

HP 4x Speed
CD-ROM Disk Drive
User's Guide



Workstation Systems Group
Order No. A1658-90669
Edition E0895
Printed in U.S.A.

© Hewlett-Packard Co. 1995

First Printing: August, 1995

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

NOTICE

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

HEWLETT-PACKARD MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance or use of this material.

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 which 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.

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

10 9 8 7 6 5 4 3 2 1

Contents

Preface

Audience	vii
Safety and Regulatory Statements	vii
Installation Notice	viii
Related Manuals	viii
Revision History	ix
Problems, Questions and Suggestions	ix
Documentation Conventions	x

Chapter 1 Preparing for Installation

General Description	1-2
Major Features of the CD-ROM Drive	1-3
CD-ROM Drive Environmental Requirements	1-4
CD-ROM Drive Physical Specifications	1-5
Preparing to Install the CD-ROM Drive	1-6
Tools Required	1-6
Verifying Kit Contents	1-6
Set the SCSI-2 Address	1-7
Address Jumpers	1-8
Prepare the System	1-10
Single-Ended SCSI-2 Bus Configuration Constraints	1-13
SCSI-2 Bus Termination Guidelines	1-15
Power Off the Workstation and any Peripherals	1-16

Chapter 2 Using your CD-ROM Drive

Your CD-ROM Drive Configuration	2-2
SCSI ID and Device File Information for HP-UX 9.05	2-2
SCSI ID and Device File Information for HP-UX 10.0	2-2
Controls and Features of the CD-ROM Drive	2-3
Using the CD-ROM Drive	2-5
Media Description	2-5
Disc Tray Description	2-6
Loading a CD-ROM Disc in a Horizontally Mounted Drive	2-7
Unloading a CD-ROM Disc in a Horizontally Mounted Drive	2-8
Loading a CD-ROM Disc in a Vertically Mounted Drive	2-9
Unloading a CD-ROM Disc in a Vertically Mounted Drive	2-10
Mounting a CD-ROM Disc	2-11
Unmounting a CD-ROM Disc	2-12
Reading the Busy Light	2-14

Chapter 3 Maintenance and Troubleshooting

Caring for the CD-ROM Discs	3-2
Troubleshooting	3-3
Check the Address Settings for Single-Ended Drives	3-3
Check the Hardware Installation	3-6
Recheck the Address Settings	3-7
Verify the System Operation using SupportWave	3-8
Removal And Replacement Procedures	3-12
Field Replaceable Units	3-12
Power Off the System	3-12
Removing and Replacing the CD-ROM Drive	3-12

Appendix A Safety and Regulatory Statements

Emissions Regulations	A-2
Federal Communications Commission (FCC)	A-2
Canadian Department of Communications (CDC)	A-2
Emissions Regulations Compliance	A-3
Acoustics	A-3
Regulation On Noise Declaration For Machines –3. GSGV	A-3
Electrostatic Discharge (ESD) Precautions	A-4
LASERTURVALLISUUS	A-5
Laser Safety Statement (For U.S.A. Only)	A-5
IEC 825 Class 1 Laser Labels	A-6
Warnings and Cautions	A-7

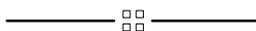
Appendix B SCSI Connector Pinout

Figures

1-1.	HP 4x Speed CD-ROM Drive	1-2
1-2.	HP 4x Speed CD-ROM Physical Specifications	1-2
1-3.	SCSI-2 Address Settings	1-9
2-1.	CD-ROM Drive Controls and Features	2-3
2-2.	CD-ROM Disc Tray	2-6
2-3.	Placing the CD-ROM Disc in the Disc Tray (Horizontal Mount)	2-7
2-4.	Removing the CD-ROM Disc in the Disc Tray (Horizontal Mount)	2-8
2-5.	Inserting a CD-ROM Disc (Vertical Mount)	2-9
2-6.	Removing a CD-ROM Disc from the Disc Tray (Vertical Mount)	2-10

Table

1-1.	Single-Ended SCSI-2 Bus Configuration Constraints (per bus)	1-13
2-1.	CD-ROM Drive Operating Controls and Features	2-4
B-1	SCSI Connector Pinouts	B-1



Preface

The *HP 4x Speed CD-ROM Disc Drive User's Guide* describes how to install, configure, and use the HP 4x Speed CD-ROM Disc Drive with an HP 9000 Series 700 workstation.

We've organized this guide as follows:

- Chapter 1** Describes the preparation procedures for installing the CD-ROM Disc Drive into the system.
- Chapter 2** Describes the installation procedures for the CD-ROM Disc Drive and how to verify the CD-ROM Disc Drive installation.
- Chapter 3** Describes what to do if you experience problems when attempting to use the CD-ROM Disc Drive. It also explains how to check the installation of the new CD-ROM Disc Drive.

Audience

This guide is intended for use by anyone familiar with the *HP 9000 Series 700 Owner's Guide* who wants to install and configure the CD-ROM Drive.

Safety and Regulatory Statements

See Appendix A in the back of this manual for the safety and regulatory statements that apply to the HP 4x Speed CD-ROM Disc Drive.

Installation Notice

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

Related Manuals

For more information, refer to the following documents:

- The Owner's Guide that came with your system
- *HP-UX Installing Peripherals: HP 9000 Series 700* (B2355-90006)
- *Using Your HP Workstation* (A2615-90003)
- *HP Visual User Environment User's Guide* (B1171-90061)
- *System Administration Tasks HP 9000 Series 700 Computers* (B2355-90040)
- *Using HP-UX* (B2910-90001)

Revision History

The revision history for each edition of the manual is listed below:

Edition	Revision History
E0895	First Printing.

Problems, Questions, and Suggestions

If you have any questions or problems with our hardware, software, or documentation, please contact either your HP Response Center or your local HP representative.

Documentation Conventions

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

literal values Bold words or characters in formats and command descriptions represent commands that you must use literally. Pathnames are also in bold.

user-supplied values Italic words or characters in formats and command descriptions represent values that you must supply. Italics are also used in text for emphasis.

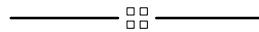
screen display Information that the system displays appears in this typeface.



A rectangle with rounded corners and a key label denotes a key on your keyboard. (In this manual we refer to the **Return** key. On your keyboard the key may be labeled either **Return** or **Enter**.)



This symbol indicates the end of a chapter or part of this guide.



Chapter 1

Preparing for Installation

This document describes the HP 4x Speed CD-ROM drive, and its installation, operation and maintenance.

This chapter introduces the CD-ROM drive and contains the following information:

- General description of the CD-ROM drive
- Major features of the CD-ROM drive
- Preparing to install the CD-ROM drive
- Power off the workstation and any peripherals.

General Description

The HP 4x Speed CD-ROM drive is a random access, read-only, mass storage device that uses removable CD-ROM discs. The drive contains a semiconductor laser for reading data optically, and includes an embedded controller with a SCSI interface.

The CD-ROM drive supports the ISO 9660 and High Sierra format standards. You can access information from the drive like any other disk drive, however, you may not write to the drive.

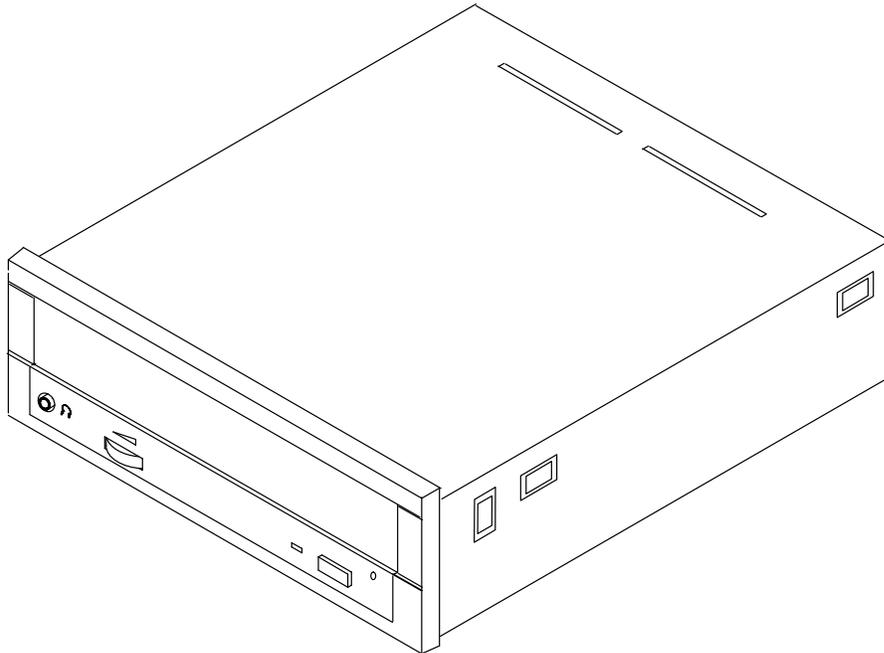


Figure 1-1. HP 4x Speed CD-ROM Drive

Major Features of the CD-ROM Drive

The CD-ROM drive offers the following features:

- 12cm/8cm discs
- 600 kB sustained transfer rate
- Supports 1X, 2X or 4X rotational modes
- 190 ms random access time
- 150 ms random seek time
- Built-in SCSI-2 controller
- Electric Load/Eject tray
- Emergency Eject
- Remote SCSI ID jumper block
- Horizontal or vertical physical orientation
- Software Volume Control (L/R channel independent)
- Snap-on bezel
- Continuous rotary volume control for headphones

CD-ROM Drive Environmental Requirements

The CD-ROM drive has the following environmental requirements:

- **Temperature**

Operating	5 deg. C to 50 deg. C (41 deg. F to 122 deg. F)
Non-Operating	-10 deg. C to 60 deg. C (14 deg. F to 140 deg. F)

- **Altitude**

Operating	3000 m (10000 ft.)
Non-Operating	12000 m (40,000 ft.)

- **Humidity**

Operating @ 22 deg. C	8% to 80 %RH (Non-Condensing)
Non-Operating @ 60 deg. C	5% to 95 %RH (Non-Condensing)

CD-ROM Drive Physical Specifications

The following illustration describes the physical specifications of the CD-ROM drive.

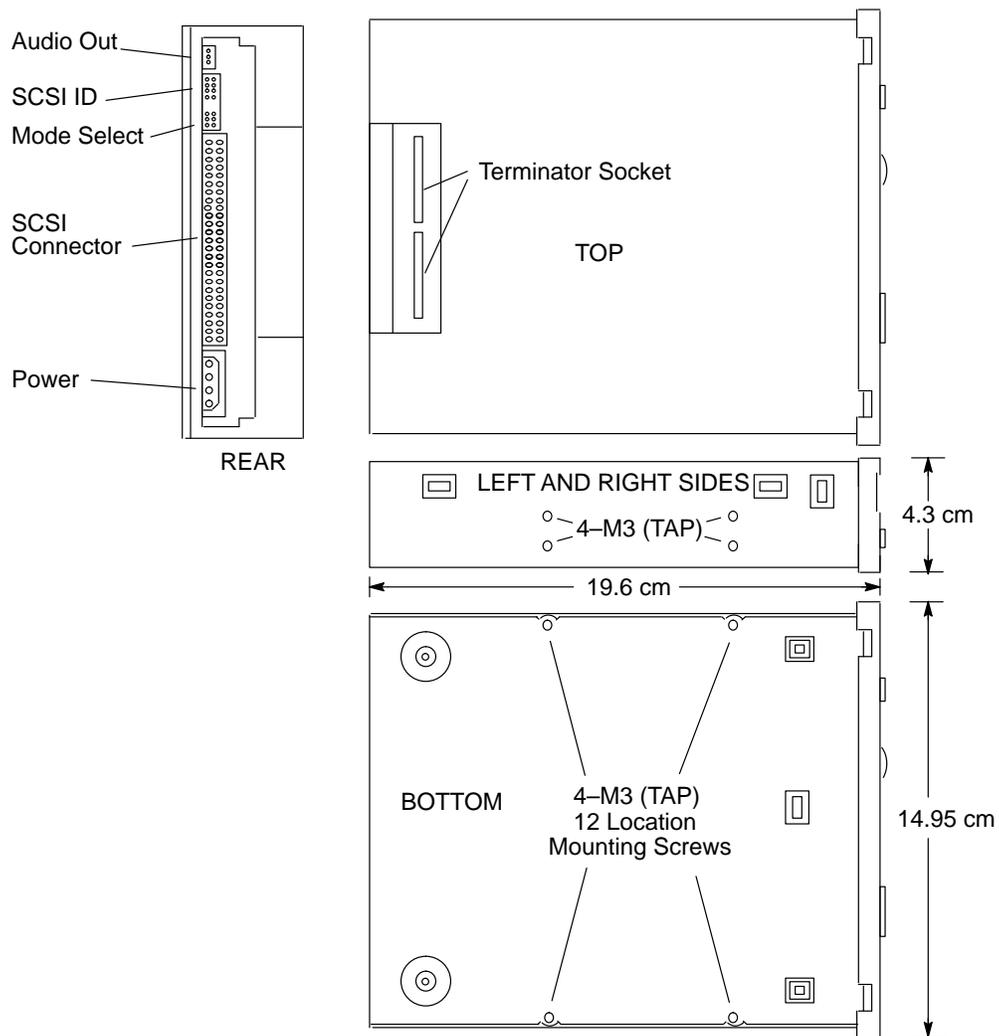


Figure 1-2. HP 4x Speed CD-ROM Physical Specifications

Preparing to Install the CD-ROM Drive

The following information is provided to prepare the CD-ROM for installation.

Tools Required

The following tools are needed to install the CD-ROM drive:

- #2 Phillips screwdriver
- Small needle-nose pliers

Verifying Kit Contents

Verify that the kit contains one of each of the following:

- CD-ROM drive (drive P/N A4325-60001)
- Set of 4 screws (M4x6)
- Power adapter cable
- SCSI I/O cable
- Static strap
- HP 4x Speed CD-ROM Disk Drive User's Guide (A1658-90669)

NOTICE: If any contents of your kit are missing, contact your sales representative.

Minimum Requirements

Minimum requirement for the HP-UX operating system is level 9.03 for the HP 4x Speed CD-ROM drive.

NOTICE: You must use software patch PHSS_5764 under HP-UX 9.03, 9.05 and 9.07 to run SupportWave successfully.

Set the SCSI-2 Address

The CD-ROM drive must have a unique SCSI-2 target address. The CD-ROM drive's jumpers are set, at the factory, to the SCSI-2 default address of 2 as shown in Figure 1-3. You must also ensure that the operating mode jumpers are set for correct drive operation. We ship the drive with the operating mode jumpers set to operate correctly with your system. We recommend you keep the default address if possible.

CAUTION: SCSI-2 disk drives are susceptible to mechanical and electrostatic shock. When handling the disk drives, always wear the static-grounding wrist strap that came in the CD-ROM drive kit. Always handle the CD-ROM drive carefully.

Electrostatic charges can damage CD-ROM drives. To prevent such damage from occurring, observe the following precautions during unpacking and installation:

- Stand on a static-free mat.
- Wear a static strap to ensure that any accumulated electrostatic charge discharges from your body to ground.
- Connect all equipment together, including the static-free mat, static strap, routing nodes, and peripheral units.
- Keep uninstalled CD-ROM drives in their protective antistatic bags.

Use the following instructions to set the SCSI-2 address jumpers on your drive:

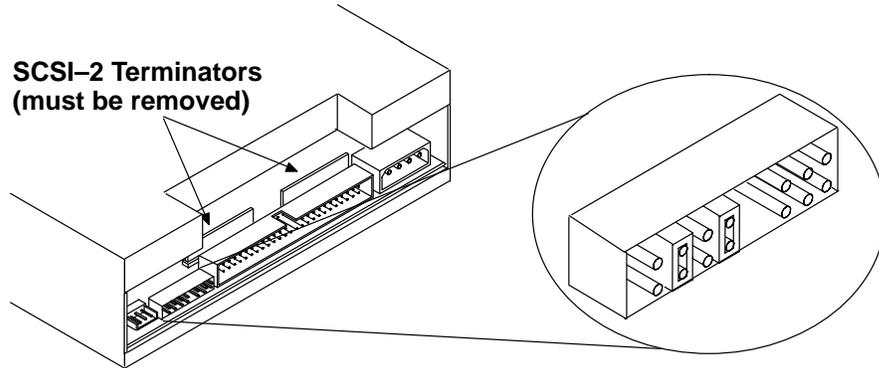
Address Jumpers

To set the drive's address, use the SCSI-2 address jumpers. Perform the following steps to set the drive's address:

- 1.** Attach the static-grounding wrist strap by following the instructions on the package that contains the strap. Attach one end of the strap to the system chassis.
- 2.** Locate the address jumpers on the rear of the CD-ROM drive, as shown in Figure 1-3.
- 3.** Set the drive's SCSI-2 target address to an address that's not used by another SCSI-2 device. Use jumpers, as shown in Figure 1-3; use needlenose pliers to set the jumpers.

NOTICE: **Do not** use SCSI-2 address 7 because the system's SCSI-2 controller uses address 7 by default. We advise that you **do not** use SCSI-2 address 6 because the root disk drive uses it.

Ensure that the SCSI-2 terminators are removed.



Jumpers							Jumpers								
Target ID	ID1	ID2	ID4	PRTY	PRV/ALW	TEST	TERM	Target ID	ID1	ID2	ID4	PRTY	PRV/ALW	TEST	TERM
0	○	○	○	○	○	○	○	4	○	○	○	○	○	○	○
1	○	○	○	○	○	○	○	5	○	○	○	○	○	○	○
2	○	○	○	○	○	○	○	6	○	○	○	○	○	○	○
Default	○	○	○	○	○	○	○	Default for /root (NOT recommended for CD-ROM drive)	○	○	○	○	○	○	○
3	○	○	○	○	○	○	○								

Figure 1-3. SCSI-2 Address Settings

Prepare the System

Perform the following steps to prepare the system for the CD-ROM drive installation:

1. Determine the existing SCSI-2 address settings currently in use on your system.

Before installing the drive, determine which SCSI-2 ID address settings are already being used on your system by completing the following substeps:

2. If you are using HP-UX 9.05, enter the following at the prompt:

```
/etc/ioscan -d scsi 
```

After a few moments the **ioscan** utility lists all of the SCSI I/O devices it could find. If there is a SCSI CD-ROM drive in the list, that listing appears similar to the following:

```
H/W Path  Description          Status
=====
2.0.1.2.0 scsi              ok (nnnnnnnn)
```

If you are using HP-UX 10.0, enter the following at the prompt:

```
/usr/sbin/ioscan -d sdisk 
```

After a few moments the **ioscan** utility lists all of the SCSI I/O devices it could find. The list appears similar to the following:

```
H/W Path      Class          Description
=====
                bc
8              bc          I/O Adapter
8/0            ext_bus        GSC built-in Fast/Wide SCSI Interface
8/0.0          target
8/0.0.0        disk          QUANTUM LPS1080WD
8/0.5          target
8/0.5.0        disk          DEC      DSP3210SW
8/0.6          target
8/0.6.0        disk          DEC      DSP3210SW
8/12           ba
8/12/5         ext_bus        Built-in SCSI
8/12/5.2       target
8/12/5.2.0     disk.         TOSHIBA CD-ROM XM-4101TA
8/12/5.4       target
8/12/5.4.0     disk.         SEAGATE ST3600N
8/12/5.6       target
8/12/5.6.0     disk          MICROP  2112
10             bc          I/O Adapter
10/12          ext_bus        GSC add-on Fast/Wide SCSI Interface
10/12.4        target
10/12.4.0      disk          SEAGATE ST31200W
```

If **ioscan** does not see your CD-ROM drive it returns the following message:

```
ioscan: No hardware found
```

If you receive this message, go to Chapter 3, “Maintenance and Troubleshooting.”

3. Shut down the system.

If you are running HP-UX under HP VUE, shut down your system by performing the shutdown procedure described in your Owner's Guide which came with your workstation.

If you are running HP-UX without HP VUE, shut down your system by typing the following command:

```
# /etc/shutdown -h 
```

You must have superuser privileges to use the **/etc/shutdown** command. If you do not have superuser privileges, contact your system administrator.

If your workstation is part of a cluster, refer to the *Managing Clusters of HP 9000 Computers* manual for instructions on shutting down.

Single-Ended SCSI-2 Bus Configuration Constraints

For the single-ended SCSI-2 bus, HP-UX supports only **one** of each type of removable-media disk drive (i.e., floppy disk, CD-ROM, or magneto-optical drives) and **two** of the same type tape devices (i.e., 4-mm DDS tape drives or 9-track tape drives), per SCSI bus. You may connect no more than seven SCSI-2 devices to each single-ended SCSI-2 bus.

Table 1–1 shows the configuration constraints for each single-ended SCSI-2 device type. You may connect no more than seven SCSI-2 device IDs to each single-ended SCSI-2 bus. Some SCSI-2 devices use more than one SCSI-2 drive address. Each address must be accounted for in the maximum number of SCSI-2 devices allowed.

CAUTION: Do not connect single-ended SCSI-2 devices to a differential SCSI-2 bus or differential SCSI-2 devices to a single-ended SCSI-2 bus. Connecting a SCSI-2 device to the wrong SCSI-2 bus can cause system failure.

Table 1–1. Single-Ended SCSI-2 Bus Configuration Constraints (per bus)

Single-Ended SCSI-2 Devices	Maximum Number of Each Type of Device Allowed
Hard Disk Drives	7
Floppy Disk Drives	1
CD-ROM Drives	1
4-mm DDS Tape Drives	2
9-Track Tape Drives	2
650-MB Magneto-Optical Drives	1
Magneto-Optical Autochangers (see notice below)	1
8-mm Cartridge Tape Subsystem	2
8 Serial Port Terminal Server	1
Maximum Number of SCSI-2 Devices (per bus)	7
NOTICE: Magneto-Optical Autochangers use more than one SCSI-2 drive address. Each address must be accounted for in the maximum number of SCSI-2 devices allowed.	

SCSI-2 Bus Termination Guidelines

There are certain guidelines to follow when terminating a SCSI-2 bus. These guidelines are:

- CAUTION:** Unless the SCSI-2 bus is properly terminated, the bus will not operate. Terminators provide impedance matching on SCSI-2 bus signal lines.
- The last device connected to the SCSI-2 bus must be terminated with a SCSI-2 terminator. Use a Hewlett-Packard K2291 50-pin low-density bail-lock active terminator or a Hewlett-Packard C2904A high-density thumbscrew active terminator to terminate the last SCSI-2 option device.
 - Any termination on other devices on the bus must be removed. This includes external termination plugged into a SCSI-2 receptacle on the device, or internal resistor packs. (Refer to peripheral device or system configuration manuals for termination information).

Power Off the Workstation and any Peripherals

To power off the workstation and any peripherals, perform the following steps:

1. Power off the workstation, using the power switch on the front of the workstation.

CAUTION: Do not power off your workstation without first shutting down HP-UX. Powering off with HP-UX still running could damage the data on the disks associated with your workstation.

If you are already at the boot-administration level (the level used to check the SCSI-2 IDs), you do not need to shut down before powering off.

If you accidentally rebooted HP-UX while determining the address settings, see “Prepare the System,” earlier in this chapter, for instructions on shutting down HP-UX.

2. Disconnect the power cord from the rear of the workstation and the wall outlet.
3. Power off any external peripherals attached to your workstation, and unplug their power cables from the wall outlet.

You are now ready to begin the hardware installation of your new CD-ROM drive. The step-by-step instructions for installing the drive are found in your Owners Guide.



Chapter 2

Using Your CD-ROM Drive

This chapter provides the following information on using your CD-ROM drive:

- Your CD-ROM drive configuration
- Controls and features of the CD-ROM drive
- Using the CD-ROM drive

NOTICES: The CD-ROM drive is a read-only device. You may access files stored on a CD-ROM disc, but you cannot write to a CD-ROM disc.

All instructions in this chapter assume your CD-ROM drive SCSI ID is set to 2 – the default ID set by the factory.

All SCSI devices can use the `scsi` device driver.

To verify HP-UX system operation, see your System's Owners Guide

For more information on checking or reconfiguring the kernel for a device driver or file, see the *System Administration Tasks Manual: HP 9000 Series 700 Computers*.

Your CD-ROM Drive Configuration

Your HP-UX operating system comes with preconfigured device files and drivers. If you use these preconfigured device files and drivers, you won't need to configure your CD-ROM drive with the operating system.

SCSI ID and Device File Information for HP-UX 9.05

The default device files for the CD-ROM drive are in the `/dev/dsk` or `/dev/rdsk` directories. The underlined number located in the sixth position in the device file name indicates the SCSI address used in the file. For example, the device file `c201d2s0` located in `/dev/dsk` was created for SCSI address 2.

SCSI ID and Device File Information for HP-UX 10.0

Default device file names for the CD-ROM is shown below.

Device	Device File Name
CD-ROM drive	<code>/dev/[r]dsk/c##d#</code>

where

`c#` identifies the bus address of the SCSI interface card

`t#` identifies the target address of the SCSI disk

`d#` identifies the SCSI lun address (0, except for disk arrays)

Device file names for CD-ROM drives at HP-UX 10.0 depend on the naming conventions of the system on which you are installing.

To create your own device files, you must reconfigure your drive with the operating system. You can use either the System Administration Manager (SAM) or HP-UX commands to set up the kernel and device files. With each, you must perform the following steps:

1. Check the kernel for a device driver. If the device driver is not there, you must create one and then reconfigure the kernel.
2. Create the appropriate device files.
3. Add a CD-ROM file system (**cdfs**).

Controls and Features of the CD-ROM Drive

Figure 2-1 shows the operating controls and features of the CD-ROM drive. Table 2-1 describes each of these controls and features.

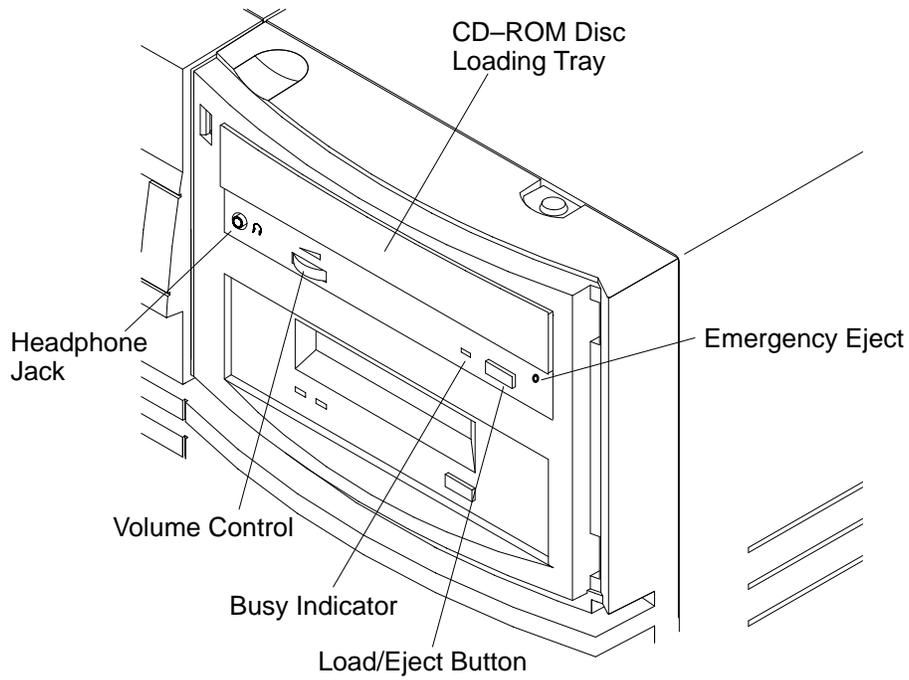


Figure 2-1. CD-ROM Drive Controls and Features

Table 2-1. CD-ROM Drive Operating Controls and Features

Control/Feature	Purpose
Eject Button	Press the Eject Button to eject the disc tray. When the drive is in use, you must unmount the disc before ejecting it. Refer to the subsection “Unmounting a CD-ROM disc” for instructions on unmounting a disc.
Busy Indicator	The Busy Indicator lights during a data access operation and blinks during a data transfer. The indicator stays out when there is one of the following: <ul style="list-style-type: none">• Defective disc• Disc insertion error (for example, an upside-down disc)• No disc present
Disc Loading Tray	Tray for loading the disc. Eject the disc tray to insert or remove a disc. The tray does not open if the drive power is off.
Emergency Eject	By inserting the end of a paper clip, you can eject the disc tray if the workstation does not have power.

Using the CD-ROM Drive

This section provides the following information about using the CD-ROM drive:

- Media description
- Disc tray description
- Loading and unloading the CD-ROM disc
- Mounting and unmounting a CD-ROM disc
- Reading the drive's busy light

Media Description

CD-ROM discs are identical to audio compact discs (CDs), except that they store computer data. CD-ROM discs are 120 mm (4.7 in.) in diameter, and use one data surface with a capacity of 600 megabytes.

Disc Tray Description

This CD-ROM drive is mounted either horizontally or vertically. The disc tray has three disc holders which are used when the CD ROM drive is mounted vertically. The three disc holders are spring loaded to hold the disc in place. When the drive is mounted horizontally, the three disc holders are not used and are held out of the way by the three disc holder retainers. (see Figure 2-2)

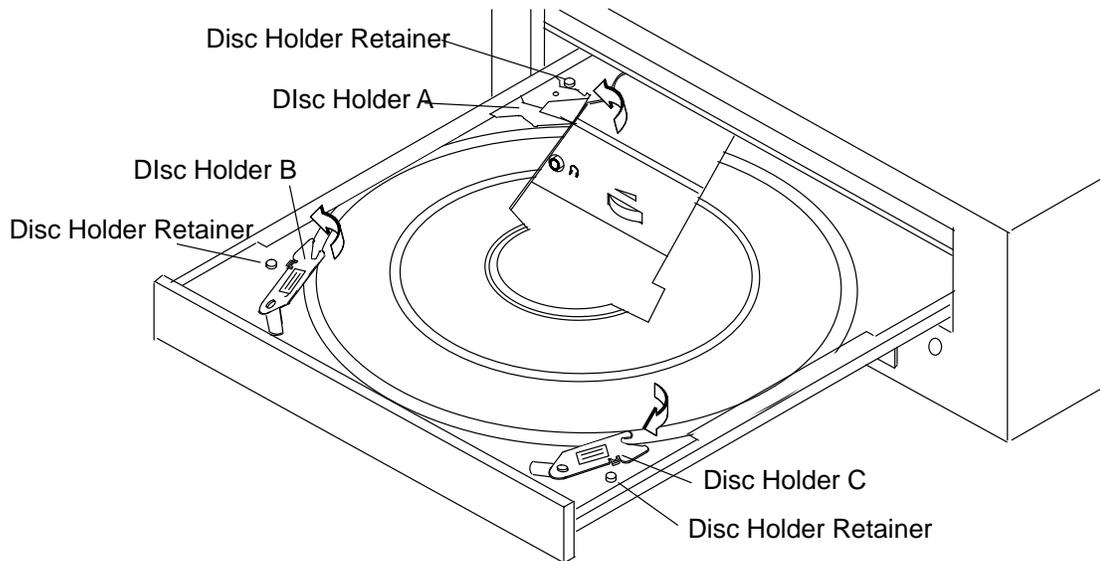


Figure 2-2. CD-ROM Disc Tray

Loading a CD-ROM Disc in a Horizontally Mounted Drive

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

1. Check that the workstation is powered on.
2. To open the Disc Tray, press and release the Load/Eject button on the CD-ROM drive.
3. Ensure the disc holders are held away from disc by the disc holder retainers.
4. Hold the disc by the edges with the label side up and place it in the Disc Tray as shown in Figure 2-3.
5. To close the Disc Tray, push the front of the disc tray gently towards the drive until it closes by itself or press the Load/Eject button.

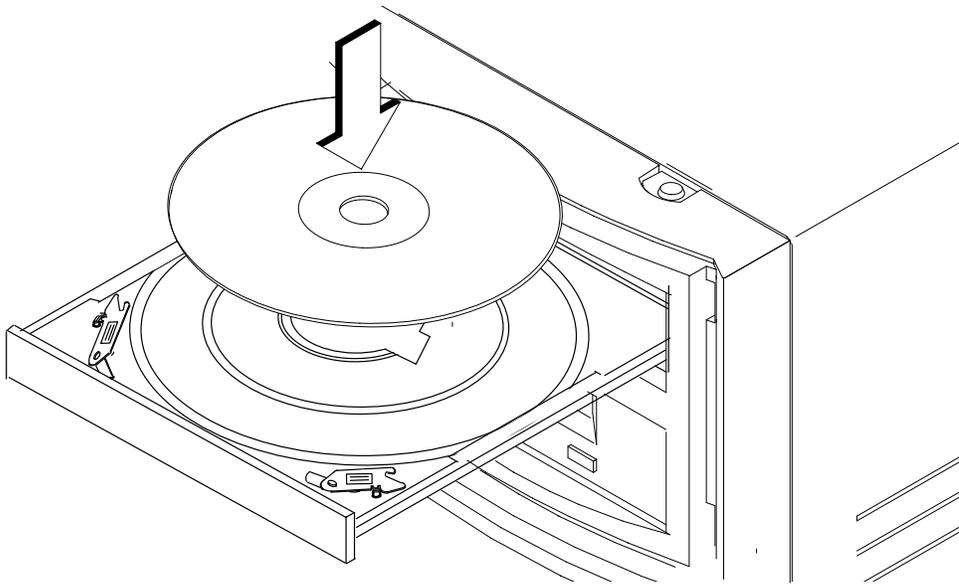


Figure 2-3. Placing the CD-ROM Disc in the Disc Tray (Horizontal Mount)

Unloading a CD-ROM Disc in a Horizontally Mounted Drive

Perform the following steps to unload a disc from the CD-ROM drive:

1. Press the eject button to eject the disc tray from the drive. If the drive is in use, you must unmount the disc to eject the disc tray. The emergency eject feature allows you to eject the disc tray if the normal procedure fails. See Table 2-1.

NOTICE: You must unmount the disc before ejecting it from the drive. Refer to the subsection, “Unmounting a CD-ROM Disc,” for instructions on unmounting a disc.

2. Wait until the drive has fully ejected the disc tray, then remove the disc from the tray as shown in Figure 2-4. Be careful to touch only the edges of the disc.

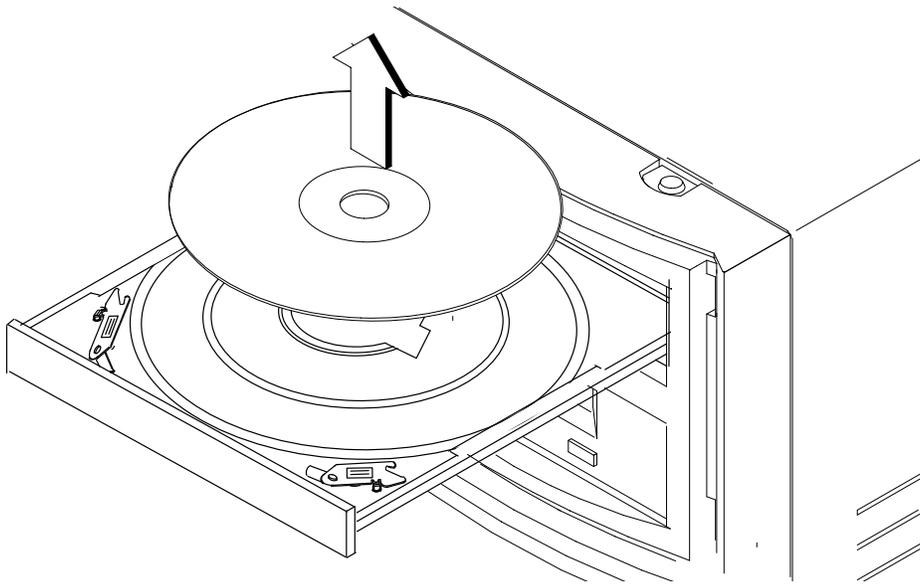


Figure 2-4. Removing the CD-ROM Disc From the Disc Tray (Horizontal Mount)

3. To close the Disc Tray, push the front of the disc tray gently towards the drive until it closes by itself.

Loading a CD-ROM Disc in a Vertically Mounted Drive

- 1.** Hold the disc with the label side to the left and place the edge of the disc onto disc holders A and B as shown in Figure 2-5.
- 2.** Press down gently against the spring tension of disc holders A and B and swing the top of the disc in until it is held by disc holder C.
- 3.** To close the Disc Tray, push the front of the disc tray gently towards the drive until it closes by itself.

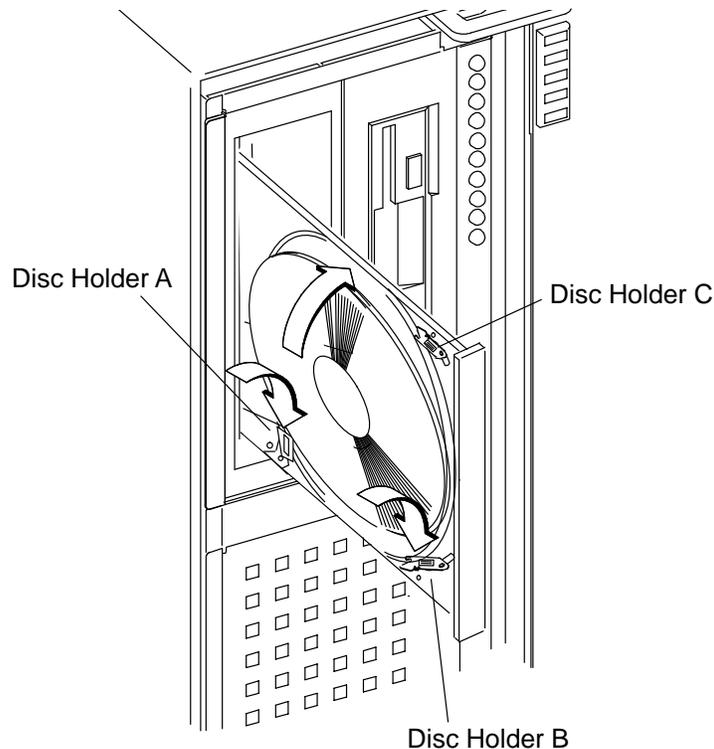


Figure 2-5. Inserting a CD-ROM Disc (Vertical Mount)

Unloading a CD-ROM Disc in a Vertically Mounted Drive

1. Press the eject button to eject the disc tray from the drive. If the drive is in use, you must unmount the disc to eject the disc tray. The emergency eject feature allows you to eject the disc tray if the normal procedure fails. See Table 2-1.

NOTICE: You must unmount the disc before ejecting it from the drive. Refer to the subsection, “Unmounting a CD-ROM Disc,” for instructions on unmounting a disc.

2. Press down gently against the spring tension of disc holders A and B and swing the top of the disc away from disc holder C, as shown in Figure 2-6
3. Remove the disc from disc holders A and B.
4. To close the Disc Tray, push the front of the disc tray gently towards the drive until it closes by itself or press the Load/Eject button.

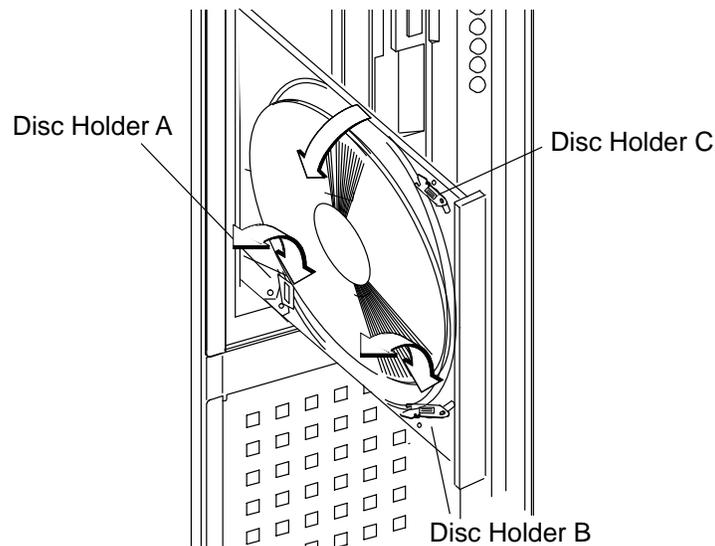


Figure 2-6. Removing a CD-ROM Disc from the Disc Tray (Vertical Mount)

Mounting a CD-ROM Disc

To access your CD-ROM drive, you must mount a CD-ROM disc every time you insert it into the drive.

CAUTION: Failure to mount a disc may cause a system error condition and may also require rebooting the system.

Perform the following steps to mount a disc:

1. Insert the CD-ROM disc into the disc tray, as described in “Inserting and Removing CD-ROM Discs Into and From the Disc Tray,” earlier in this chapter.
2. Load the disc tray into the drive, as described in “Loading a CD-ROM Disc Tray,” earlier in this chapter.
3. Using the **mkdir** command, create a mount directory (for example, **/cdrom**) to define where to access the CD-ROM file system, as shown:

```
mkdir /cdrom 
```

4. Mount the CD-ROM disc every time you insert it into the drive. The **mount** command uses the following syntax:

```
mount sfname directory -options
```

where *sfname* is the name of the block device file associated with the drive containing the file system to be mounted.

directory is the mount point directory in the existing file system where the file system is to be mounted.

options are any restrictions specified by the user.

Mount all CD-ROM discs using the **mount** command with **-t cdfs** options. The following example uses the preconfigured block device file **/dev/dsk/c201d2s0** for the CD-ROM drive, set for default SCSI address 2, and **/cdrom** as the mount directory. The device

Using HP-UX 9.05

```
/etc/mount /dev/dsk/c201d2s0 /cdrom -t cdfs 
```

Using HP-UX 10.0

```
/etc/mount /dev/dsk/c#t#d# /cdrom -t cdfs 
```

c# identifies the bus address of the SCSI interface card

t# identifies the target address of the SCSI disk

d# identifies the SCSI lun address (0, except for disk arrays)

Device file names for CD-ROM drives at HP-UX 10.0 depend on the naming conventions of the system on which you are installing.

5. Now you can access the CD-ROM disc as you would any other mounted file system. Enter the following command to change your working directory to the CD-ROM disc:

```
cd /cdrom 
```

Unmounting a CD-ROM Disc

You must unmount the CD-ROM disc before you eject it from the drive.

CAUTION: You must unmount the CD-ROM disc every time you unload it from the drive. Failure to unmount a disc can cause a system error condition and may also require rebooting the system.

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

Use the following procedure to unmount a CD-ROM disc:

1. Unmount the disc by entering the following:

Using HP-UX 9.05

`/etc/umount /dev/dsk/c201d2s0`

Using HP-UX 10.0

`/etc/umount /dev/dsk/c#t#d#`

2. Press the eject button on the CD-ROM drive.
3. Remove the disc from the drive.

Reading the Busy Light

The CD-ROM busy light shows the status of the drive during self test and during activity with the host system.

The CD-ROM drive performs a self test when one of the following happens:

- You insert a disc into the drive.
- You turn on the drive with a disc already loaded.

For the self test, the busy light operates in the following sequence:

1. Light On – The busy light goes on when the disc loads into the drive.
2. Light Flashing – The light flashes 12 times while a read test is performed on the disc.
3. Light Off – The light goes off when the self test is complete.

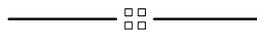
The busy light goes off when one of the following conditions exist:

- Defective disc
- Disc insertion error (for example, an upside-down disc)
- No disc present
- A CD-ROM drive power failure exists.
- The drive is idle on the SCSI bus.

The busy light flashes at 3.2 second intervals when cleaning is required for either the disc or optics.

The busy light flashes at 1.6 second intervals when playing an audio track.

The busy light stays on during normal activity with the system.



Chapter 3

Maintenance and Troubleshooting

This chapter provides the following information on maintenance and troubleshooting your CD-ROM drive:

- Caring for CD-ROM discs
- Troubleshooting
- Removal and Replacement Procedures

Caring for the CD-ROM Discs

Use the following guidelines to help care for your CD-ROM discs.

- Use CD-ROM discs in a clean environment to prevent dust particles from scratching disc surfaces.
- Store CD-ROM discs in a cool, dry place to prevent moisture and heat damage.
- If the CD-ROM disc is dirty, wipe it with a soft cloth. Don't try to clean the surface of a CD-ROM disc with cleaning solvents, as some cleaning solvents may damage the disc.

Troubleshooting

If you have trouble with any of these procedures for using your CD-ROM drive, see your System Owners Guide

This chapter explains what to do if you experience problems during the configuration process. It also explains how to run the Support Tool Manager or the Extended Self Test to verify your system.

If you are experiencing difficulty booting the system, reconfiguring HP-UX, or using the CD-ROM drive, complete each of the following tasks, in the order they are presented, until you discover and correct the problem:

- Check the address settings of any single-ended SCSI-2 devices.
- Check that you have installed the hardware correctly.
- Recheck the device list.
- Run verification tests.

Check the Address Settings for Single-Ended Drives

Check the address settings of each single-ended SCSI-2 device on the bus. Make sure that no device has the same address setting of another. If you find two devices with the same address, change one of the devices to a different, unused address setting. To check the address settings for each single-ended SCSI-2 device, type the following in a terminal window or HP-UX command line:

If you are using HP-UX 9.0x, enter the following at the prompt:

```
/etc/ioscan 
```

A screen similar to the following appears:

H/W Path	Description	Status
1.0.0	graphics	ok(0x577)
2.0.1	scsi	ok(0x7071)
2.0.1.2.0	disk	ok(0x202)
2.0.2	lan	ok(0x7072)
2.0.3	hil	ok(0x7073)
2.0.4	serial	ok(0x7075)
2.0.5	serial	ok(0x7075)
2.0.6	parallel	ok(0x7074)
2.0.7	scsi	ok(0x707c)
2.0.7.6.0	disk	ok(0x101)

Look under the **H/W Path** heading for device paths beginning with the sequence **2.0.1**. The sequence **2.0.1** denotes single-ended scsi controller. The number following **2.0.1** is the address setting for a single-ended device on that controller. For example, the listing **2.0.1.2.0** in the sample device list tells us that there is a single-ended device currently using address 2.

If you are using HP-UX 10.0, enter the following at the prompt:

```
/usr/sbin/ioscan -d sdisk RETURN
```

After a few moments the **ioscan** utility lists all of the SCSI I/O devices it could find. The list appears similar to the following:

H/W Path	Class	Description
=====		
	bc	
8	bc	I/O Adapter
8/0	ext_bus	GSC built-in Fast/Wide SCSI Interface
8/0.0	target	
8/0.0.0	disk	QUANTUM LPS1080WD
8/0.5	target	
8/0.5.0	disk	DEC DSP3210SW
8/0.6	target	
8/0.6.0	disk	DEC DSP3210SW
8/12	ba	Core I/O Adapter
8/12/5	ext_bus	Built-in SCSI
8/12/5.2	target	
8/12/5.2.0	disk.	TOSHIBA CD-ROM XM-4101TA
8/12/5.4	target	
8/12/5.4.0	disk.	SEAGATE ST3600N
8/12/5.6	target	
8/12/5.6.0	disk	MICROP 2112
10	bc	I/O Adapter
10/12	ext_bus	GSC add-on Fast/Wide SCSI Interface
10/12.4	target	
10/12.4.0	disk	SEAGATE ST31200W

Check the Hardware Installation

Perform the following steps to check the hardware installation:

CAUTION: The CD-ROM drive is susceptible to mechanical and electrostatic shock. When handling the drive, always wear the static strap that came in the CD-ROM drive kit. Always handle the drive carefully.

1. Check that the SCSI-2 terminator is connected to the single-ended SCSI-2 port on the rear I/O panel of the system unit (if there are no external SCSI-2 devices), or that the last external single-ended SCSI-2 device is terminated.
2. Attach the static-grounding wrist strap by following the instructions on the package that contains the strap.
3. Shut down HP-UX.

NOTICE: If you are already at the boot administration level, you do not need to shut down; skip this step and go on to Step 4.

If you are running HP-UX under HP VUE, shut down your system by performing the shutdown procedure described in your Owner's Guide which came with your workstation.

If you are running HP-UX without HP VUE, shut down your system by typing the following command:

```
# /etc/shutdown -h 
```

You must have superuser privileges to use the `/etc/shutdown` command. If you do not have superuser privileges, contact your system administrator.

If your workstation is part of a cluster, refer to the *Managing Clusters of HP 9000 Computers* manual for instructions on shutting down.

4. Power off the workstation, using the power switch on the front of the workstation.

CAUTION: Do not power off your workstation without first shutting down HP-UX. Powering off with HP-UX still running could damage the data on the disks associated with your workstation.

5. Remove the drive and check the jumpers, as described in Removal and Replacement Procedures at the end of this chapter.
6. Replace the drive.
7. Check the cable connections of your CD-ROM drive. Make sure that the connectors are aligned and seated correctly.
8. Recheck the device list (see the next section).

Recheck the Address Settings

Check the address settings again to see if the drive is now listed (see the “Check the Address Settings” section, earlier in this chapter).

If the CD-ROM drive and all other SCSI-2 devices available to you before you installed the CD-ROM drive are now listed, run the system verification test for your software version, as explained in the next sections.

If the CD-ROM drive is still not listed, or one of the SCSI-2 devices available to you before you installed the CD-ROM drive is still not listed, contact your service representative.

Verify the System Operation using SupportWave

HP-UX uses a diagnostics product called SupportWave. SupportWave contains the Support Tools Manager so that you can verify your system operation.

You can access the Support Tools Manager while in a terminal window. If you are using HP-VUE as your interface, you can also access the Support Tools Manager through the **sys_admin** directory.

NOTICE: You must use software patch PHSS_5764 under HP-UX 9.03, 9.05 and 9.07 to run SupportWave successfully.

Three interfaces are available with 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 SupportWave user interfaces, see the online man pages by entering the following at a command line prompt:

```
# man cstm 
```

```
# man mstm 
```

```
# man xstm 
```

To run SupportWave from either HP VUE or the HP-UX command line shell, perform the following steps:

1. To invoke the command line interface, in a terminal window or command line shell, type the following at the # prompt:

```
# ctm RETURN
```

The following screen appears:

```
*****  
*****  
*****          SUPPORT TOOLS MANAGER          *****  
*****  
*****          Command Line Interface          *****  
*****  
*****          Version  A.00.12                *****  
*****  
*****          Part Number  B2478-10002        *****  
*****  
*****          (C) Copyright Hewlett Packard Co. 1991, 1992 *****  
*****          All Rights Reserved              *****  
*****  
*****  
Please wait. System mapping in progress . . .  
Please type HELP or ? to list available commands.  
CSTM>
```

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

CSTM> **verify all**

Messages that are similar to the following appear:

Verification has started on device (CPU).
Verification has started on device (FPU).
Verification has started on device (0/0/0).
Verification has started on device (2/0/1.5.0).
Verification has started on device (2/0/1.6.0).
Verification has started on device (2/0/2).

CSTM>Message from (0/0/0):

This graphics test displays a number of graphics images on the screen of the graphics device being tested. If an X server is not currently running on that display, X Windows will be started and run for the duration of the test. The Starbase shared library (/usr/lib/libsb.sl) should be present to run this test.

CAUTION: This test will fail if any portion of the test window is modified or overlaid in any way.

NOTE: If a VUE login screen is currently displayed on the monitor, the test will wait until someone logs in the HP VUE on the graphics monitor to release the lock. The test stops if the Screen Saver times out, it runs again once the Screen is activated.

WARNING: Do not run this exerciser with any other operation.

(Type 'R' for Ready, Type 'S' for Skip) [R] >>

3. When you see the >> prompt shown above, type the following:

R **RETURN**

The following messages and a graphics test window appear:

Verification of (2/0/1.5.0) has completed. Result status – (Success).
Verification of (2/0/1.6.0) has completed. Result status – (Success).
Verification of (CPU) has completed. Result status – (Success).
Verification of (FPU) has completed. Result status – (Success).
Verification of (2/0/2) has completed. Result status – (Success).
Verification of (0/0/0) has completed. Result status – (Success).

4. To return the CSTM> prompt, press **RETURN**.

5. To exit the Support Tools Manager, enter the following:

CSTM> **exit** **RETURN**

If any tests failed, further diagnosis is necessary by qualified service personnel.

Removal and Replacement Procedures

The Removal and Replacement Procedures for the CD-ROM Drive follow.

CAUTION: Electrostatic charges can damage the integrated circuits on printed circuit boards. To prevent such damage from occurring, follow proper ESD precautions

Field Replaceable Units

The following components are authorized for field replacement.

Description	Part Number
CD-ROM Drive	A4325-60001

Power Off the System

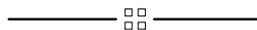
Before performing the Removal and Replacement Procedures, observe the following precautions:

1. Please refer to your system's Owner's Guide for the procedures to power off the system.
2. Unplug the system unit power cord and the power cords of any peripheral devices from the power source.
3. Unplug the system unit power cord from the back of the system unit.

WARNING: Failure to properly shut down and remove power from the system may create a personal hazard, or may result in hardware damage or data corruption.

Removing and Replacing the CD-ROM Drive

To open your system, remove and reinstall the CD-ROM drive, refer to your system Owners Guide. Pre-installation information is found in Chapter 1 of this document.



Appendix A

Safety and Regulatory Statements

This appendix contains the following safety and regulatory statements:

- Emissions regulations
- Emissions regulations compliance
- Acoustics
- Electrostatic discharge precautions
- Laser Safety Statement
- Warnings and cautions

Emissions Regulations

Federal Communications Commission (FCC)

The Federal Communications Commission of the U.S. government regulates the radio frequency energy emanated by computing devices through published regulations. These regulations specify the limits of radio frequency emission to protect radio and television reception. All HP Apollo nodes and peripherals have been tested and comply with these limits. The FCC regulations also require that computing devices used in the U.S. display the agency's label and that the related documentation include the following statement:

NOTICE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Department of Communications (CDC)

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

Emissions Regulations Compliance

Any third-party I/O device installed in HP Apollo 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.

Acoustics

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

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.
- Connect all equipment together, including the static-free mat, static strap, routing nodes, and peripheral units.
- Keep uninstalled printed circuit boards in their protective antistatic bags.
- Handle printed circuit boards by their edges, once you have removed them from their protective antistatic bags.

LASERTURVALLISUUS LOUKAN 1 LASERLAITE KLUSS 1 LASER APPARAT

HP 4x Speed CD-ROM-lukulaite sisältää laitteensisäisen CD-ROM-yksikön, joka on laserlaite.

Kyseinen CD-ROM-yksikkö on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalisssa käytössä yksikön suojakotelo estää lasersäteen pääsyn laitteen ulkopuolelle.

CD-ROM-yksikön on tyyppihyväksynyt Suomessa laserturvallisuuden osalta Työministeriön työsuojeluosasto. Laitteen turvallisuusluokka on määritetty valtioneuvoston päätöksen N:o 472/1985 ja standardin SFS-EN 60825 (1992) mukaisesti.

Tiedot CD-ROM-yksikössä käytettävän laserdiodin säteilyominaisuuksista:

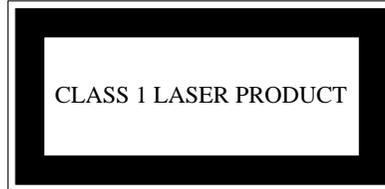
Aallonpituus	790 nm
Teho	1,1 μ W
Luokan 1 laser	

Laser Safety Statement (For 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.

**IEC 825 Class 1
Laser Labels**





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.

CAUTION:

System power cord must be plugged into an accessible dedicated ac mains receptacle.

VORSICHT:

Das System-Netzanschlußkabel muß an eine zugängliche spezielle Wechselstrom-Hauptzuführungssteckdose angeschlossen werden.

ATTENTION:

Le fil d'alimentation électrique du système doit être branché dans une prise de courant c.a. spécialisée accessible.



Appendix B

SCSI Connector Pinouts

This appendix provides a table listing the pinouts for the SCSI Connector on the CD-ROM drive.

Table B-1. SCSI Connector Pinouts

PIN	SIGNAL	PIN	SIGNAL
1	GND	26	TERMPWR
2	DB(0)	27	GND
3	GND	28	GND
4	DB(1)	29	GND
5	GND	30	GND
6	DB(2)	31	GND
7	GND	32	-ATN
8	DB(3)	33	GND
9	GND	34	GND
10	DB(4)	35	GND
11	GND	36	-BSY
12	DB(5)	37	GND
13	GND	38	-ACK
14	DB(6)	39	GND
15	GND	40	-RST
16	DB(7)	41	GND
17	GND	42	-MSG
18	DB(P)	43	GND
19	GND	44	-SEL
20	GND	45	GND
21	GND	46	-C/D
22	GND	47	GND
23	GND	48	-REQ
24	GND	49	GND
25	OPEN	50	-I/O



Order Number: A1658-90669
Edition E0895
Printed in U.S.A.

