured memory.

To display the current memory configuration for your system, from the Information Menu of the boot console interface, follow the directions in “Accessing the Boot Console Interface” earlier in this chapter. Once you are in the Boot Console Interface Main Menu, type the following at the prompt and press **Enter**:

```
Main Menu: Enter command>information
```

This places you in the Information Menu. From here, type the following at the prompt and press **Enter**:

```
Information Menu: Enter command> memory
```

The screen displays status and configuration information for the memory DIMMs installed in your workstation. See the section “Memory Information Sample.”

The Boot Console Interface  
Displaying the Current Memory Configuration

## Memory Information Sample

The following example shows the memory information when memory modules are properly installed and configured:

MEMORY INFORMATION

MEMORY STATUS TABLE

Slot	Size	Status
0	256MB	Active
1	256MB	Active
2	128MB	Active

TOTAL MEMORY = 640MB

MEMORY FAULT TABLE

Slot	Size	Status
------	------	--------

Active, Installed Memory	:	640MB of SDRAM
Deallocated Pages	:	0 Pages
Available Memory	:	640MB
Good Memory Required by OS	:	0 (Not Initialized)
Memory		
HVERSION	SVERSION	
0x0860	0x0900	

## Displaying the Status of the System I/O

The `io` command lets you identify all built-in I/O devices and optional I/O devices installed in the option slots. It is available in the Information Menu.

To use the IO command from the Information Menu of the boot console, type the following command at the prompt and press **Enter**:

```
Information Menu: Enter command> io
```

Information about the built-in and optional I/O devices is displayed.

## Setting the Auto Boot and Auto Search Flags

The `auto boot` and `auto search` flags are variables stored in your system's nonvolatile memory. (Nonvolatile memory retains its contents even after power is turned off.) If you reset these flags to new values, the change takes effect the next time you reboot the workstation.

The `auto boot` flag boots the operating system whenever your workstation is turned on.

If `auto boot` is set to on, your system automatically attempts to boot the operating system when turned on. If `auto boot` is set to off, your system enters the boot administration mode of the boot console user interface.

The state of the `auto search` flag determines how your system seeks a boot device during auto boot. If `auto search` is set to on, your system will search for other boot devices if the primary boot device is not available. If `auto search` is off, your system will default to the boot administration mode if it can't see the primary boot device.

To examine the state of the `auto boot` and `auto search` flags, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> auto
```

To change the state of the `auto boot` or `auto search` flags, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> auto boot state
```

or

```
Configuration Menu: Enter command> auto search state
```

where *state* is on or off.

The `auto search` command searches for devices in the following order:

- Primary boot path (can be set by the user)
- Alternate boot path (can be set by the user)
- PCI 1 through PCI 4 (plug-in interface cards)
- Low-voltage differential SCSI (built-in)
- LAN (built-in)
- IDE (built-in)

## Displaying and Setting the Security Mode

The `secure` flag is a variable stored in non-volatile memory. (Non-volatile memory retains its contents even after power is turned off.) If you reset this flag to a new value, the change takes effect the next time you reboot the workstation.

When the `secure` flag is set to on, auto boot and auto search are enabled and cannot be stopped. The system boots from the default boot paths regardless of user intervention.

Note that the `secure` command must be executed from within the Boot Console Interface. To get into the Boot Console Interface, follow the procedure in the section “Accessing the Boot Console Interface” earlier in this chapter. Once the Main Menu is present, you can type the following command at the prompt and press **Enter**:

```
Main Menu: Enter command > configuration
```

From the Configuration Menu, you can execute the `secure` command and perform the subsequent tasks in this section.

To display the current setting for the `secure` flag, type the following command at the prompt and press **Enter**:

```
Configuration Menu: Enter command > secure
```

To set the `secure` flag on, type the following command at the prompt and press **Enter**:

```
Configuration Menu: Enter command > secure on
```

To set the `secure` flag off, you need to disconnect the boot disk to interrupt the boot-up sequence and force the prompt to the Boot Console Interface. Next, type the following command at the prompt and press **Enter**:

```
Configuration Menu: Enter command > secure off
```

## Displaying and Setting the Fastboot Mode

When `fastboot` is enabled (set to on), your system does a quick check of the memory and skips I/O interface testing during its power-on self tests. This enables your system to complete its boot process quicker. The default factory setting is for `fastboot` to be enabled (set to on). Note that `fastboot` can be set using the Boot Console Interface's Configuration Menu.

When `fastboot` is disabled (set to off), more extensive memory testing and I/O interface testing is performed during the self tests, causing the boot process to take longer.

If you are experiencing difficulty in booting your system, set `fastboot` to off and reboot the system. More extensive testing may reveal the error condition.

To display the status of `fastboot`, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> fastboot
```

To disable `fastboot`, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> fastboot off
```

To enable `fastboot`, type the following at the prompt and press **Enter**:

```
Configuration Menu: Enter command> fastboot on
```

## Displaying the LAN Station Address

It is sometimes necessary to supply the LAN station address of your workstation to other users. For example, if your workstation is to become a member of a cluster, the cluster administrator needs to know your LAN station address in order to add your workstation to the cluster. Note that your LAN station address can be determined using the Boot Console Interface's Information Menu.

A LAN station address for your workstation is the label that uniquely identifies the LAN connection for your workstation at the link level (the hardware level).

To display your workstation's LAN station addresses, type the following at the prompt and press **Enter**:

```
Information Menu: Enter command> lanaddress
```

The LAN station address is displayed as a twelve-digit number in hexadecimal notation, similar to the following:

```
LAN Station Address:          001083-000429
```

The address is for the system's built-in LAN.

## Displaying System Information

The `all` command allows you to display the system's processor revision and speed, cache size, memory size, flag settings, and the boot and console paths. To display system information for the Information Menu, type the following at the prompt and press **Enter**:

```
Information Menu: Enter command> all
```

This information is paged to allow you to view it as necessary unless the service `ScRoll` command has been used to disable scrolling.

The Boot Console Interface  
**Displaying System Information**

---

## **6** **Solving Problems**

This chapter contains information to help you determine what is wrong with your system when you have problems. If you have a problem that is not listed in this chapter, or if your problem persists, contact your designated service representative.

## Solving Problems

To help speed up your service request, have your system's model number and serial number available. Your service representative will always ask for these numbers.

The instructions in this chapter assume you are using the HP-UX 10.20 operating system and the Workstation Additional Core Enhancements for HP-UX 10.20 (December 1999) with the HP CDE graphical interface. When using HP CDE, you will have to use command line options in a terminal window to perform tests.

Here are the topics covered in this chapter:

- Common Problems and Solutions
- Dealing with a Boot Failure
- Memory Failures
- LCD Information
- Running System Verification Tests.

---

**NOTE**

This chapter requires you to log in as `root`. If you cannot log in as `root`, contact your system administrator.

---

---

## Common Problems and Solutions

The tables in this section lists common problems you may encounter with your computer. The tables also tell you what to do to help solve the problems.

**Table 6-1**      **Problems Powering Up the System**

<b>Problem</b>	<b>Solution</b>
The LCD screen does not light up.	Make sure all AC power cables are connected securely to the system.  Make sure the power cord is plugged into a working AC outlet.  Make sure the power is turned ON.
The LCD screen lights up , but the screen is blank	Make sure the LCD control cable is properly connected inside the system unit.
LCD messages	See “LCD Information” later in this chapter.
If problems persist, contact your system administrator or call your designated service representative.	

**Table 6-2**      **Problems Loading and Booting the Operating System**

Problem	Solution
The LCD screen is lit, and text appears on the screen, but more than two minutes have passed with no sign of system activity.	Check that all SCSI devices are correctly cabled. Check that any external SCSI devices (ex. PCI) are correctly terminated.
The system stops or hangs while booting.	Follow the instructions in “Dealing with a Boot Failure” later in this chapter.  If the LCD displays a DIMM error, follow the instructions in “Memory Failures” later in this chapter.
If problems persist, contact your system administrator or call your designated service representative.	

**Table 6-3**      **Problems with the 802.3 Network**

Problem	Solution
Cannot reach other systems on the network. Applications that rely on the network will not run.	Check the network connector on the back of the system unit. Make sure the network cable or transceiver is fastened securely to the connector. The link LED should be lit solid, and the activity LED should be solid or flashing.
If problems persist, contact your system administrator or call your designated service representative.	

**Table 6-4                      Problems Using a Hard Disk Drive**

<b>Problem</b>	<b>Solution</b>
The disk drive is not accessible or does not respond.	<p>Make sure that all SCSI devices are set to the proper SCSI ID.</p> <p>Check that all SCSI devices are connected and/or cabled.</p> <p>Follow the instructions in “Dealing with a Boot Failure” later in this chapter.</p> <p>If the disk drive is external to the system unit, make sure that its power is turned ON.</p>
If problems persist, contact your system administrator or call your designated service representative.	

**Table 6-5                      Problems Using the CD Drive**

<b>Problem</b>	<b>Solution</b>
The CD drive does not respond to commands (for example, mount or swinstall).	<p>Re-enter the commands and make sure you have typed them correctly.</p> <p>See the section “Running System Verification Tests” later in this chapter to verify that the CD drive is functioning properly.</p> <p>Make sure power and data cables are connected.</p>
If problems persist, contact your system administrator or call your designated service representative.	

**Table 6-6**      **Problems Using the Floppy Disk Drive**

Problem	Solution
The floppy drive does not respond to commands.	<p>Re-enter the commands and make sure you have typed them correctly.</p> <p>Make sure you specified the device file</p> <pre data-bbox="778 505 1062 534">/dev/floppy/c0t1d0</pre> <p>for commands that require a device file name.</p> <p>Make sure the write-protect tab is set to write if you are trying to copy data to a floppy diskette.</p> <p>Follow the instructions in the section “Running System Verification Tests” later in this chapter to verify that the floppy disk drive is functioning properly.</p> <p>Make sure cables (power, data, etc.) are connected.</p>
The floppy drive is not recognized by SAM in the <b>Disks and File Systems</b> window.	<p>A patch is available from HP that adds the proper IDE choices to the SAM screen. You may load this patch from the HP Electronic Support Center. Reference the following URL:</p> <pre data-bbox="811 1121 1172 1150">http://us-support.external.hp.com/</pre>
If problems persist, contact your system administrator or call your designated service representative.	

---

## Dealing with a Boot Failure

If your usual boot device (typically a disk) is not responding as it should, you must try to boot from the disk (or another boot device) by selecting it manually. Note that you must be superuser (`root`) to perform the steps in this section.

To boot a device manually, follow these steps:

1. Follow the directions in “Accessing the Boot Console Interface,” in Chapter 5 of this document.

---

### NOTE

Your computer automatically shuts down the operating system before it terminates the power.

---

2. At the Main Menu prompt, type the following and press **Enter**:

```
Main Menu: Enter command > search ipl
```

This causes you computer to search exhaustively for bootable media.

3. Boot from one of the listed devices by typing the following at the prompt and press **Enter**:

```
Main Menu: Enter command > boot device
```

where *device* is the hardware path to the device, specified in mnemonic style notation, such as `SCSI.5.0`.

4. Answer “N” to the question, INTERACT WITH IPL (Y,N,Q)?

5. If your computer still fails to boot, there is either something wrong with the file system or with the hardware. If you suspect a file system failure, see the manual *Using HP-UX* for help on dealing with file system failures. If you think that something is wrong with the hardware, continue reading this chapter for more troubleshooting information.

## **Memory Failures**

A memory failure will show up in the LCD on your system unit's front panel as a DIMM error. Your system's Boot Console Interface will never appear.

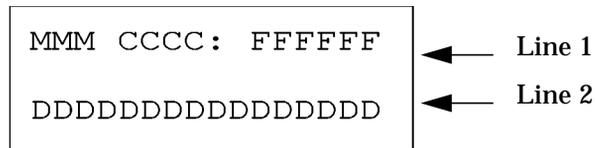
A possible solution to the memory failure problem is to perform the procedure in the section "Installing Additional Memory" in the chapter "Changing Your Computer Hardware Configuration." If the problem persists, contact your system administrator or call your designated service representative.

## LCD Information

Your computer uses an LCD panel to display firmware/OS progress codes. The codes, referred to as chassis codes, consist of one of the mnemonics listed below, followed by a 4-digit hexadecimal number identifying the code module being executed. The mnemonics and their meanings are:

FLT	A hardware error has been detected
TST	Hardware being tested
INI	Hardware being initialized
SHU	System being shutdown
WRN	A non-optimal or unusual operating condition exists
RUN	Computer is running operating system

In general, the LCD display has the following format:



MMM	Three character mnemonic
CCCC	Four digit hexadecimal code
FFFFFFF	Six character field replaceable unit description
DDDDDDDDDDDDDDDDDD	Description of the chassis code

If the system encounters a `FLT` code while the system is booting, the `FLT` code is interpreted and a message is displayed. For example, you may have information similar to the following in the LCD:

<code>FLT</code>	Three character chassis code
<code>30FC</code>	Four digit hexadecimal code
<code>SYS BD</code>	Six character field replaceable unit description
<code>bad sys bd id</code>	Description of the chassis code

## LCD Fan Failures and Warnings

This section provides the failure and warning messages you will see in your computer's LCD if there is a problem with a fan in your system unit.

Table 6-7 lists the fan numbers and their names. The fan numbers will appear in the description of the chassis code in your computer's LCD.

**Table 6-7**

**Fan Numbers and Their Names**

Fan Number	Name of the Fan
2	I/O Fan
4	System Fan
5	Processor Fan

Here is an example of a failure message for the I/O fan:

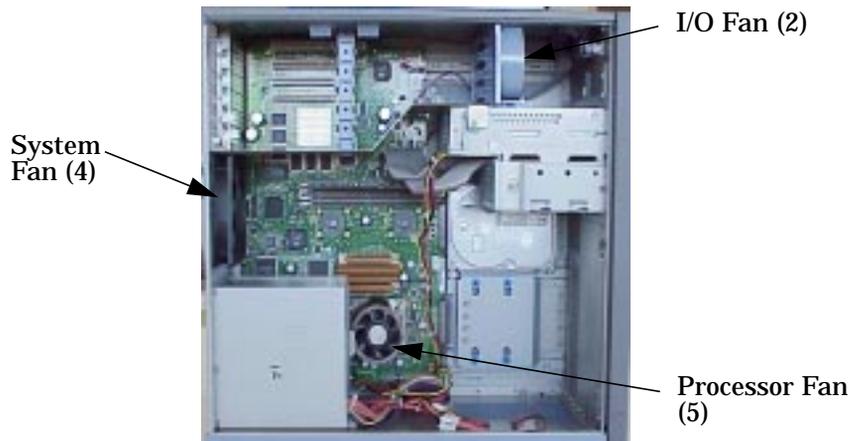
```
WRN D014 SYS BD
fan failed: # 4
```

Here is an example of a warning message for the processor fan:

```
WRN D025 SYS BD
fan warning: # 5
```

Figure 6-1 will help you locate the problem fan within your system unit.

**Figure 6-1**      **Fan Locations**



If you should receive a failure or warning in you LCD, you should record the information on a piece of paper and call in the problem to your local HP Support Representative. The representative will want the LCD failure or warning message you record for determining the course of action to take regarding possible repairs.

## Troubleshooting Monitor Problems

In the event that your console stops displaying to your graphics device, use the following procedure to set the console for displaying to an external terminal.

Here are the steps to follow:

1. Turn system power off.
2. Disconnect the computer keyboard connector from the system rear panel.
3. Connect a serial terminal to the Serial 1 connector (the left serial connector) on the system rear panel. Configure the terminal for: 9600 baud, No Stop Bits, No Parity, 8 Bits.
4. Power on the system. The system will now display the console to the terminal connected to Serial 1 port. Note that you can use a 9-pin to 9-pin serial cable (HP F1044-80002) to connect an HP OminiBook serial port to the workstation.
5. Set the monitor type and path using the Boot Console Interface. The most common monitor type is 1280×1024 at 75 Hz in VESA mode. For information on doing this see the chapter “The Boot Console Interface” in this document.

## Running System Verification Tests

HP-UX uses a diagnostics product called Support Tools Manager (STM), which allows system operation verification. To use STM, you need to be on an HP-UX 10.20 operating system and to load the Workstation Additional Core Enhancements for HP-UX 10.20 (December 1999) HP-UX Support Plus Media on your computer.

There are three interfaces that allow you access to the Support Tools Manager: a command line interface (accessed through the `cstm` command), a menu-driven interface (accessed through the `mstm` command), and the graphical user interface (accessed through the `xstm` command).

For more information on these user interfaces, see the online manual pages by entering one of the following command at the command line prompt and pressing **Enter**:

```
man cstm
```

```
man mstm
```

```
man xstm
```



## Safety and Regulatory Statements

Here are the topics covered in this appendix:

- Declaration of Conformity
- Emissions Regulations
- Third Party Emissions Regulations Compliance
- Special Regulatory and Safety Information
- Warnings and Cautions

---

## Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

**Manufacturer:** Hewlett-Packard Company  
3404 East Harmony Road  
Fort Collins, CO 80528  
USA

**Declares, that the:**  
**Product Name:** HP VISUALIZE Workstation  
**Model Numbers:** B1000 / B2000/ C3000  
**Base Product Number:** A4985A / A5983A/ A4986A  
**Product Options:** all

**conforms to the following specifications:**

Safety	IEC 950:1991+A1+A2+A3 +A4 +A11/ EN 60950:1992+A1+A2+A3+A4+A11 IEC 60825-1:1993/EN60825-1:1994+A11 Class 1 for LED's USA 21CFR Subpart J - for FC Laser module China GB4943-1995 Russia GOST R 50377-92
EMC	CISPR 11: 1990 / EN 55011: 1991 Class B CISPR 22: 1993 / EN 55022: 1994 +A1+A2 Class B EN 50082-1:1992 IEC 1000-3-2: 1995 / EN 61000-3-2: 1995 IEC 1000-3-3: 1995 / EN 61000-3-3: 1995 IEC 1000-4-2: 1995 / EN 61000-4-2: 1995 - 4kV CD, 8 kV AD IEC 1000-4-3: 1995 / EN 61000-4-3: 1995 - 10 v/m IEC 1000-4-4: 1995 / EN 61000-4-4: 1995 - 2 kV Signal, 4 kV Power Lines US FCC Part 15, Class B Japan VCCI Class B Australia/New Zealand AS/NZS 2046.1/2:1992, AS/NZS 3548:1995, and AS/NZS 4251.1:1994 China GB9254-1988 Taiwan CNS13438 Class A Russia GOST R 29216-94

**and is certified by:**

UL Listed to UL1950, 2nd edition, File E146385  
cUL Listed to CSA 22.2 No.950-M93  
TUV Certified to EN60950 2nd edition with A1+A2+A3+A4+A11  
HP Fort Collins CCQD HQE

**supplementary information:**

The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

- the EMC directive 89/336/EEC and 92/31/EEC and 93/68/EEC
- the Low Voltage Directive 73/23/EEC and 93/68/EEC

This product was tested in a typical Hewlett Packard workstation configuration.  
Original signed by Ruth Lutes, Site Quality Manager Fort Collins, CO, USA

**For Compliance Information ONLY, contact:**

European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE Standards Europe, Herrenberger Straße 130, D-71034 Böblingen (FAX: +49-7031-14-3143)

Americas Contact: Hewlett-Packard, Fort Collins Site Quality Manager, mail stop 46, 3404 E. Harmony Rd., Ft. Collins, CO 80528, USA

## Emissions Regulations

The HP VISUALIZE B2000 workstation is FCC Class B compliant. Note that if a video out cable is connected to your Video Out card, then your workstation is no longer FCC Class B compliant as stated in the subsequent section “Special Video Configuration Statement.”

### For FCC B Applications:

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 and the Canadian Department of Communications. 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 (determined by turning the equipment off and on), you should 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 into an outlet on a circuit different from that to which the receiver is connected.
- Ask the dealer or an experienced radio/television technician for help.

Hewlett-Packard's system certification tests were conducted with HP-supported peripheral devices and HP-shielded cables, such as those you receive with your workstation. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment.

Operation of this device is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept interference received, including interference that may cause undesired operation.
- Cables used with this device must be properly shielded to comply with the requirements of the FCC.

### EMI Class A RRL (Korea)

#### 사용시 안내문 (A급 기기)

이 기기는 업무용으로 전자파장애감정을 받은 기기이오니, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

### VCCI Class B ITE (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。

取り扱い説明書に従って正しい取り扱いをして下さい。

### EMI Class A (Taiwan)

**警告使用者：**  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

### Special Video Configuration Statement

When a Video Out card has a cable connected to its video out connector, the HP VISUALIZE B2000 workstation no longer meets FCC Class B regulations. The workstation now becomes FCC Class A compliant. This statement applies only to those applications which include a cable connected to the video out connector on a Video Out card. No modification to the regulatory statements is necessary for applications which include cables connected to other connectors on the card but not to the Video Out connector.

## **Third Party Emissions Regulations Compliance**

Any third-party I/O device installed in HP system(s) must be in accordance with the requirements set forth in the preceding Emissions Regulations statements. In the event that a third-party noncompliant I/O device is installed, the customer assumes all responsibility and liability arising therefrom.

## Special Regulatory and Safety Information

This section covers regulatory and safety information for acoustics, lasers, and LEDs.

### Acoustics

**Table A-1 Regulation On Noise Declaration For Machines -3. GSGV**

Lpa <70dB operator position normal operation per ISO 7779	Lpa<70dB am Arbeitsplatz normaler Betrieb nach DIN 45635 T.19
--	--

### Laser Safety Statement (U.S.A. Only)

The CD-ROM mass-storage system is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968.

This means that the mass-storage system does not produce hazardous laser radiation. Because laser light emitted inside the mass-storage system is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

### LEDs

The LEDs on this product are classified as “Class 1 LED PRODUCT” in accordance with EN 60825-1.

## Warnings and Cautions

### **WARNING:**

Removing device cover may expose sharp edges in equipment chassis. To avoid injury, use care when installing customer add-on devices.

### **WARNUNG:**

Das Entfernen der Geräteabdeckung legt die scharfen Kanten im Inneren des Gerätes frei. Um Verletzungen zu vermeiden, seien Sie vorsichtig beim Einbau von zusätzlichen Bauteilen, die vom Kunden selber eingebaut werden können.

### **AVERTISSEMENT:**

Des bords tranchants du châssis de l'équipement peuvent être exposés quand le cache de l'unité n'est pas en place. Pour éviter des blessures, faire très attention lors de l'installation de modules supplémentaires par le client.

### **WARNING:**

Disconnect power plug from wall outlet or source power before moving or removing the device, or installing add-on components.

### **WARNUNG:**

Entfernen Sie die Stromzuführung von der Steckdose oder der Stromquelle bevor Sie das Gerät bewegen, abbauen, oder zusätzliche Bauteile installieren.

### **AVERTISSEMENT:**

Débrancher la fiche de la prise de courant ou de la source d'alimentation électrique avant de déplacer ou de retirer l'unité, ou avant d'installer des modules supplémentaires.

Safety and Regulatory Statements  
**Warnings and Cautions**

---

# Glossary

## A

**Absolute pathname** The full pathname of a file, including all the directories leading to it, starting with the root directory (“/”) and ending with the filename itself. *See also file, filename, pathname.*

**Access permissions** Settings that allow or prevent a user or group of users to read, write, or execute files. *See also file access permissions.*

**Active window** The window that is receiving input from the keyboard at the present time. If there is no active window, anything you type is lost. Only one window can be the active window.

**ANSI** The American National Standards Institute, a non-profit organization made up of various expert committees that publishes standards for use by national industries. ANSI has adopted the IEEE standards for local area networks.

**Argument** A part of a command line or line of source code that identifies the file, directory, or other data to be used; a parameter.

**Attachment unit interface (AUD)** A transceiver cable that conforms to IEEE 802.3 specifications.

## B

**Backup** v. To make a copy of one or more files on a tape or disk that can be stored separately from the original files.

**Backup** n. A spare copy of one or more files on a tape or disk that can be used to restore data into its original location.

**Bitmap** Generally speaking, an array of data bits that define a graphical image. Strictly speaking, a bitmap is a pixmap whose depth is one bit, capable of representing two-color (black-and-white) images.

**Boot** Short for “bootstrap,” from the phrase “pulling oneself up by one’s bootstraps.” Indicates the beginning of a process from the lowest possible level. A boot service is provided by a short program, stored in the boot ROM (read-only memory) of your workstation, that loads the operating system (or any complex program) into main memory. Partner workstations provide bootstrap service to

diskless workstations. *See also boot ROM.*

**Boot console interface** The interactive firmware that enables you to interact with the hardware of your workstation before the workstation boots the operating system. The boot console interface allows you to perform special tasks, display information, and set certain system parameters.

**Boot ROM** A read-only memory that is incorporated into a workstation for the purpose of loading and starting the operating system, and modifying the configuration or changing the booting behavior.

**Bootstrap service** *See boot.*

**Byte** A fundamental character-code unit, usually consisting of 8 bits.

## C

**CD-RAM** Compact Disk Random-Access Memory. *See also CD-RAM disk, CD-RAM drive.*

**CD-RAM disk** CD-RAM (CD-RW) disks are identical to the audio compact disks (CDs) used to record stereo music, except computer data

is read from and written to these disks. CD-RAM disks are 120 mm (4.7 inches) in diameter, use one data surface, and have a capacity of about 650 MB. The data surface contains pits and flat spots arranged in a continuous spiral track, which is read at a constant linear speed.

**CD-RAM drive** A random-access, read/write, mass-storage device that uses removable CD-RAM disks. The drive contains a semiconductor laser for reading and writing data optically and an embedded controller.

**CD-ROM** Compact Disk Read-Only Memory. *See also CD-ROM disk, CD-ROM drive.*

**CD-ROM disk** CD-ROM disks are identical to the audio compact disks (CDs) used to record stereo music, except that they store computer data. CD-ROM disks are 120 mm (4.7 inches) in diameter, use one data surface, and have a capacity of about 650 MB. The data surface contains pits and flat spots arranged in a continuous spiral track, which is read at a constant linear speed.

**CD-ROM drive** A random-access, read-only, mass-storage device that

uses removable CD-ROM disks. The drive contains a semiconductor laser for reading data optically and an embedded controller.

### **Central Processing Unit (CPU)**

The part of a workstation that interprets and executes instructions; the “brain.”

**Child directory** *See subdirectory.*

**Click** To press and immediately release a mouse button. The term comes from the fact that pressing and releasing most mouse buttons makes a clicking sound. Compare to drag and drop.

**Cluster** A group of workstations connected via a Local Area Network (LAN). One workstation, the cluster server, acts as a file-system server for the cluster clients. *See also cluster client, cluster node, cluster server.*

**Cluster client.** A cluster node that does not have a local HP-UX file system. Its file system resides on the cluster server. *See also cluster, cluster node, cluster server.*

**Cluster node** A member of a

group of workstations connected via a Local Area Network (LAN). One workstation, the cluster server, acts as a file server to the other machines in the cluster. *See also cluster, cluster client, cluster server.*

**Cluster server** A workstation that provides file access, login access, file transfer, printing, and other services across a network to a defined cluster of systems (cluster nodes) connected via a LAN. *See also cluster, cluster client, cluster node, host.*

**Cold install.** A process that requires the booting of an install kernel from an install server over a network or from a CD-ROM and answering some configuration questions.

**Command.** An instruction that you enter into the system at a prompt, to execute a program or perform a task. *See also shell command.*

### **Command argument**

Information you provide on a command line to describe the object (often a file or directory) to be operated on by the command.

**Command interpreter** A program that reads lines of text from standard input (typed at the keyboard or read from a file) and interprets them as requests to execute commands or programs. An HP-UX command interpreter is called a shell. *See also shell.*

**Command option** Information you provide on a command line to indicate any special action you want the command to take, or mode in which to operate. *See also default.*

**Configuration** The arrangement of a workstation or network as defined by the nature, number, and chief characteristics of its functional units. More specifically, the term “configuration” may refer to a hardware configuration or a software configuration.

**Console.** The tty (terminal) the system was booted from. The console is associated with the monitor where all system messages are displayed. The system administrator sends messages to other system users from this tty.

**Control key sequence.** A keystroke combination used as a shorthand way of specifying

commands. To enter a control key sequence, hold down the “Ctrl” key while pressing another key.

**CPU** *See Central Processing Unit.*

**Current directory** *See current working directory.*

**Current session** The work and processes that have been created since you logged into the system (and before you log out again).

*See also session.*

**Current working directory** The directory from which a relative-pathname search begins, as well as the directory in which you are currently working. It is also called the “working directory” or “current directory.”

**Cursor** The small, usually blinking, box or underline displayed in whatever screen or window is active at any particular time. The cursor marks your current typing position on the screen and indicates which program (HP CDE terminal window or shell) will receive your typed commands.

### D

**Daisy-chaining** A method of connecting devices in which the signal passes from one device to the next in serial fashion along a bus.

**DDS tape drive** A device that stores data on Digital Data Storage (DDS) cassettes.

**Default** Most commands give you a choice of one or more options. If you don't specify an option, the command automatically assigns one. This automatic option is called the "default." *See also command option.*

**Dialog box** A special type of HP CDE screen that contains controls and settings, and with which the user can carry on an interactive "dialog" in the process of setting whatever parameters the dialog box requests. To display an example of a dialog box, click the Style Manager button on the Workspace Manager's front panel, then click on Color.

**DIMM** *See Dual In-line Memory Module.*

**Dual In-line Memory Module** A memory board whose connectors

on each side of the board are connected to different chips. This allows for a wider data path as more modules can be accessed at the same time.

**Directory** A special type of "container" object that contains information about the objects beneath it in the HP-UX organizational structure. Basically, it is a file that stores names and links to files and other directories. *See also file.*

**Disk** A thin, round plate with a magnetic or optical surface coating on which data is stored by magnetic or optical means. *See also floppy diskette, hard disk, CD-ROM disk.*

**Disked workstation** A workstation that has its own hard disk drive.

**Diskette** *See floppy diskette.*

**Double click** To press and release a mouse button twice in rapid succession. The amount of time that discriminates between a double click and two single clicks is usually user-configurable. Double clicking usually invokes a different, but related, function than single clicking.

**Drag** To move the mouse (and hence the pointer on the screen) while holding down one or more of its buttons. This process specifies two separate locations on the screen for those operations that require two: the location when the mouse button is pressed, and the location when it is released. This is used, for example, to initiate a file-copy by pressing the mouse button on the file to be copied, dragging the file's icon to the destination window, and releasing the mouse button there. Another common using of dragging is to specify the upper-left and lower-right corners of a new window or similar rectangle. *See also drop.*

**Drive** *See CD-ROM drive, DDS tape drive, floppy drive, hard disk drive.*

**Drop** To release the mouse button after having moved the mouse with its button held down, in order to position an icon or other object that has been "dragged" to a new position. *See also drag.*

## E

**EEPROM.** Electronically erasable read-only memory. Usually bytes or words can be erased and

reprogrammed individually during system operations. The EEPROM is used for storing configuration information that will be "remembered" after a reboot and AC power loss.

**Environment** The conditions in which your commands or programs are executed. These conditions include your workstation characteristics, home directory, and default search paths. *See also environment variables.*

**Environment variables** The set of defined shell variables (some of which are PATH, TERM, SHELL, EXINIT, and HOME) that define the conditions in which, or values with which, your commands are executed. These conditions and values include your workstation characteristics, home directory, and default search paths. *See also environment.*

**Ethernet** The LAN developed jointly by Digital Equipment Corporation, Intel, and Xerox Corporation, upon which the IEEE 802.3 network is based.

### F

**File** The basic named unit of data stored on disk. *See also directory, filename.*

**File access permissions** The access rights given to a particular file or directory. Every file and directory has a set of access permissions, a code that determines whether a process can perform a requested operation on the file (such as opening the file or writing to it) *See also access permissions.*

**File manager** The HP CDE application that allows you to manage your files and directories, and to set viewing preferences.

**File name** The name given to a particular file. *See also absolute path name, file, path name.*

**File server** A workstation whose primary task is to control the storage and retrieval of data from hard disks. Any number of other workstations can be linked to the file server via a LAN in order to use the file server to access data.

**File system** The hierarchically organized set of files and directories on a hard disk.

**Firmware** The control software that is embedded in ROM and is always resident regardless of the status of the operating system. It handles the booting of the system, initialization of I/O, and starts the loading of the operating system.

**Floppy diskette** A thin, flexible, disk-shaped sheet of plastic that magnetically stores data on its coated surfaces. Floppies are contained within stiff plastic “envelopes” to protect them from dust, fingerprints, and abrasion. The floppy drive uses heads (similar to heads in tape recorders) to read and write data on concentric disk tracks.

**Floppy drive** A device that stores data on a floppy diskette.

### H

**Hard disk** A type of disk that is rigid—often aluminum—as opposed to a thin plastic diskette, which is flexible.

**Hard disk drive** A device that stores data on a hard disk. The hard disk can be a permanent part of the drive and thus be unremovable, or it can be removable. If it is removable, it is contained in a protective cover that

is opened by the drive when access is needed.

**Help manager** The HP CDE application that provides online help.

**\$HOME** The environment variable that contains the name of a user's home directory. This is the directory in which you are placed upon logging in. Typically, this is /home/login, where login is your username. *See also home directory.*

**Home directory** A shorthand way of referring to a frequently used directory, almost always the login directory.

**Host** A computer that offers one or more services; may be local or remote (accessible via a network). *See also cluster server.*

**Host name** *See internet protocol address.*

**HP CDE** *See HP Common Desktop Environment.*

**HP Common Desktop Environment** A user interface that draws a graphical layer over the complexities of the other layers of the system (the hardware,

operating system, and X Window system), enabling you to control your workstation by directly manipulating graphical objects instead of by typing commands at a command-line prompt.

**HP-UX.** This is Hewlett-Packard's version of the UNIX® operating system.

**HP-UX cluster** *See cluster node, cluster server.*

## I

**Icon** A small, graphic representation of an object. Objects can be "iconized" (turned into icons) to clear a cluttered workspace. Icons can be restored to their original appearance when needed. Whatever processes are executing in an object continue to execute when the object is iconized.

**Iconify** *See iconize.*

**Iconize** To turn a window or shell into an icon. *See also icon.*

## Initial System Loader (ISL)

The program that actually controls the loading of the operating system.

**Input device** Any of several pieces of hardware equipment used to give information to a system. Examples include the keyboard and the mouse. *See also output device.*

**Input window** The window that displays a program's prompt and any commands typed but not yet executed.

**Instant Ignition.** When the user's computer is turned on and it automatically boots up and is ready for use. Instant Ignition is the result of the computer's operating system being preloaded at the factory.

**Install server.** This is a networked computer from which file sets and operating systems can be installed.

**Internet protocol address (IP address)** A string of characters, in the format nnn.nnn.nnn.nnn, that uniquely identifies a workstation in a network. The nnn in the format specifier above is a one- to three-digit decimal integer between 0 and 255, inclusive, in which leading zeroes are optional. The internet protocol address is also referred to as the "IP address."

**Invisible file name** A filename in which the first character is a period (.). Invisible filenames are not displayed by the listing commands such as ls and ll without additional options, such as -a.

**IP address** *See internet protocol address.*

**ISL** *See Initial System Loader.*

## K-L

**Kernel** The part of the operating system that is an executable piece of code responsible for managing the computer's resources. The kernel controls the rest of the operating system.

**LAN** *See local area network.*

**LAN station address** *See local area network station address.*

**Link n.** A special object that contains the name of another object. When you specify a link as a pathname or part of a pathname, the system substitutes the pathname that the link contains.

**Link v.** To establish a relationship between two objects such that one of the objects contains only the

information required to associate it with the other, “real,” object.

**Local area network (LAN)** A data communications system that allows a number of independent devices to communicate with each other. The systems and clusters that share data, hardware, and software resources via Networking Services software.

**Local area network system address** The label that uniquely identifies the local area network (LAN) connection for your workstation at the hardware level. This 48-bit number is preassigned by HP on their computers and it must never be changed.

**Log in** v. To initially sign on to the system so that you may begin to use it. This creates your first user process. *See also username.*

**Login** n. A session. Or, a string of characters that uniquely identifies a user of the system. *See also session, user account, and username.*

**Login directory** The directory in which you are placed when you log in, usually your home directory.

*See also home directory.*

**Login manager** The program that controls the initial startup of HP CDE and accepts the user’s username and password.

**Login script** The shell program that runs at each login, and sets the login environment for your system.

## M

**Menu bar** An area at the top or bottom of a window that contain the titles of the pull-down or pop-up menus for that application.

**Minimize button** In HP CDE, a push-button on the window frame that turns a screen into an icon. *See also icon, iconize.*

**Monitor type.** A monitor path name (graphics(1) through graphics(6)) that is associated with a particular resolution and refresh frequency at which you want your monitor to operate. The monitor type is selected using the Boot Console Interface. See Chapter 5.

**Mouse pointer.** *See pointer.*

### N

**Name** A character string associated with a file, directory, or link. A name can include various alphanumeric characters, but never a slash (/) or null character. *See also pathname.*

**Network** Two or more workstations sharing information. *See also cluster; workstation.*

**Network controller** A printed circuit board that passes bit streams between the network and the main memory of the workstation. Coupled with the network transceiver, the controller also handles signal processing, encoding, and network media access.

**Node** A computer that is on a network. Each node in the network can use the data, programs, and devices of other network nodes, assuming permissions are set up properly. Each node contains main memory and has its own disk or shares one with another node.

*See also disked workstation, diskless workstation, workstation.*

**Node name** A unique identifying

name given to a workstation in a cluster. *See also cluster; node.*

**Nonvolatile memory** System memory that retains its contents even after workstation power is turned off.

### O

**Object** Any file, directory, or link in the network. *See also directory, file, link, pathname.*

**Operating system** The program that supervises the execution of other programs on your workstation. For example, the entire HP-UX system, including the kernel and all HP-UX commands. *See also kernel.*

**Option** *See command option.*

**Output device** Any of several pieces of hardware used for receiving messages from the computer and storing them, or making them perceptible by humans. Disks and tapes, computer monitors, printers, plotters are examples of output devices. *See also input device.*

**Output window** The window that displays a process response to your command.

### P

**Parent directory** A directory that contains other directories, each of which is then called a subdirectory. *See also subdirectory.*

**Password** The secret word you enter next to the password prompt at login time to permit only authorized access. Keep your password secret and change it occasionally in order to protect your account from unauthorized use. *See also user account.*

**Path** The hardware address of a device that is attached to the I/O system of your workstation.

**Path name** A slash-separated series of zero or more directory names followed by a filename, that together describe the path within the file system from some starting point to a destination object. Pathnames (other than the degenerate empty case) begin with the name of the starting point, and include every directory name between the starting point and the destination object. A pathname ends with the name of the destination object. *See also name, object.*

**Permissions** A set of rights (read, write, execute) associated with an object in the file system. Determines who may use the object and how.

**PID** Process Identifier. Also referred to as a process ID. *See also process ID.*

**PIM.** Processor Internal Memory. The pim command is a command used by the Boot Console Interface for determining specific system faults. *See also processor internal memory.*

**Pointer** Sometimes called the “mouse pointer,” the pointer’s location on the display corresponds to the mouse’s location. The pointer’s shape often depends on the object its hot-spot covers (this is used as a visual feedback mechanism from a program to the user). In the HP CDE Workspace, the default pointer is an X; on a window frame, it is either a simple arrow, or an arrow with one or more straight lines touching it (to indicate any of the eight window-resizing regions).

**Process** A computing environment in which you may execute programs; a program currently running in the system.

**Process ID** A unique identification number assigned to all processes by the operating system. Also referred to as a PID. *See also PID.*

**Processor internal memory.** A storage area in a processor's internal memory (for example, EEPROM) that is set at the time of a high-priority machine check (HPMC), low-priority machine check, soft boot or TOC, and is composed of the architected state save error parameters, and hardware version-dependent regions.

**Program.** A unit of executable code, in source-code or binary form. Most HP-UX commands and routines consist of programs.

**Prompt** A message or symbol displayed by the system to let you know that it is ready for your input.

**Push button** A graphic control that simulates a real-life push button. Use the pointer and mouse to push the button and start an action or set a state.

## R-S

**RAM** Random-access memory.

**ROM** Read-only memory.

**root** *See superuser.*

**Scroll bar** A vertical or horizontal bar located on the side or bottom of a window that allows the user to view information that does not fit within the window.

**SCSI** *See Small Computer System Interface.*

**Server.** A program that controls all access to input and output devices.

**Session** The time between when you log in and when you log out. Also called a “work session” or a “login session.” *See also current session.*

**Shell** A command-line interpreter program used to invoke programs. Some examples of HP-UX shells are the Bourne, Korn, Key, and C shells. Sometimes referred to as a “command interpreter.” *See also command interpreter.*

**Shell command** An instruction you give the system to execute a utility program or shell script.

*See also shell script, utility program.*

**Shell script** A file that contains commands that the system can interpret and run in a shell.

**Shutdown** The process of taking the system from multi-user state to system administration state.

**Slider** One of the components of a scroll bar. The slider is the object that is dragged along the scroll area to cause the window’s contents to move, exposing previously hidden content.

**Small Computer System Interface (SCSI)** An IEEE standard for interfacing a computer to multiple, disparate high-speed peripherals such as a disk drive, a CD-ROM drive, or a scanner, etc., singly or in

combination.

**SPA.** Soft Physical Address. *See also soft physical address.*

**Soft physical address (SPA).**

This is a location in system memory associated with the DIMM cards.

**Standalone** A workstation that is not part of a cluster. *See also cluster.*

**Style manager** The HP CDE application that provides the ability to customize various user-interface aspects of your system, including colors, fonts, keyboard and mouse attributes, session start-up and termination behavior, and access to other workstations.

**Subdirectory** A directory that is located in, or anywhere on a path below, another directory. The directory above the subdirectory is called the “parent directory.” A subdirectory is also referred to as a “child directory.” *See also parent directory.*

**Superuser** A user with permission to enter any directory and make changes to files and

programs that typical users are not allowed to change. To “become superuser” or “become root” means to let the system know that you are now assuming the role of system administrator. You can do this either by logging into the system as user root, or by typing su (switch user) at a command-line prompt. You must know the root password to become root.

**System administrator** The person responsible for system and network installation, updating, maintenance, and security at your site.

**System call** Invocation of a kernel process by a user program.

**System name** *See internet protocol address.*

### T-U

**Terminal window** A terminal window is a type of HP CDE window that emulates a complete display terminal. Terminal windows are typically used to fool window-dumb programs into believing they are running in their favorite terminal. When not running programs or executing operating system commands,

terminal windows display the command-line prompt. *See also HP Common Desktop Environment.*

**Title bar** The rectangular area, between the top of the window and the window frame, that contains the title of the window object.

**TOC.** *See transfer of control.*

**Transceiver.** A device that transmits and receives signals.

**Transfer of control.** Saves the state of the processor in Processor Internal Memory (PIM) and pending I/O operations are not disturbed.

**User account.** The system administrator defines a user account for every person authorized to use the system. Each user account contains the name the computer uses to identify the person (user ID), and the person’s password. User accounts also contain project and organization names, to help the system determine who can use the system and what resources each person or organization is authorized use.

*See also user ID, password.*

**User ID** The name the computer uses to identify you. Your system administrator assigns you a user ID. Enter your user ID during the login procedure when the system displays the login prompt. *See also user account.*

**Username** The name that the system recognizes as uniquely yours. Also known as your “login name.” The username is also the name that identifies you to the mail system and other software requiring secure entry.

**Utility** *See utility program.*

**Utility program** A program provided with the operating system to perform a frequently required task, such as printing a file or displaying the contents of a directory. *See also command, shell command.*

## W

**Window** A rectangular area of the screen for viewing information. HP CDE allows you to create several types of windows on the screen. Each window is a separate computing environment in which you may execute programs, edit text, display graphical images,

etc. *See also Workspace Manager.*

**Window manager** The HP CDE program that controls the size, placement, and operation of windows.

**Working directory** *See current working directory.*

**Workspace** What the screen becomes when you start HP CDE. Although you can hide the workspace under terminal windows or other graphic objects, you can never position anything behind the workspace. All windows and graphic objects appear stacked “on top of” the workspace. *See also HP Common Desktop Environment, terminal window.*

**Workspace manager** The program that controls the size, placement, and operation of windows on the HP CDE Workspace. The Workspace Manager is a special Window Manager. *See also Window Manager.*

**Workstation** A compact, graphics-oriented computer having high speed and high memory capacity. A workstation usually includes a computer, a keyboard, and a monitor. *See also node, disked workstation, diskless workstation.*



## Numerics

- 802.3 network
  - Problem, 186
  - Solution, 186
- 802.3 twisted pair LAN connector, 22, 26

## A

- all, 181
- Applications, FCC B, 200
- Audio connectors, 22, 26
- Audio electrical specifications, 27
- auto boot, 176
- Auto boot, setting, 176
- auto search, 176
- Auto search, setting, 176

## B

- B2000 key features, 17
- Bezel latch button, 76
- Bezel lock, 76
- boot, 156
- Boot console interface features, 151
- Boot console interface menu
  - Configuration, 153
  - Information, 154
  - Main, 151
  - Service, 155
- Boot console interface, accessing, 149
- Boot failures, dealing with, 189
- Boot path, mnemonic style notation, 161
- Bootable media, searching, 159
- Booting and loading the operating system
  - Problem, 186
  - Solution, 186
- Booting computer, 156
- Busy indicator, 61
- Button, TOC, 22

## C

- Care, CD-ROM, 41
  - Cautions and warnings, 205
  - CD drive, 42
    - Installing, 88
    - Problem, 187
    - Removing, 95
    - Solution, 187
  - CD drive, controls and features, 43
  - CD drive, operating, 42
  - CD drive, verifying, 54
  - CD-ROM drive, 21
  - CD-ROM media, 41
  - CD-ROM, care, 41
  - CD-ROM, loading and unloading, 45
  - CD-ROM, mounting and unmounting, 48
  - Common
    - Problems, 185
    - Solutions, 185
  - Computer, booting, 156
  - Computer, resetting, 160
  - Configuring, floppy driver, 55, 70
  - Connector
    - 802.3 twisted pair LAN, 26
    - Audio, 22, 26
    - LAN (802.3 Twisted Pair), 22
    - Parallel (IEEE 1284), 22, 26
    - Power cord, 22, 28
    - RS-232C serial I/O, 22, 24
    - USB, 22
  - Console, changing to an external terminal, 172
  - cpio, 70
  - cstm, 196
- ## D
- Device files, using, 63
  - disk, 54

doscp, 70  
dosls, 70  
Driver, disk, 54

## E

Eject button, 61  
Electrical specifications, audio, 27  
Electrostatic discharge (ESD), 14  
EMI compliance, 22  
EMI gasket, 79  
Emissions regulations, 200  
Emissions regulations compliance, third party, 203  
ESD (electrostatic discharge), 14

## F

Fast Narrow Single-Ended SCSI, 23  
fastboot, 179  
Fastboot mode  
  Displaying, 179  
  Setting, 179  
FCC B applications, 200  
floppy, 69, 70  
Floppy disk drive, 21  
  Busy indicator, 61  
  Controls and features, 61  
  Eject button, 61  
  Installing, 101  
  Operating, 61  
  Problem, 188  
  Removing, 109  
  Solution, 188  
  Verifying configuration, 69  
Floppy diskette, 62  
  Formatting, 66  
  Inserting, 63  
  Removing, 63  
  Restoring files, 68

  Saving files, 67  
  Transferring data, 67  
Floppy diskette write-protect tab, 62  
Floppy diskette, listing files, 68  
Floppy driver, configuring, 55, 70  
Formatting, floppy diskette, 66

## G

Graphics path parameters, 164  
graphics, optional, 18

## H

Hard disk drive  
  Configuring, 127  
  Installing, 117  
  Problem, 187  
  Removing, 123  
  Solution, 187  
Hardware address, 161  
Hardware configuration  
  Left side panel of the system unit, 78  
  System unit front panel, 76  
Headphones jack, 23  
Host name, 34  
HP Year 2000 Warranty, 3

## I

I/O card  
  Installing, 85  
  Removing, 83  
  Slot number and capabilities, 81  
I/O card slots, rear panel, 23  
I/O, displaying the status of the system, 175  
I/O, standard, 18  
ide, ipl device type, 159  
IEEE 1284, parallel connector, 22  
Ignition, Instant, 35  
Information, displaying system, 181

---

# Index

---

Instant Ignition, 35  
Instant ignition, 32  
Instant Information, 37  
Interface, user, 17  
Internal storage devices, 17  
Internet protocol (IP) address, 33  
Internet protocol address, 34  
io, 175  
ioscan, 54, 69  
IP address, 33  
ipl device type  
  disk, 159  
  ide, 159  
  lan, 159  
  pcin, 159  
  scsi, 159

**J**

Japan, VCCI Class B ITE, 201

**K**

Keyboard, USB, 25  
Korea RRL, 201

**L**

LAN station address, displaying, 180  
LAN station ID, 33  
lan, ipl device type, 159  
lanaddress, 180  
Laser safety statement, 204  
LCD fan failures and warnings, 193  
LCD information, 192  
LCD symbols, 20  
LED information, 204  
Left side panel of the system unit, 78  
Line input jack, 23  
Line output jack, 23  
Liquid crystal display (LCD), 20

Liquid Crystal Display (LCD) information, 192  
Listing files, floppy diskette, 68  
Loading and booting the operating system  
  Problem, 186  
  Solution, 186  
Loading, CD-ROM, 45

## M

man, 70  
Mask, subnetwork, 33  
Media devices, removable, 21, 88  
Media, CD-ROM, 41  
mediainit, 71  
memory, 173  
Memory card  
  Installing, 132  
  Removing, 138  
Memory cards (DIMM cards), 132  
Memory configuration, displaying, 173  
Memory failures, 191  
Memory information sample, 174  
Memory, main, 17, 31  
Microphone jack, 23  
monitor, 163  
Monitor configuration, displaying, 165  
Monitor problems, troubleshooting, 145  
Monitor type  
  Changing, 141  
  Displaying and setting, 163  
  Setting, 166  
  Setting at power on, 141, 170  
  Setting from boot console interface, 142  
  Setting using SAM, 142, 167  
Monitor, troubleshooting, 171, 195  
Monitors, 18, 31  
Mounting, CD-ROM, 48  
mstm, 196

## N

Network, standard, 18

## O

Operating system, 17

Operating system overview, 32

## P

Parallel connector, 22

Parallel connector, IEEE 1284, 22

Parallel I/O connector, 26

Parallel port (IEEE 1284), 18

path, 161

Path type

    alternate or alt, 161

    console or con, 161

    keyboard or key, 161

    primary or pri, 161

Paths, displaying and setting, 161

PCI slots, 18

pcin, ipl device type, 159

Peripheral component interconnect (PCI)  
    slots, 18

Power cord connector, 22

Power input, 23

Power switch, 20

Power, turning on, 35

Powering up the system

    Problem, 185

    Solution, 185

Problem

    802.3 network, 186

    CD drive, 187

    Floppy disk drive, 188

    Hard disk drive, 187

    Loading and booting the operating system,  
        186

    Powering up the system, 185

Product description, 17

## R

Rear panel

    Fast Narrow Single-Ended SCSI, 23

    Headphones jack, 23

    I/O card slots, 23

    Line input jack, 23

    Line output jack, 23

    Microphone jack, 23

    Power input, 23

    Serial interface port, 23

    Ultra2 Wide LVD SCSI, 23

    USB ports, 23

Rear panel connectors, system unit, 23

Regulations, emissions, 200

Regulatory and safety information, special,  
    204

Removable media devices, 21, 88

reset, 160

Restoring files, floppy diskette, 68

RRL, Korea, 201

RS-232C serial I/O connector, 22, 24

## S

Safety and Regulatory information, special,  
    204

Safety statement, laser, 204

Saving files, floppy diskette, 67

scsi, ipl device type, 159

search, 159

secure, 178

Security mode

    Displaying, 178

    Setting, 178

Serial interface port (RS-232C), 18

set\_parms, 36

shutdown -q, 20

---

# Index

---

## Solution

- 802.3 network, 186
- CD drive, 187
- Floppy disk drive, 188
- Hard disk drive, 187
- Loading and booting the operating system, 186
- Powering up the system, 185
- Specifications, audio electrical, 27
- Subnetwork mask, 33
- Switch, power, 20
- Symbols, LCD, 20
- System information, displaying, 181
- System LCD, 20
- System overview, operating, 32
- System unit front panel, 76
- System unit rear panel connectors, 23
- System verification tests, running, 196

## T

- tar, 70
- Terminal, changing the console to an external, 172
- Third party emissions regulations compliance, 203
- Time zone, 34
- TOC button, 22
- Transferring data, floppy diskette, 67

## U

- Ultra2 Wide Low-Voltage Differential SCSI, 23
- Universal serial bus (USB), 18
- Unloading, CD-ROM, 47
- Unmounting, CD-ROM, 51
- USB
  - Keyboard, 25
- USB connectors, 22

- USB ports, 23
- User interface, 17

## V

- VCCI Class B ITE (Japan), 201
- Verifying, CD drive, 54
- Video configuration statement, special, 202

## W

- Warnings and cautions, 205
- Warranty, 3
- Workstation ACE for HP-UX 10.20 (December 1999), 32
- Write-protect tab, floppy diskette, 62

## X

- xstm, 196