

Compaq Professional Workstation SP750

Hardware Reference Guide



COMPAQ

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Professional Workstation SP750

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Compaq Professional Workstation SP750

Hardware Reference Guide

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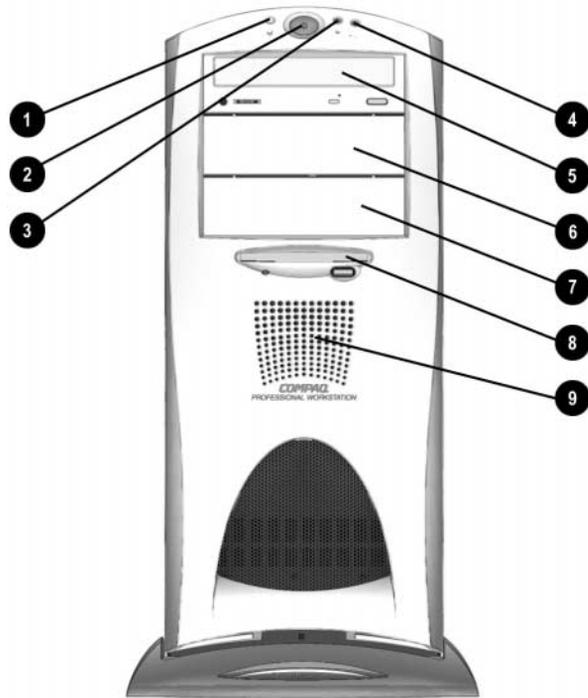
chapter 1

PRODUCT FEATURES

Standard Configuration Features

Features of the Compaq™ Professional Workstation SP750 may vary depending on your model. For a complete listing of the hardware and software installed in your workstation, run the INSPECT utility described in the Troubleshooting Guide.

Front Panel Components

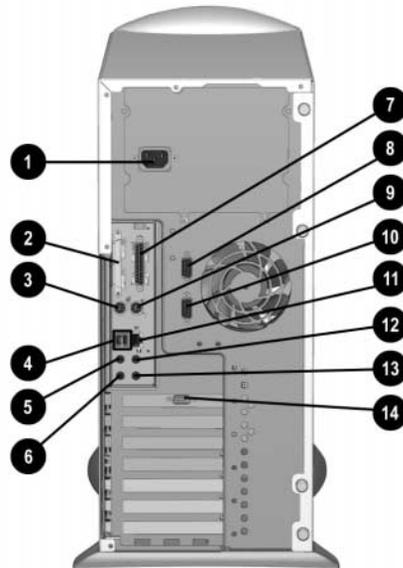


Front panel components

- 1 Power-on light
- 2 Power button
- 3 Hard drive activity light
- 4 Network activity light
- 5 CD-ROM (Bay 4)
- 6 Open bay (Bay 5)
- 7 Open bay (Bay 6)
- 8 Diskette bay (Bay 7)
- 9 Speaker

* An optional ZIP drive can be installed in bay 5 or 6.

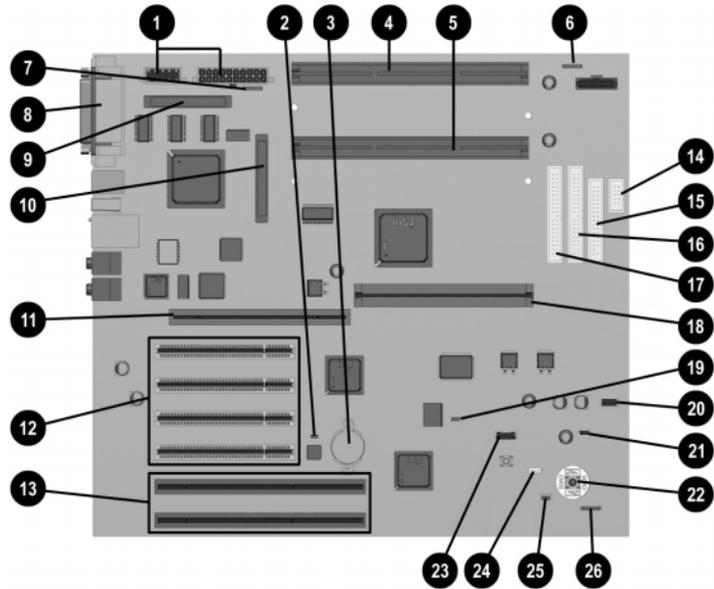
Rear Panel Components



Rear panel components

- 1 Power cord connector
- 2 Ultra3 SCSI connector
- 3 Keyboard connector
- 4 Two universal serial bus (USB) connectors
- 5 Line-out audio connector
- 6 Headphone connector
- 7 Parallel connector
- 8 Serial connector B
- 9 Mouse connector
- Serial connector A
- ; RJ-45 connector
- < Line-in audio connector
- = Microphone connector
- > VGA (AGP) connector

System Board Components



System board components

1	Power connectors	ρ	Power switch and LED connector
2	Power-on password (P49) enable jumper	τ	Diskette drive connector
3	Battery	ψ	Secondary Ultra ATA (IDE) connector
4	Primary processor slot	υ	Primary Ultra ATA (IDE) connector
5	Secondary processor slot	ι	Memory board connector
6	Processor cage fan connector	ο	SCSI option card and LED connector
7	Back processor fan connector	π	CD audio connector
8	External Ultra3 SCSI connector	α	Speaker connector
9	Ultra3 SCSI connector (Channel B)	σ	SW50 CMOS pushbutton switch
–	Ultra3 SCSI connector (Channel A)	δ	Alert on LAN connector
θ	AGP expansion slot	φ	Wake on LAN connector
ω	PCI expansion slots 1-4	γ	Hood sensor connector
ε	PCI expansion slots 5 and 6	η	Chassis fan connector

Windows Logo Key

Use the Windows Logo Key in combination with other keys to perform certain functions in Windows 2000 Professional and Windows NT Workstation 4.0.

Windows logo key + F1	Displays a pop-up menu for the selected object.
Windows logo key + Tab	Activates the next Taskbar button.
Windows logo key + E	Launches Explore My Computer.
Windows logo key + F	Launches Find Document.
Windows logo key + Ctrl + F	Launches Find Computer.
Windows logo key + M	Minimizes all open applications.
Shift+Windows logo key + M	Undoes Minimize All.
Windows logo key + R	Displays Run dialog box.

Special Mouse Functions

Most software applications support the use of a mouse. The functions assigned to each mouse button depend on the software application you are using.

Serial Number Location

Each computer has a unique serial number located on the corner of the computer access panel and on the rear panel of the computer. Keep this number available when contacting Compaq customer service.

chapter 2

HARDWARE UPGRADES

This chapter explains how to access the Compaq Professional Workstation SP750 by removing the workstation access panel and front bezel. It also explains how to install the following replacement hardware:

- Memory
- Drives
- Expansion boards
- Processors



Compaq recommends that you finish the setup procedures for the preinstalled software **before** you install any optional hardware or third-party devices that were not included with your workstation.

Installation Sequence

Follow this sequence of steps to ensure the proper installation of any optional equipment. Before you begin, observe the following precautions:



WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.



WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telecommunications/telephone connectors into the network interface controller (NIC) receptacles.



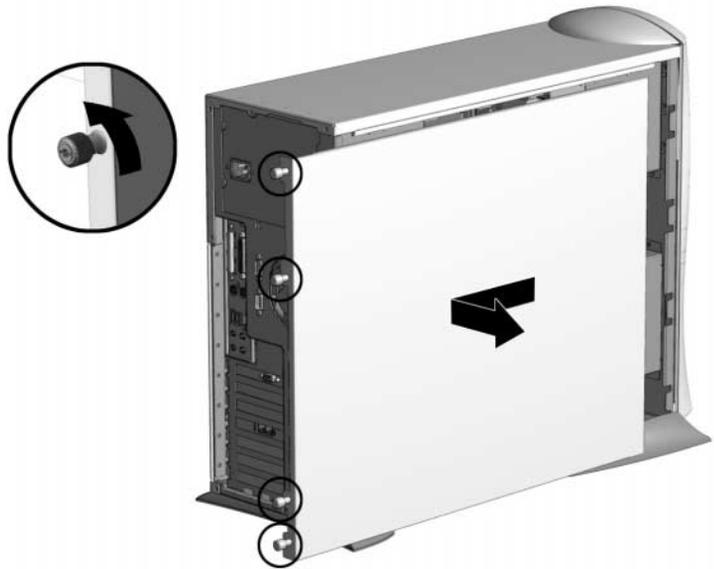
CAUTION: Static electricity can damage the electronic components of the workstation or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.

1. Turn off the workstation and disconnect the power cord from the grounded AC outlet and the back of the workstation.
2. Open the workstation by removing its workstation access panel. See the section, “Removing the Workstation Access Panel,” in this chapter for instructions.
3. If you are installing or removing drives in the front bays, see the section, “Removing the Front Bezel,” in this chapter for instructions.
4. Install any optional equipment, such as memory, drives, expansion boards, a processor, or battery. See the appropriate sections in this chapter or the appendix for installation instructions.
5. Replace the front bezel and the workstation access panel, if necessary.
6. Reconnect the power cord to the back of the workstation and plug the power cord into a grounded AC outlet.
7. Turn on the monitor, workstation, and any devices you installed.
8. Reconfigure the workstation, if necessary.
9. Test the workstation (optional) using the TEST utility.

Removing the Workstation Access Panel

To remove the workstation access panel:

1. Turn off the workstation and any external devices.
2. Disconnect the power cord from the grounded AC outlet and the back of the workstation.
3. Refer to the following illustration to remove the workstation access panel.



Loosening the four thumbscrews and the workstation access panel

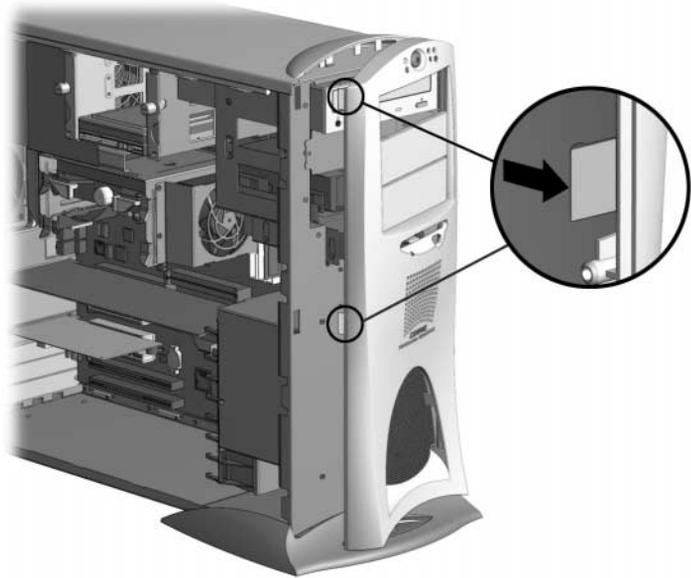


When replacing the workstation access panel, be sure to tighten all four thumbscrews.

Removing the Front Bezel

To remove the front bezel:

1. Turn off the workstation and any external devices.
2. Disconnect the power cord from the grounded AC outlet and the back of the workstation.
3. Remove the workstation access panel. Refer to the instructions in “Removing the Workstation Access Panel” in this chapter.
4. Push in on the two front bezel release tabs, then rotate the front bezel away from the chassis to release it.



Pressing the front bezel release latches to remove the front bezel

- ✎ When replacing the front bezel, ensure that the bottom hinge points are properly placed in the chassis before rotating the front bezel back into its original position.

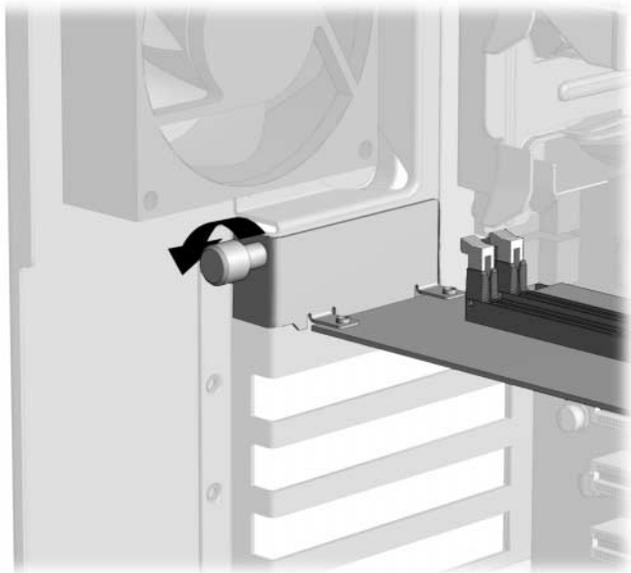
Installing Additional Memory

The workstation supports Error Checking and Correcting (ECC) Direct Rambus inline memory modules (RIMMs). Additional RIMMs are available to upgrade the memory. A maximum of 32 count devices is supported on each Rambus channel. Continuity RIMMs (CRIMMs) must populate any empty slots.

Removing a Memory Board

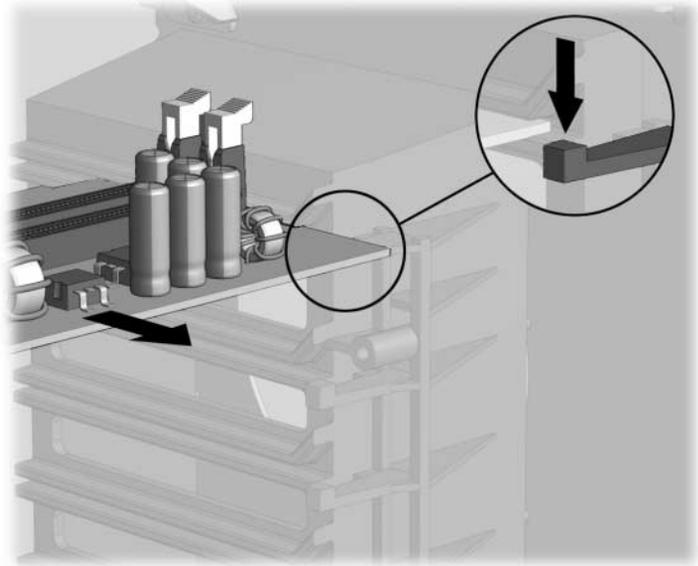
To remove a memory board to install additional memory:

1. Turn off the workstation and disconnect the power cord from the grounded AC outlet and the back of the workstation.
2. Remove the workstation access panel and locate the memory board that is connected to the workstation system board.
3. Loosen the thumbscrew on the back of the metal slot cover that secures the memory board to the expansion slot.



Loosening the thumbscrew on the back of the metal slot cover

4. To release the memory board, press downward on the plastic release latch that holds the memory board in the memory board retainer.
5. Carefully remove the memory board from the memory board connector.

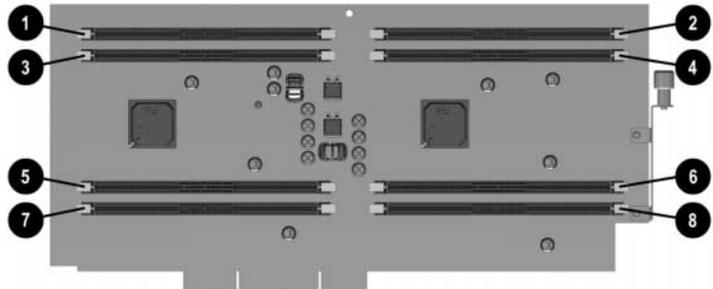


Releasing and removing the memory board from the memory board connector

6. Locate the appropriate RIMM slots and install the additional memory modules.

Eight-RIMM Slot Memory Board

Your workstation ships with an eight-RIMM slot memory expansion board (four RIMM slots per memory channel).



Location of eight RIMM slots

- | | |
|---|------------------------|
| 1 | RIMM Slot 1, Channel B |
| 2 | RIMM Slot 2, Channel A |
| 3 | RIMM Slot 3, Channel B |
| 4 | RIMM Slot 4, Channel A |
| 5 | RIMM Slot 5, Channel B |
| 6 | RIMM Slot 6, Channel A |
| 7 | RIMM Slot 7, Channel B |
| 8 | RIMM Slot 8, Channel A |

Configurations for RIMM Installation

When installing RIMMs on the eight-RIMM slot memory board, you must follow one of the following four configurations for optimal performance:

Configuration 1

Configuration 1 One Pair of RIMMs	
Location	Contents
RIMM Slots 1 and 2	C-RIMM
RIMM Slots 3 and 4	RIMM
RIMM Slots 5 and 6	Empty
RIMM Slots 7 and 8	Empty

Configuration 2

Configuration 2 Two Pairs of RIMMs	
Location	Contents
RIMM Slots 1 and 2	C-RIMM
RIMM Slots 3 and 4	RIMM
RIMM Slots 5 and 6	RIMM
RIMM Slots 7 and 8	C-RIMM

Configuration 3

Configuration 3 Three Pairs of RIMMs	
Location	Contents
RIMM Slots 1 and 2	RIMM
RIMM Slots 3 and 4	RIMM
RIMM Slots 5 and 6	RIMM
RIMM Slots 7 and 8	C-RIMM

Configuration 4

Configuration 4 Four Pairs of RIMMs	
Location	Contents
RIMM Slots 1 and 2	RIMM
RIMM Slots 3 and 4	RIMM
RIMM Slots 5 and 6	RIMM
RIMM Slots 7 and 8	RIMM



WARNING: To reduce the risk of personal injury when replacing or removing RIMMs, allow the module being removed from the RIMM slot sufficient time to cool before touching it. RIMM temperatures can reach 100°C (212°F).



CAUTION: When handling a RIMM, do not touch any of the contacts. Doing so may damage the module.



CAUTION: Static electricity can damage the electronic components of the workstation or option boards. Before beginning these memory upgrade procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.

Before installing additional RIMMs, read “ Guidelines for RIMM Installation” in this chapter.

Guidelines for RIMM Installation

When installing RIMMs, you must follow the guidelines listed below:

- A RIMM can be installed only one way. Be sure to match the two key slots on the RIMM with the tabs on the RIMM socket. Push the RIMM down into the RIMM socket, ensuring that it is fully inserted and properly seated, and that the retaining arms are locked in place.
 - CRIMMs must be installed in all empty RIMM sockets. The CRIMMs are removed when you populate the sockets with RIMMs. For examples on the correct configuration sequence, refer to the previous section, “ Configurations for RIMM Installation.”
 - Install RIMMs in pairs across both memory channels. Each RIMM socket populated with a RIMM or CRIMM on channel A must be populated with an identical RIMM or CRIMM on Channel B. For examples on the correct configuration sequence, refer to the previous section, “ Configurations for RIMM Installation.”
 - Do not exceed 32-count Direct RDRAM devices on each Direct Rambus memory channel. A label on the RIMM will indicate the number of Direct RDRAM devices on the RIMM and their speed.
-  You cannot remove or add Direct RDRAMS to a RIMM because the Direct RDRAMS are soldered on and encased by another material.
- Do not mix RIMMs with different memory speeds. Performance will reflect the lowest speed RIMMs.

- For proper system operation, the RIMMs must be industry-standard, 168-pin, unbuffered RIMMs. The RIMMs must support CAS Latency 2 or 3 (CL = 2 or CL = 3). They also must contain the mandatory Joint Electronic Device Engineering Council (JEDEC) Serial Presence Detect (SPD) information.



CAUTION: Static electricity can damage the electronic components of the workstation or option boards. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.



CAUTION: The above guidelines must be followed when installing RIMMs or your workstation will not function.



CAUTION: When handling a memory module, do not touch any of the contacts. Doing so can damage the module.

Installing RIMMs



WARNING: To reduce the risk of personal injury, when replacing or removing RIMMs, allow the module being removed from the RIMM slot sufficient time to cool before touching it. RIMM temperatures can reach 100°C (212°F).



CAUTION: When handling a RIMM, do not touch any of the contacts. Doing so may damage the module.



CAUTION: Static electricity can damage the electronic components of the workstation or option boards. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object.

Before installing additional RIMMs, read “Guidelines for RIMM Installation” in this chapter.



CRIMMs must be installed in all unpopulated RIMM slots on channels being used.

To install a RIMM after the memory board has been removed from your workstation system board:



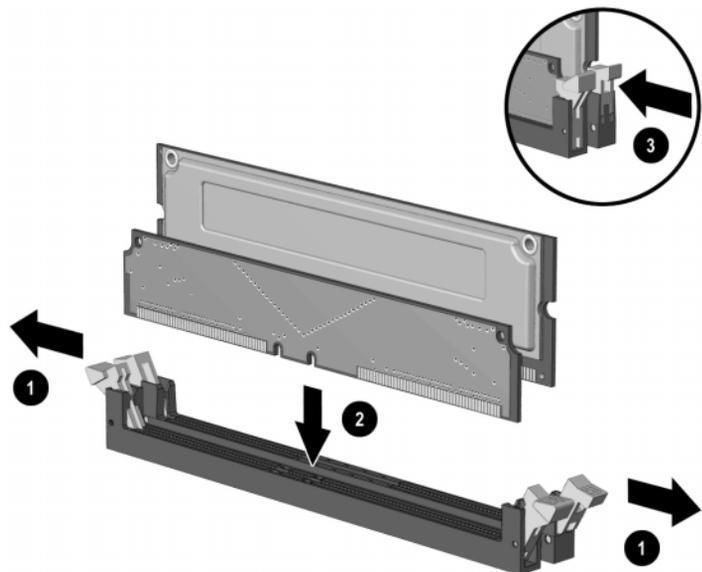
See “Removing a Memory board” in this chapter for instructions on removing the memory board.

1. Turn off the workstation and any external devices, then disconnect the power cord from the grounded AC outlet.
2. Remove the workstation access panel.
3. Press outward on the two RIMM slot retainer latches.
4. Place the RIMM in the appropriate RIMM slot and ensure that it is fully inserted and properly seated.



CAUTION: Be sure to follow the correct configuration guidelines respective to your memory board or your system will not function.

5. Press inward on the two retainer latches to secure the RIMM in the slot.



Installing a RIMM

6. Reinstall the memory board. See “Installing a Memory Board” in this chapter.
7. Replace the workstation access panel.
8. Plug the power cord back into the grounded AC outlet. Reconnect any external devices.
9. Turn on the workstation.

The workstation should automatically recognize the added memory.

Removing RIMMs

To remove a memory module from a RIMM slot, reverse the previous procedure.

Installing a Memory Board

To install a memory board:

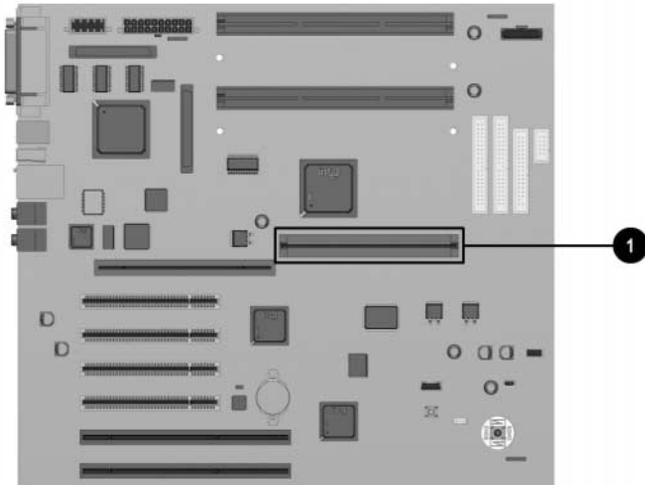
1. Place the memory board into the memory board connector slot.

When installing a memory board, press firmly on the board so that the whole connector seats properly in the memory board slot.

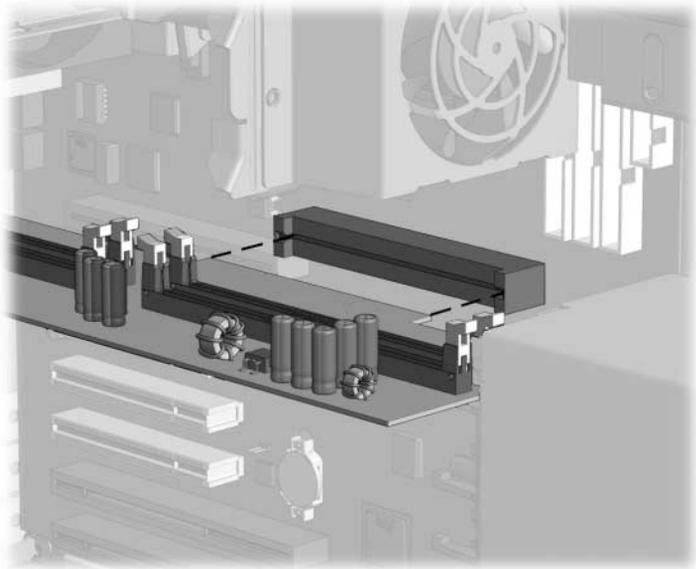


After you install the memory board, make sure the board is engaged with the card guide.

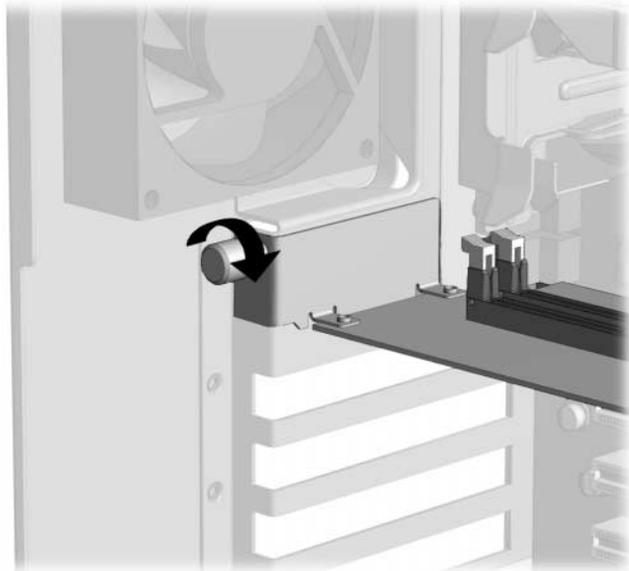
2. Tighten the thumbscrew on the memory board metal slot cover.
3. Replace the workstation access panel.
4. Reconnect external devices. Plug the power cord back into the grounded AC outlet.



Locating the memory board connector 1 on the system board



Installing a memory board

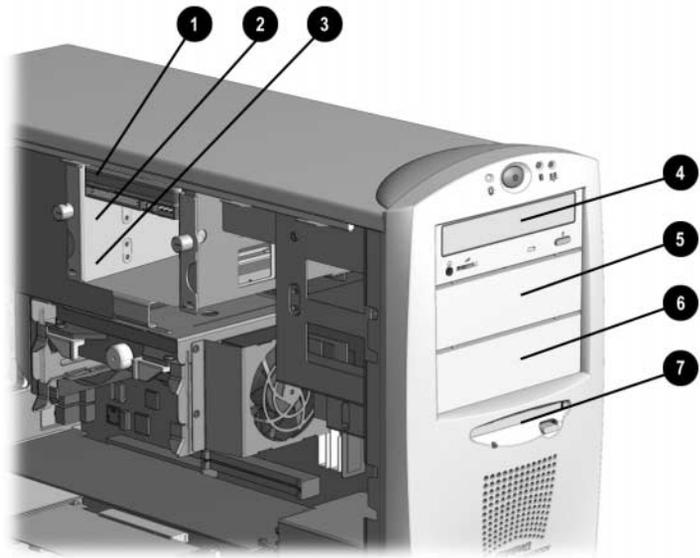


Tightening the thumbscrew to secure the memory board

Installing Additional Drives

Drive Bay Components

Your workstation supports up to seven drive bays. See the following list for a description of the drive bay components.



Identifying drive bay components

The workstation provides seven drive bays. Bays 1 through 3 are located in the 3.5-inch removable hard drive cage, which is located behind the workstation access panel of the workstation. Drive bays 4 through 7 are located on the front of the workstation. The drives support various drive configurations.

- 1 Bay 1 – Part of the removable hard drive cage. A 3.5-inch, third-height bay that supports a 1.0-inch hard drive or a 1.6-inch hard drive.
- 2 Bay 2 – Part of the removable hard drive cage. A 3.5-inch, third-height bay that supports a 1.0-inch hard drive. Bay 2 is not available when a 1.6-inch hard drive is installed in either bay 1 or bay 3.
- 3 Bay 3 – Part of the removable hard drive cage. A 3.5-inch, third-height bay that supports a 1.0-inch hard drive or a 1.6-inch hard drive.

- 4 Bay 4 – A 5.25-inch, half-height bay that supports 1.0-inch or 1.6-inch storage devices. Either a CD-ROM drive or DVD-ROM drive is shipped in bay 4.
- 5 Bay 5 – A 5.25-inch, half-height bay that supports 1.0-inch or 1.6-inch storage devices.
- 6 Bay 6 – A 5.25-inch, half-height bay that supports 1.0-inch or 1.6-inch storage devices.
- 7 Bay 7 – A 3.5-inch, third-height bay that supports a 1.0-inch device. A standard 3.5-inch diskette drive is shipped in bay 7.



An optional ZIP drive can be installed in bay 5 or bay 6.

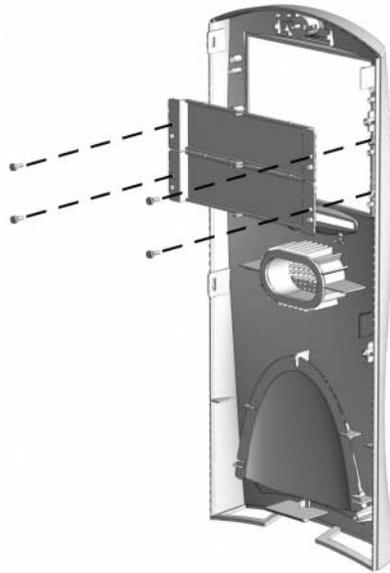
Preparing for Drive Installation

Removing the Bezel Blank

You need to remove the drive bezel blank before installing any removable media storage device, such as a tape drive, CD-ROM or DVD-ROM drive, or diskette drive, in an empty bay location.

To remove the bezel blank:

1. Turn off the workstation and any external devices.
2. Disconnect the power cord from the grounded AC outlet and the back of the workstation.
3. Remove the workstation access panel.
4. Remove the front bezel.
5. Loosen the thumbscrews and remove the bezel blank.



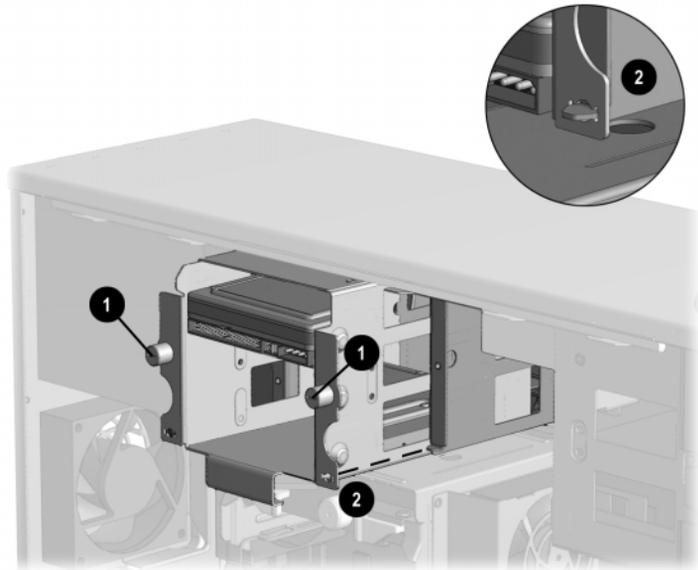
Removing the bezel blank from the subpanel

Removing and Replacing the Removable Hard Drive Cage

Removing the Removable Hard Drive Cage

To remove the removable hard drive cage:

1. Turn off the workstation and any external devices.
2. Disconnect the power cord from the grounded AC outlet and from the back of the workstation.
3. Remove the workstation access panel.
4. Unscrew the thumbscrews on the top of the cage 1. Hold the tab 2 and pull the cage up and out of the workstation chassis.



Loosening the two thumbscrews and removing the removable hard drive cage

Replacing the Hard Drive Cage

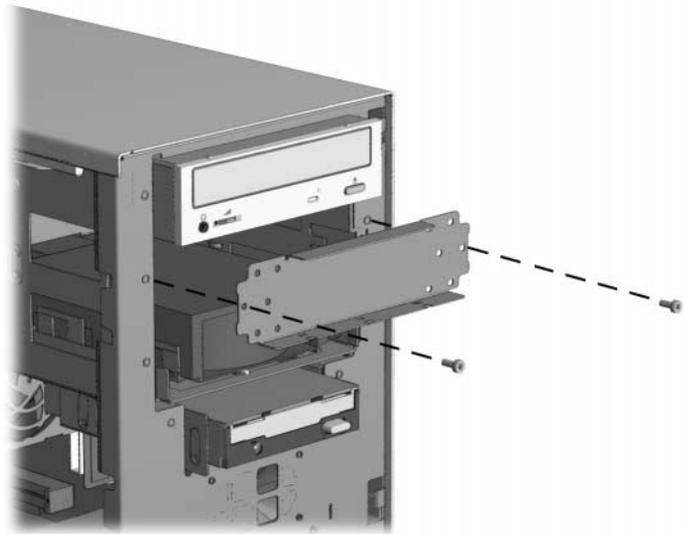
To replace the removable hard drive cage, reverse the steps in the previous section.

Removing the Cooling Shield

A cooling shield covers bays 5 and 6 to provide proper cooling and EMI protection. The cooling shield must be removed before installing a hard drive in either of these bay locations.

To remove a cooling shield:

1. Turn off the workstation and any external devices.
2. Disconnect the power cord from the grounded AC outlet and the back of the workstation.
3. Remove the workstation access panel and front bezel.
4. Refer to the following illustration to remove a cooling shield.



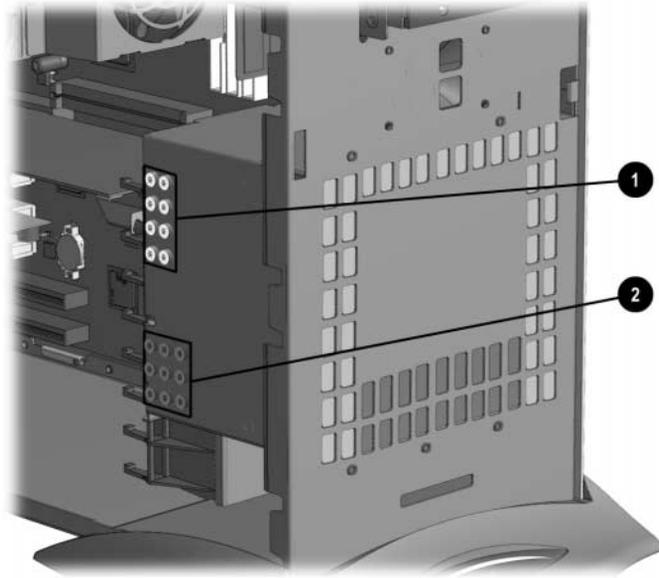
Removing a cooling shield

5. Replace the shield after the drive is installed in the bay.

To replace the cooling shield, reverse the above procedure.

Locating the Hardware Screws

A total of 17 extra hardware screws are provided on the side of the air plenum. The top group of eight screws 1 is for installing hard drives in the removable hard drive cage. The bottom group of nine screws 2 is for installing removable media storage devices in the front drive bays.



Locating the hardware screws for drive bay installations

Installing a Drive

Installing a Hard Drive in Bays 5 and 6

Drive bays 5 and 6 can be configured with either 1.0-inch or 1.6-inch hard drives. Other than using different screw holes, the installation for both drives is basically the same.



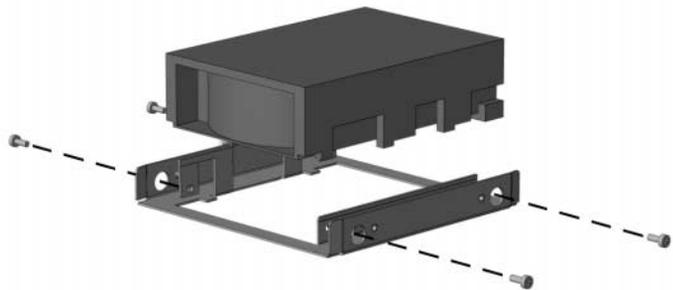
CAUTION: Use only 3/16-inch guide screws. Longer screws can damage the internal components of the drive.



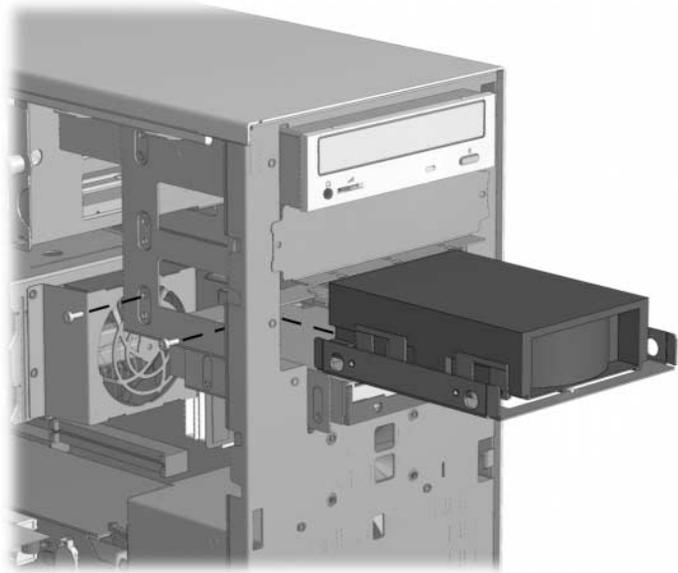
If you are installing a SCSI device, read the section “SCSI Devices and Guidelines” in the Appendix C.

To install a hard drive in bays 5 or 6:

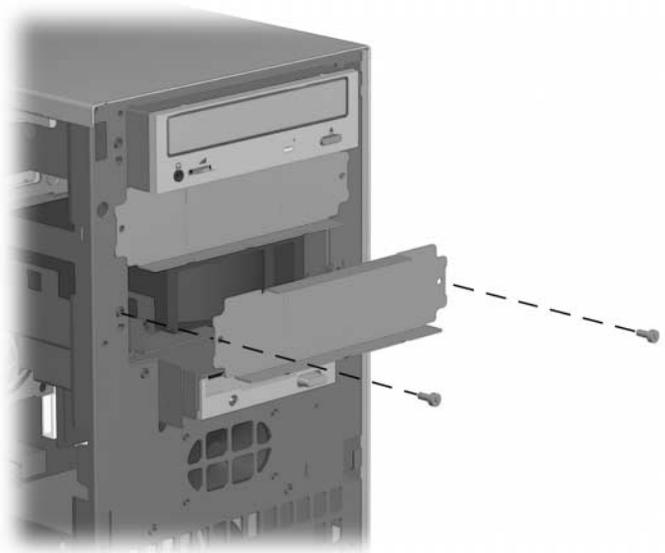
1. Turn off the workstation and disconnect the power cord from the grounded AC outlet and the back of the workstation.
2. Remove the Workstation access panel. Refer to “Removing the Workstation Access Panel” in this chapter.
3. Remove the front bezel. Refer to “Removing the Front Bezel” in this chapter.
4. Remove the cooling shield. Refer to “Removing the Cooling Shield” in this chapter.
5. Refer to the following illustrations to install a hard drive in bay 5 or bay 6.



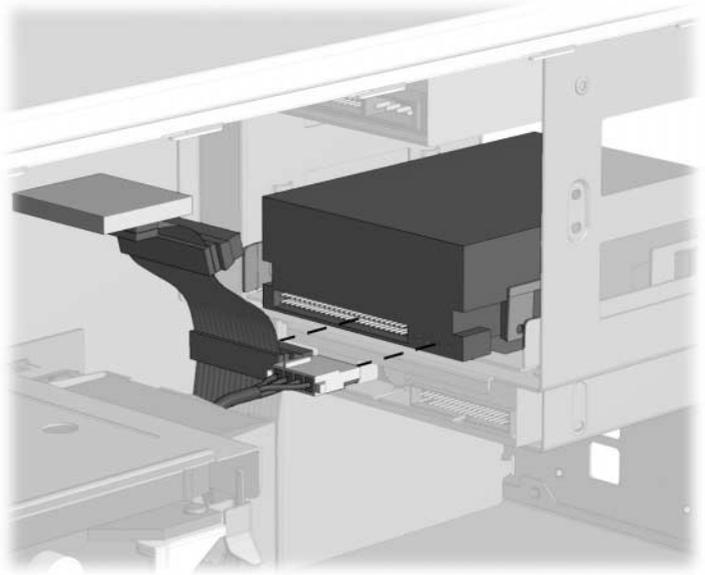
Installing a hard drive in the hard drive bracket



Installing a hard drive



Replacing the cooling shield



Connecting the SCSI signal cable and power cable

6. Reassemble the workstation.



If only one SCSI hard drive is used, install it in the lowest numbered bay (bay 1).

Reverse the above procedures to remove a hard drive from bay 5 and bay 6.

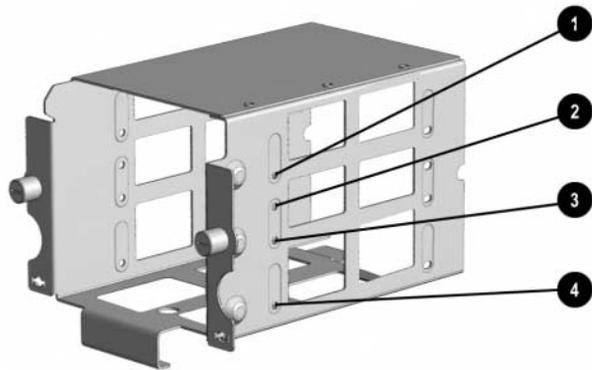
Installing a Hard Drive in the Removable Hard Drive Cage (Bays 1-3)

The removable hard drive cage can be configured with up to three 1.0-inch hard drives or two 1.6-inch hard drives. Other than using different screw holes, the installation for both types of drives is basically the same.

 Prior to installing a SCSI device, read the instructions “SCSI Devices and Guidelines” in the Appendix C.

To install a 1.0-inch hard drive in the removable hard drive cage:

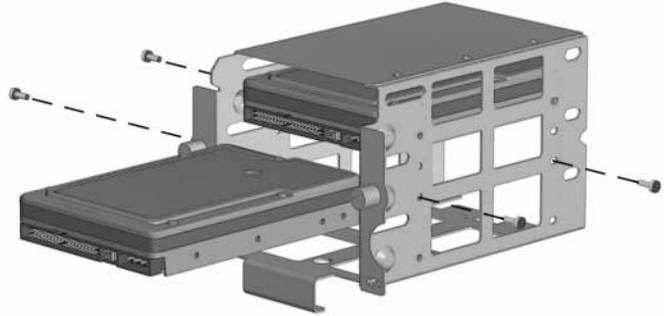
1. Turn off the workstation and disconnect the power cord from the grounded AC outlet and the back of the workstation.
2. Remove the workstation access panel and the removable hard drive cage.
3. Remove four of the hard drive screws (top group of screws) from the side of the air plenum located at the front of the workstation. See “Locating the Hardware Screws” in this chapter.
4. Install the screws into the drive cage. Refer to the following illustration for screw locations.



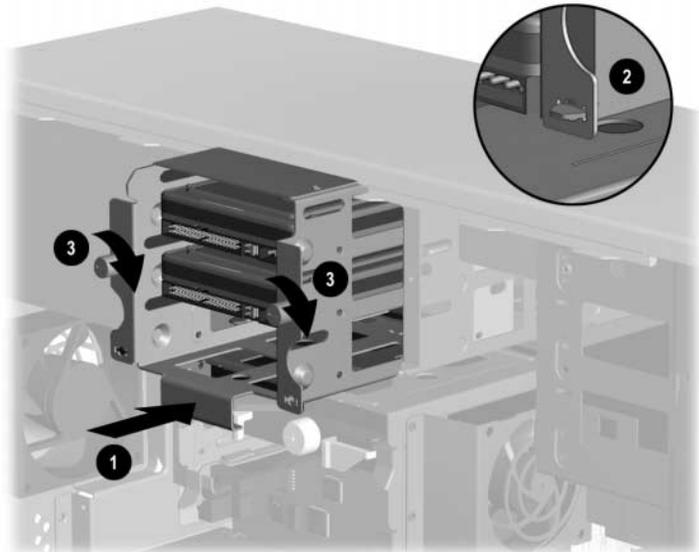
Locating the hard drive screw holes

- | | |
|---|----------------------------|
| 1 | 1.0-inch drive |
| 2 | 1.6-inch drive |
| 3 | 1.0-inch drive |
| 4 | 1.0-inch or 1.6-inch drive |

5. Refer to the following illustrations to install an optional hard drive in the removable hard drive cage.



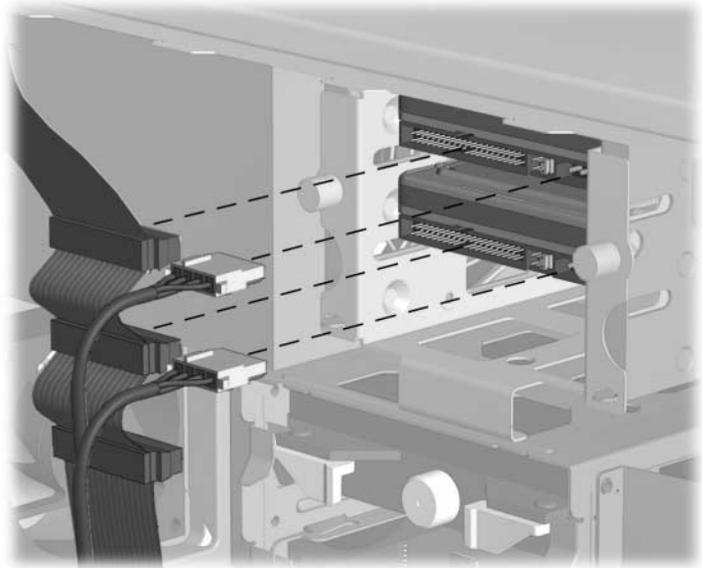
Installing a 1.0-inch hard drive in bay 2



Reinstalling the removable hard drive cage



CAUTION: Use only 3/16-inch guide screws. Longer screws can damage the internal components of the drive.



Connecting the signal and power cables

6. Reassemble the workstation.

Reverse the above procedures to remove a drive from the removable hard drive cage.

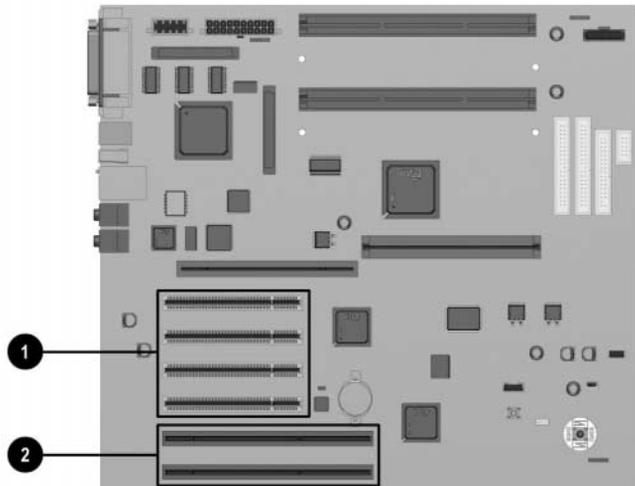
Installing and Removing an Expansion Board

This section provides instructions for installing and removing PCI and AGP expansion boards.

-  For product documentation related to your graphics controller, refer to the Workstation Reference Library CD included with your workstation.

Identifying the PCI Expansion Slots

This workstation contains two 64-bit and four 32-bit PCI expansion slots. The following illustration identifies the physical locations of these slots.



Identifying PCI expansion slots

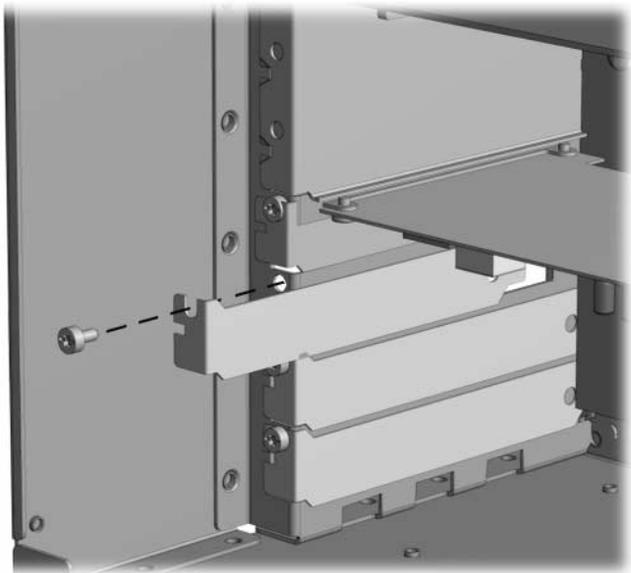
- 1 Four 32-bit PCI expansion slots, primary bus
- 2 Two 64-bit PCI expansion slots, secondary bus

Installing an Expansion Board

To install a PCI expansion board:

1. Turn off the workstation and disconnect the power cord from the grounded AC outlet and the back of the workstation.
2. Remove the workstation access panel and locate the correct vacant slot in the workstation chassis.
3. Remove the screw securing the expansion slot cover, then remove the slot cover, as illustrated.

To replace an expansion slot cover, reverse the above procedure.

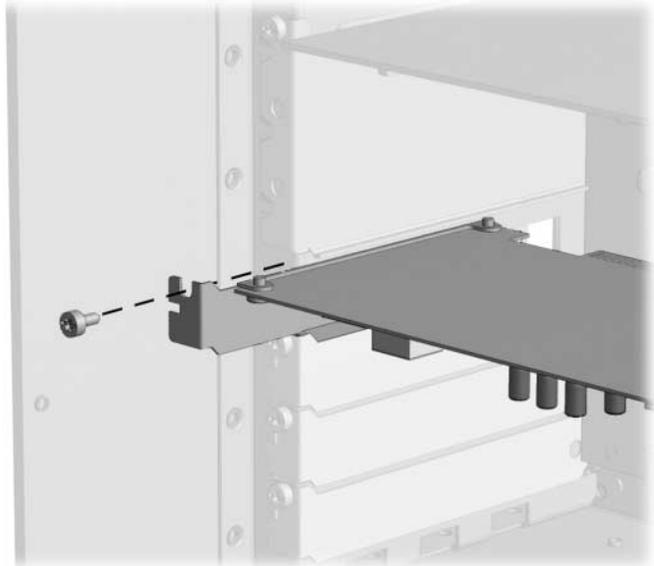


Removing the screw and expansion slot cover

4. Slide the expansion board into the expansion slot. Press firmly on the board so that the whole connector seats properly in the expansion board slot.



If you are installing a full-length PCI board, make sure the card is engaged with the card guide.



Installing an expansion board

5. Replace the screw at the side of the expansion slot.
6. Replace the workstation access panel.
7. Connect external cables to the installed board, if necessary.
8. Plug the power cord back into the grounded AC outlet and the back of the workstation.
9. Turn on the system.
10. Reconfigure the workstation, if necessary.

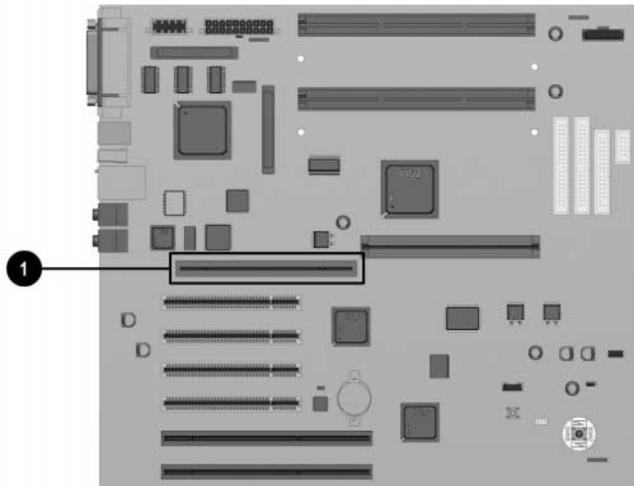
Removing an Expansion Board

Reverse the steps in the previous section to remove an expansion board. When reversing these steps:

- ❑ Be sure to store the board in antistatic packaging.
- ❑ Install an expansion slot cover to close the open slot.

Identifying the AGP Graphics Controller Expansion Slot

Your workstation also ships with an Accelerated Graphics Port (AGP) expansion slot on the system board 1. The following illustration shows the location of this slot.



Identifying the AGP graphics controller expansion slot

- ✍ AGP specifications allow an AGP card to occupy up to two adjacent PCI slots, with additional components or cards, on your workstation system board.
- ✍ For product documentation related to your graphics controller, refer to the Workstation Reference Library CD included with your workstation.

Installing and Removing an AGP Graphics Controller

To install the AGP graphics controller, remove the metal slot screw and cover, insert the board into the AGP slot, and press the board firmly into place. Replace the metal slot screw. See “Installing an Expansion Board” in this chapter for more information.

To ensure the board fits properly, use an AGP graphics controller with an ATX format bracket.

When installing an AGP board, press firmly on the board so that the whole connector seats properly in the AGP slot. If you are installing a full-length expansion board, be sure to engage the card guide.

To remove the AGP graphics controller, remove the metal slot screw, hold the board at each end, and then pull up. Be sure to replace the metal slot screw and cover. See “Removing an Expansion Board” in this chapter for more information.

Installing a Processor

You can upgrade the workstation to a multiprocessor system. When you install a second processor, it must be the same speed, cache size, and type as the existing processor.



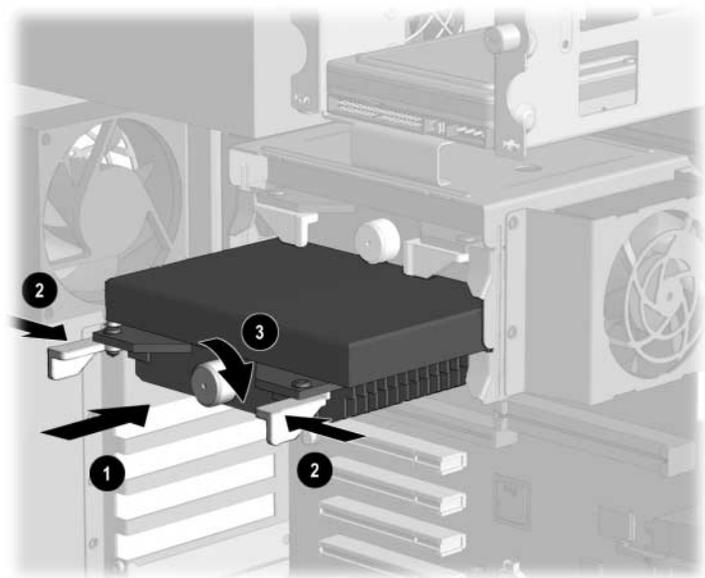
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.



CAUTION: Installing the processor incorrectly may cause damage to the system board. Have a Compaq authorized reseller or service provider install the processor. If you plan to install it yourself, read all of the instructions carefully before you begin.

To install a second processor:

1. Turn off the workstation and disconnect the power cord from the grounded AC outlet and the back of the workstation.
2. Remove the workstation access panel. Refer to “Removing the Workstation Access Panel” in this chapter.
3. Insert the processor 1, then close the two release latches 2.
4. Tighten the middle screw 3.



Installing a second processor



CAUTION: A primary processor must be installed in the primary processor slot when installing a second processor or your workstation will not function.

5. Reassemble the workstation and connect the power cord that was disconnected from the grounded AC outlet and the back of the workstation.

When replacing the workstation access panel, be sure to tighten all four thumbscrews.



If you are installing a second processor, you must upgrade the Hardware Abstraction Layer (HAL), which is part of Windows NT 4.0. For information on upgrading to a multiprocessor HAL, refer to the documentation included in your processor upgrade kit.

appendix A

SPECIFICATIONS

Compaq Professional Workstation SP750		
Component	U.S.	Metric
Dimensions		
Height	18.7 inch	47.50 cm
Width	8.03 inch	20.40 cm
Depth	23.2 inch	58.90 cm
Approximate Weight	54.75 lb	24.89 kg
Power Supply		
	<u>115 VAC</u>	<u>230 VAC</u>
Operating Voltage Range	90-132 VAC	180-264 VAC
Rated Voltage Range	100-127 VAC	200-250 VAC
Rated Line Frequency	50-60 Hz	50-60 Hz
Temperature		
Operating	50° to 104°F	10° to 40°C
Shipping	4° to 140°F	-15° to 60°C
Humidity (noncondensing)		
Operating	20% to 80%	
Nonoperating	10% to 90%	
Maximum Altitude (unpressurized)		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m
Power Output	425 W	
Rated Input Current (maximum)	8 A	4 A
Heat Dissipation (maximum)	2418 Btu/hr	609 kg-cal/hr

Compaq Professional Workstation AP550

Component	U.S.	Metric
Minitower Dimensions		
Height	17.65 in.	44.83 cm
Width	6.60 in.	16.76 cm
Depth	17.36 in.	44.09 cm
Desktop Dimensions		
Height	6.60 in.	16.76 cm
Width	17.65 in.	44.83 cm
Depth	17.11 in.	43.46 cm
Approximate Weight	26 lb	12 kg
Power Supply	<u>115 VAC</u>	<u>230 VAC</u>
Operating Voltage Range	90-132 VAC	180-264 VAC
Rated Voltage Range	100-127 VAC	200-250 VAC
Rated Line Frequency	50-60 Hz	50-60 Hz
Temperature		
Operating	50° to 95°F	10° to 35°C
Shipping	4° to 140°F	-15° to 60°C
Humidity (noncondensing)		
Operating	20% to 80%	
Nonoperating	10% to 90%	
Maximum Altitude (unpressurized)		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m
Power Output	375 W	
Rated Input Current (maximum)	8 A	4 A
Heat Dissipation (maximum)	2200 Btu/hr	560 kg-cal/hr

Compaq Deskpro Workstation AP250

Component	U.S.	Metric
Minitower Dimensions		
Height	17.65 in.	44.83 cm
Width	6.60 in.	16.76 cm
Depth	17.11 in.	43.46 cm
Desktop Dimensions		
Height	6.60 in.	16.76 cm
Width	17.65 in.	44.83 cm
Depth	17.11 in.	43.46 cm
Approximate Weight	26 lb	12 kg
Power Supply	<u>115 VAC</u>	<u>230 VAC</u>
Operating Voltage Range	90-132 VAC	180-264 VAC
Rated Voltage Range	100-127 VAC	200-250 VAC
Rated Line Frequency	50-60 Hz	50-60 Hz
Temperature		
Operating	50° to 95°F	10° to 35°C
Shipping	4° to 140°F	-15° to 60°C
Humidity (noncondensing)		
Operating	20% to 80%	
Nonoperating	10% to 90%	
Maximum Altitude (unpressurized)		
Operating	10,000 ft	3,048 m
Nonoperating	30,000 ft	9,144 m
Power Output	200 W	
Rated Input Current (maximum)		
200 W	5.5 A	3 A
Heat Dissipation (maximum)		
200 W	1050 Btu/hr	265 kg-cal/hr

appendix B

COMPUTER SETUP

Computer Setup Utilities (F10)

Use Computer Setup to do the following:

- Change factory default settings.
- Set the system date and time.
- Set, view, change, or verify the system configuration, including settings for processor, graphics, memory, audio, storage, communications, and input devices.
- Modify the boot order of bootable devices such as hard drives, diskette drives, CD-ROM drives, DVD-ROM drives, or LS-120 drives.
- Configure the boot priority of UATA and SCSI hard drives controllers.
- Configure Quiet Drive options (for drives that support this feature).
- Enable Quick Boot, which is faster than Full Boot but does not run all of the diagnostic tests run during a Full Boot. You can set your system to:
 - always Quick Boot (default);
 - periodically Full Boot (from every 1 to 30 days); or
 - always Full Boot.
- Enable or disable Network Server Mode, which allows the computer to boot the operating system when the power-on password is enabled, with or without a keyboard or mouse attached. When attached to the system, the keyboard and mouse remain locked until the power-on password is entered.
- Select Post Messages Enabled or Disabled to change the display status of Power-On Self-Test (POST) messages. Post Messages Disabled suppresses most POST messages, such as memory count, product name, and other non-error text messages. If a POST error occurs, the error is displayed regardless of the mode selected. To manually switch to Post Messages Enabled during POST, press any key (except F10 or F12).

- Establish an Ownership Tag, the text of which is displayed each time the system is turned on or restarted.
- Enter the Asset Tag or property identification number assigned by your company to this computer.
- Enable power-on password prompting during system restarts (warm boots) as well as during power-on.
- Establish a setup password that controls access to Computer Setup (F10) and the settings described in this section.
- To secure integrated I/O functionality, including the serial, USB, or parallel ports, audio, or embedded NIC, so that they cannot be used until they are unsecured.
- Enable or disable Master Boot Record (MBR) Security. This feature is not supported on the Compaq Professional Workstation AP550 or SP750.
- Enable or disable removable media boot ability.
- Enable or disable removable media write ability.
- Solve system configuration errors detected but not automatically fixed during the Power-On Self-Test (POST).
- Replicate your system setup by saving system configuration information on diskette and restoring it on one or more computers.
- Execute self-tests on a specified IDE hard drive.
- Configure various energy-saving features including energy saver mode, system and hard drive timeouts, power button mode, and power LED behavior.

Using Computer Setup Utilities

To access the Computer Setup Utilities menu, complete the following steps:

1. Turn on or restart the computer. If you are in Windows, click Start → Shut Down → Restart the Computer.
2. When the F10=Setup message appears in the lower-right corner of the screen, press the F10 key.
 -  If you do not press the F10 key while the message is displayed, you must restart the computer again to access the utility.
3. Select your language from the list and press the Enter key.
4. A choice of five headings appears in the Computer Setup Utilities menu: File, Storage, Security, Power, and Advanced.
5. Using the arrow keys or the Tab key, select the option you want and press the Enter key. To return to the Computer Setup Utilities menu, press the Esc key.
6. To apply and save changes, select File → Save Changes and Exit.
 - If you selected an option that automatically restarted the computer, changes were applied at that time.
 - If you have made changes that you do not want applied, select Ignore Changes and Exit.
 - If you have already applied changes you now want to eliminate, select Set Defaults and Exit. This option will restore the original factory system defaults.

Computer Setup

Heading	Option	Description
File	System Information	Lists: <ul style="list-style-type: none">• product name• processor type/speed/stepping• cache size (L1/L2)• installed memory size• system ROM (includes family name and version)• system board revision• chassis serial number• asset tracking number• integrated MAC for embedded, enabled NIC (if applicable)
	About	Displays copyright notice.
	Set Time and Date	Allows you to set system time and date.
	Save to Diskette	Saves system configuration, including CMOS, to a blank, formatted 1.44-MB diskette.
	Restore from Diskette	Restores system configuration, including CMOS, from a diskette.
	Set Defaults and Exit	Restores factory default settings, which includes clearing any established passwords.
	Ignore Changes and Exit	Exits Computer Setup without applying or saving any changes.
	Save Changes and Exit	Saves changes to system configuration and exits Computer Setup.

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description										
Storage	Device Configuration	<p>Lists all installed storage devices. The following options appear when a device is selected:</p> <hr/> <p>Diskette Type (<i>For legacy diskette drives only</i>) Identifies the highest capacity media type accepted by the diskette drive. Options are 3.5" 1.44 MB, 3.5" 720 KB, 5.25" 1.2 MB, 5.25" 360 KB, and Not Installed.</p> <hr/> <p>Drive Emulation (<i>IDE devices only</i>) Allows you to select a drive emulation type for a storage device. (For example, a Zip drive can be made bootable by selecting disk emulation.)</p> <table><thead><tr><th>Drive Type</th><th>Emulation Options</th></tr></thead><tbody><tr><td>Hard disk</td><td>No emulation options available.</td></tr><tr><td>Diskette</td><td>None (treated as diskette drive) Disk (treated as hard drive)</td></tr><tr><td>CD-ROM</td><td>None (treated as CD-ROM drive) Diskette (treated as diskette drive) Disk (treated as hard drive)</td></tr><tr><td>Other (e.g., Zip drive)</td><td>None (treated as Other) CD-ROM (treated as CD-ROM drive) Diskette (treated as diskette drive) Disk (treated as hard drive)</td></tr></tbody></table> <hr/> <p>Transfer Mode (<i>IDE devices only</i>) Specifies the active data transfer mode. Options (subject to device capabilities) are PIO 0, Max PIO, Enhanced DMA, Ultra DMA 0, and Max UDMA.</p>	Drive Type	Emulation Options	Hard disk	No emulation options available.	Diskette	None (treated as diskette drive) Disk (treated as hard drive)	CD-ROM	None (treated as CD-ROM drive) Diskette (treated as diskette drive) Disk (treated as hard drive)	Other (e.g., Zip drive)	None (treated as Other) CD-ROM (treated as CD-ROM drive) Diskette (treated as diskette drive) Disk (treated as hard drive)
Drive Type	Emulation Options											
Hard disk	No emulation options available.											
Diskette	None (treated as diskette drive) Disk (treated as hard drive)											
CD-ROM	None (treated as CD-ROM drive) Diskette (treated as diskette drive) Disk (treated as hard drive)											
Other (e.g., Zip drive)	None (treated as Other) CD-ROM (treated as CD-ROM drive) Diskette (treated as diskette drive) Disk (treated as hard drive)											

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Storage <i>(continued)</i>	Device Configuration <i>(continued)</i>	<p>Translation Mode (<i>IDE disks only</i>) Lets you select the translation mode to be used for the device. This enables the BIOS to access disks partitioned and formatted on other systems and may be necessary for users of older versions of Unix (e.g., SCO Unix version 3.2). Options are Bit-Shift, LBA Assisted, User, and None.</p> <hr/> <p> CAUTION: Ordinarily, the translation mode selected automatically by the BIOS should not be changed. If the selected translation mode is not compatible with the translation mode that was active when the disk was partitioned and formatted, the data on the disk will be inaccessible.</p> <hr/> <p>Translation Parameters (<i>IDE Disks only</i>) Allows you to specify the parameters (logical cylinders, heads, and sectors per track) used by the BIOS to translate disk I/O requests (from the operating system or an application) into terms the hard drive can accept. Logical cylinders may not exceed 1024. The number of heads may not exceed 256. The number of sectors per track may not exceed 63. These fields are only visible and changeable when the drive translation mode is set to User.</p> <hr/> <p>Multisector Transfers (<i>IDE ATA devices only</i>) Specifies how many sectors are transferred per multi-sector PIO operation. Options (subject to device capabilities) are Disabled, 8, and 16.</p> <hr/> <p>Quiet Drive (<i>available on select drives only</i>)</p> <ul style="list-style-type: none">• <i>Performance</i> Allows the drive to operate at maximum performance.• <i>Quiet</i> Reduces noise from the drive during operation. When set to Quiet, the drive will not operate at maximum performance. <p>If the drive does not support Quiet mode, the Quiet Drive option will not be displayed.</p>

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Storage (<i>continued</i>)	Options	Removable Media Boot Enables/disables ability to boot the system from removable media. Note: After saving changes to Removable Media Boot, the computer will restart. Turn the computer off, then on, manually.
		Removable Media Write Enables/disables ability to write data to removable media. Note: This feature applies only to legacy diskette, IDE LS-120 Superdisk, and IDE PD-CD drives.
		Primary IDE Controller Allows you to enable or disable the primary IDE controller.
		Secondary IDE Controller Allows you to enable or disable the secondary IDE controller.
		Diskette MBR Validation Allows you to enable or disable strict validation of the diskette Master Boot Record (MBR). Note: If you use a bootable diskette image that you <i>know</i> to be valid, and it does not boot with Diskette MBR Validation enabled, you may need to disable this option in order to use the diskette.

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Storage (<i>continued</i>)	DPS Self-Test	Allows you to execute self-tests on IDE hard drives capable of performing the Drive Protection System (DPS) self-tests. Note: This selection will only appear when at least one drive capable of performing the IDE DPS self-tests is attached to the system
	Hard Drive Order (supported on select models only)	Allows you to specify the order of attached hard drive controllers. The first hard drive controller in the order will have priority in the boot sequence and will be recognized as drive C (if any devices are attached).
	SCSI Narrow Termination (supported on select models only)	Allows you to configure SCSI termination on the internal SCSI subsystem for older, narrow SCSI devices only. This feature is disabled by default which allows connection to wide SCSI devices.
	Boot Order	Allows you to specify the order in which attached peripheral devices (such as diskette drive, hard drive, CD-ROM, or network interface card) are checked for a bootable operating system image. Each device on the list may be individually excluded from or included for consideration as a bootable operating system source. For systems with more than one attached diskette or disk drive, a submenu allows you to specify the order in which the devices are assigned drive letters. Note: MS-DOS drive lettering assignments may not apply after a non-MS-DOS operating system has started. To boot one time from a device other than the default device specified in Boot Order, restart the computer and press F9 when the F10=Setup message appears on the screen. When POST is completed, a list of bootable devices is displayed. Use the arrow keys to select a device and press the Enter key.

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Security	Setup Password	Allows you to set and enable setup (administrator) password. Note: If the setup password is set, it is required to change Computer Setup options, flash the ROM, and make changes to certain plug and play settings under Windows. Also, this password must be set in order to use some Compaq remote security tools. See the <i>Troubleshooting Guide</i> for more information.
	Power-On Password	Allows you to set and enable power-on password. See the <i>Troubleshooting Guide</i> for more information.
	Password Options	Allows you to <ul style="list-style-type: none">enable/disable network server mode. Note: This selection will appear only if a power-on password is set.specify whether password is required for warm boot (CTRL+ALT+DEL). Note: This selection is available only when Network Server Mode is disabled. See the <i>Desktop Management Guide</i> for more information.
	Smart Cover	Allows you to <ul style="list-style-type: none">enable/disable the Smart Cover Lockenable/disable Smart Cover Sensor. <i>Notify User</i> alerts the user that the sensor has detected that the cover has been removed. <i>Setup Password</i> requires that the setup password be entered to boot the computer if the sensor detects that the cover has been removed. Feature supported on select models only. See the <i>Desktop Management Guide</i> for more information.

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Security <i>(continued)</i>	Master Boot Record Security	<p>Allows you to enable or disable Master Boot Record (MBR) Security.</p> <p>When enabled, the BIOS rejects all requests to write to the MBR on the current bootable disk. Each time the computer is powered on or rebooted, the BIOS compares the MBR of the current bootable disk to the previously-saved MBR. If changes are detected, you are given the option of saving the MBR on the current bootable disk, restoring the previously-saved MBR, or disabling MBR Security. You must know the setup password, if one is set.</p> <p>Note: Disable MBR Security before intentionally changing the formatting or partitioning of the current bootable disk. Several disk utilities (such as FDISK and FORMAT) attempt to update the MBR. If MBR Security is enabled and disk accesses are being serviced by the BIOS, write requests to the MBR are rejected, causing the utilities to report errors. If MBR Security is enabled and disk accesses are being serviced by the operating system, any MBR change will be detected by the BIOS during the next reboot, and an MBR Security warning message will be displayed.</p> <p>Feature supported on select models only.</p>
	Save Master Boot Record	<p>Saves a backup copy of the Master Boot Record of the current bootable disk.</p> <p>Note: Only appears if MBR Security is enabled.</p>
	Restore Master Boot Record	<p>Restores the backup Master Boot Record to the current bootable disk.</p> <p>Note: Only appears if all of the following conditions are true:</p> <ul style="list-style-type: none">• MBR Security is enabled• A backup copy of the MBR has been previously saved• The current bootable disk is the same disk from which the backup copy of the MBR was saved

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Security <i>(continued)</i>	Device Security	Enables/disables serial, parallel, and USB ports and audio security.
	Network Service Boot	Enables/disables the computer's ability to boot from an operating system installed on a network server. (Feature available on NIC models only; the network controller must reside on the PCI bus or be embedded on the system board.)
	System IDs	Allows you to set: <ul style="list-style-type: none">• asset tag (16-byte identifier) and ownership Tag (80-byte identifier displayed during POST) See the <i>Desktop Management</i> guide for more information• chassis serial number or Universal Unique Identifier (UUID) number if current number is invalid (these ID numbers are normally set in the factory and are used to uniquely identify the system)• keyboard locale setting (e.g., English or German) for System ID entry

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Power	Energy Saver	<p>Allows you to set the energy saver mode (advanced, disable, or minimal).</p> <p>Note: In the minimal energy saver mode setting, the hard drive and system do not go into energy saver mode, but the setting allows you to press the power button to suspend the system.</p> <p>This option is not available under ACPI-enabled operating systems.</p>
	Timeouts	<p>Allows you to disable or manually select timeout values for the system and/or all attached IDE hard drives.</p> <p>Note: This option is not available under ACPI-enabled operating systems. This selection will only appear when energy saver mode is set to advanced.</p>
	Energy Saver Options	<p>Allows you to set:</p> <ul style="list-style-type: none">• power button configuration (on/off or sleep/wake) under APM-enabled operating systems• power LED blink in suspend mode (enable/disable). This option is not available under ACPI-enabled operating systems. <p>Note: Energy Saver Options will not appear if the energy saver mode is disabled.</p>

Support for Computer Setup options may vary depending on your specific hardware configuration.

Continued

Computer Setup *Continued*

Heading	Option	Description
Advanced*	Power-On Options	<p>Allows you to set:</p> <ul style="list-style-type: none">• POST mode (QuickBoot, FullBoot, or FullBoot every 1-30 days)• POST messages (enable/disable)• Safe POST (enable/disable)• F10 prompt (enable/disable)• F12 prompt (enable/disable)• Option ROM prompt (enable/disable)• Remote wakeup boot sequence (remote server/local hard drive)• After power loss (off/on) If you connect your computer to an electric power strip, and would like to turn on power to the computer using the switch on the power strip, set this option to on. <p>Note: If you turn off power to your computer using the switch on a power strip, you will not be able to use the suspend/sleep feature or the Remote Management features.</p> <ul style="list-style-type: none">• UUID (Universal Unique Identifier) (enable/disable)
	Onboard Devices	<p>Allows you to set resources for or disable onboard system devices (diskette controller, serial port, parallel port).</p>
	PCI Devices	<ul style="list-style-type: none">• Lists currently installed PCI devices and their IRQ settings.• Allows you to reconfigure IRQ settings for these devices or to disable them entirely.

Support for Computer Setup options may vary depending on your specific hardware configuration.

* These options should be used by advanced users only.

continued

Computer Setup *Continued*

Heading	Option	Description
Advanced* (continued)	Bus Options	Allows you to enable or disable: <ul style="list-style-type: none">• PCI bus mastering, which allows a PCI device to take control of the PCI bus• PCI VGA palette snooping, which sets the VGA palette snooping bit in PCI configuration space; this is only needed with more than one graphics controller installed• PCI SERR# Generation.
	Device Options	Allows you to set: <ul style="list-style-type: none">• Printer mode (bi-directional, EPP & ECP, output only)• Num Lock state at power-on (off/on)• PME (power management event) wakeup events (enable/disable)• Processor cache (enable/disable)• Processor Number (enable/disable) for Pentium III processors.• ACPI Thermal model (enable/disable)• ACPI S3 support (enable/disable). S3 is an ACPI (advanced configuration and power interface) sleep state that some add-in hardware options may not support. Feature supported on select models only.• AGP Aperture size (options vary depending on platform) allows you to specify the amount of system memory reserved for use by your graphics controller.
	PCI VGA Configuration	Appears only if there are multiple PCI video adapters in the system. Allows users to specify which VGA controller will be the "boot" or primary VGA controller.

Support for Computer Setup options may vary depending on your specific hardware configuration.

* These options should be used by advanced users only.

appendix C

HARD DRIVE INSTALLATION GUIDELINES

Using the Cable-Select Feature with Ultra ATA Devices

Select models of the Compaq Deskpro Workstation AP250 have an internal IDE Ultra ATA hard drive preinstalled. The configuration of the drives employs a cable-select feature that identifies the drives as device 0 (primary drive) or device 1 (secondary drive).

The system board determines which drive is device 0 or device 1, based on the way the drives are connected to the special drive cable. The device 0 drive is the drive connected to the short segment of the drive cable (or the connector closest to the system board); the device 1 drive is the drive connected to the long segment of the drive cable.

Compaq hard drives ship with jumpers preset to cable-select mode; therefore, no jumper setting changes on the existing or optional drives are required. If you purchase a third party hard drive, refer to the documentation included with the kit to ensure proper installation and configuration of cables.



If installing a second device on the primary controller, you must use an 80 conductor Ultra ATA cable for optimal performance. This cable is standard on select models.

Guidelines for Installing Ultra ATA (IDE) Devices

When installing additional IDE drives, follow these guidelines:

- For optimal performance, connect hard drives to the primary controller. Connect expansion devices, such as IDE CD-ROM drives, tape drives, and diskette drives, to the secondary controller.
- Install either a third-height or a half-height drive into a half-height bay.
- Install guide screws to ensure that the drive lines up correctly in the drive cage. Compaq has provided extra guide screws, which are installed in the front of the workstation chassis behind the front bezel. Some options use M3 metric hardware. Compaq-supplied metric screws are black.

SCSI Devices and Guidelines

Guidelines for SCSI Devices

When installing and operating SCSI devices, you must follow these guidelines:

- A single Ultra SCSI, Ultra-Wide SCSI, Wide-Ultra SCSI, Wide Ultra2 SCSI or Ultra3 SCSI, controller allows you to daisy-chain up to 15 additional SCSI devices. Counting the controller, that amounts to 16 total SCSI devices.
- If two SCSI controllers are each connected to separate system board SCSI connectors, each controller may have seven SCSI devices attached. This will give a total of 16 SCSI devices on the system.
- The SCSI controller requires a unique SCSI ID (0-7 or 8-15) for each SCSI device installed. The controller identifies a SCSI device by its SCSI ID number rather than its location. Moving a SCSI device from one position to another on the SCSI chain does not affect communication between the controller and the device. The reserved and available SCSI ID numbers for SCSI devices are:
 - 0 is reserved for the primary hard drive.
 - 7 is reserved for the controller.
 - 1 through 6 and 8 through 15 are available for all other SCSI devices.
- If only one SCSI hard drive is used, it should be installed in the lowest numbered bay (bay 1).
- On a Compaq Professional Workstation SP750, Bay 4 is reserved for the CD-ROM or DVD-ROM drive. Do not install a SCSI device in this bay.
- Every SCSI chain or circuit must be terminated (closed) at both ends. Some system boards have both ends of the SCSI cable connected to, and terminated by, the system board. Termination can be accomplished in one of several ways:
 - Use a cable with a built-in terminator.
 - Use a cable with a terminating resistor plug in the last connector.
 - Connect a SCSI device with its termination enabled into the last connector.

- ❑ Connect an external SCSI device with its termination enabled to the external SCSI connector on the rear panel of the computer.
- Turn on all external SCSI devices before turning on the power to the computer. This enables the SCSI controller to recognize the external devices.
- All SCSI hard drives must be either internal or external, but never both. The system accommodates a combination of other internal and external SCSI devices, such as tape and CD-ROM drives.
- Compaq does not recommend mixing different width SCSI devices on the same SCSI chain or on the same SCSI controller. Mixing devices of different widths on the same chain or controller will always result in a data transfer rate of the slowest machine in that chain. It is acceptable to mix Wide-Ultra2 and Ultra3 SCSI devices, but do not mix Narrow devices with any devices other than Narrow devices.

For additional information about optional SCSI devices, refer to the documentation included with the device or contact your Compaq authorized dealer, reseller, or service provider.



CAUTION: Do not route cables near the air intake to the power supply. Cables routed in this manner can block airflow to the power supply, causing it to overheat.

Guidelines for Installing a SCSI Device

Compaq does not support mixing Ultra ATA and SCSI hard drives in the same system.

On a Compaq Deskpro Workstation AP250, if you are replacing a hard drive in bays 4 or 5, the replacement drive should be of the same type as the drive being removed. If you are replacing the Ultra ATA hard drive with a SCSI hard drive, you will need a SCSI device option kit and the SCSI controller option kit. The controller option kit contains the SCSI controller and a cable that supports multiple SCSI devices.

Before installing a SCSI device on any workstation:

- Verify the SCSI ID of the drive and, if necessary, set the SCSI ID to a unique number. See “Guidelines for SCSI Devices” in this appendix or refer to the documentation included with the device.
- Determine if the device requires termination to be enabled or disabled. Set the termination if necessary. See the section “Using a SCSI Cable” or refer to the documentation included with the device.

SCSI Controllers

Your workstation ships with **one** of the following SCSI controllers:

- PCI SCSI controller (on select models of the Compaq Deskpro Workstation AP250)
- An integrated Ultra3 SCSI controller that has one internal connector on the system board and one external connector on the rear panel (Compaq Professional Workstation AP550)
- An integrated Dual Ultra3 SCSI controller with two independent channels, Channel 1 and Channel 2. Channel 1 has one internal SCSI connector on the system board. Channel 2 has two connectors, one internal SCSI connector on the system board and one external SCSI connector on the rear panel of the workstation. (Compaq Professional Workstation SP750)

SCSI Cables

Depending on your workstation model, the following three areas are available for installing or connecting mass storage SCSI devices:

- Removable hard drive cage (Compaq Professional Workstation SP750 only)
- Front drive bays

Using a SCSI Cable

The Compaq Professional Workstation SP750 ships with a Low Voltage Differential (LVD) SCSI cable that supports up to five SCSI devices: a maximum of three in the removable hard drive cage and two in the front drive bay area.

The Compaq Professional Workstation AP550 ships with a multi-mode SCSI cable that supports LVD or single-ended devices. The cable accommodates up to three SCSI devices in the front drive bay area.

The Compaq Deskpro Workstation AP250 also ships with a multi-mode SCSI cable that supports LVD or single-ended devices. The cable accommodates up to three SCSI devices in the front drive bay area. Some Compaq Deskpro Workstation AP250 models ship with an internal SCSI drive preinstalled in the front drive bay area. You can add additional high-performance SCSI drives using the external SCSI connector located on the rear panel of the workstation.



Five-device SCSI cable with terminator

The cable that shipped with your workstation may look different than the one illustrated (a five-device cable).

- ✎ If installing a narrow SCSI device, you will need to attach a 68-pin to 50-pin SCSI adapter.

For additional information about installing optional SCSI devices, refer to the documentation included with the device option kit or contact your Compaq authorized dealer, reseller, or service provider.

Using *SCSISelect* with SCSI Devices

The Wide Ultra2 SCSI host adapter includes the *SCSISelect* utility to configure the host adapter and to run SCSI disk utilities. To run the *SCSISelect* utility:

- In Post Messages Enabled mode: Press Ctrl+A when the Press <Ctrl><A> for *SCSISelect* Utility message appears during POST.
- In Post Messages Disabled mode: When the Compaq logo screen appears, press any key to exit the logo screen. Immediately after exiting the logo screen, press Ctrl+A to access the *SCSISelect* utility.

A menu appears with the following options:

- **Configure/View Host Adapter Settings**
 - SCSI Bus Interface Definitions
 - Host Adapter SCSI ID
 - SCSI Parity Checking
 - Host Adapter SCSI Termination

- Additional Options
 - Boot Device Options
 - SCSI Device Configuration
 - Advanced Configuration Options

■ **SCSI Disk Utilities**

Lists all SCSI devices and SCSI ID numbers



For information about configuring POST message display status, refer to Appendix B, “Computer Setup.”

appendix D

BATTERY REPLACEMENT

The battery that comes with your computer provides power to the real-time clock and has a lifetime of about five years. When replacing the battery, use an equivalent 3-volt lithium coin cell battery.



WARNING: Your computer contains an internal lithium manganese dioxide, vanadium pentoxide, or alkaline battery or battery pack. There is a risk of fire and burns if the battery pack is not handled properly. To reduce the risk of personal injury:

Do not attempt to recharge the battery.

Do not expose to temperatures higher than 60°C (140°F).

Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

Replace only with the Compaq spare designated for this product.



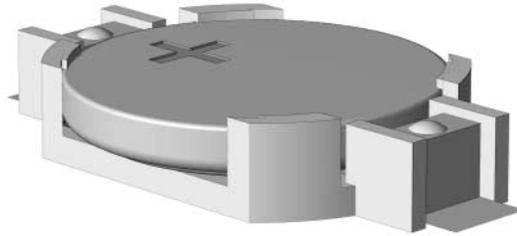
Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to Compaq, your authorized partners, or their agents.

1. Shut down the operating system properly, turn off the computer and any external devices, disconnect the power cord from the electrical outlet, and remove the computer cover or access panel.



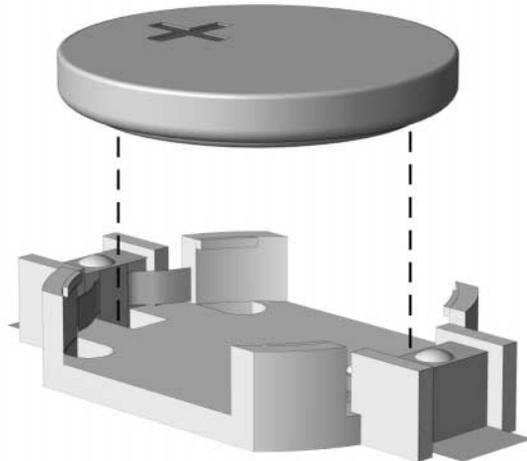
It may be necessary to remove an expansion card to gain access to the battery.

2. Locate the battery and battery holder on the system board, as shown in the following illustration.



Battery and Battery Holder

3. Lift the battery out of its holder.



Removing the Coin Cell Battery

4. Slide the replacement battery into position, positive side up.
The battery holder automatically secures the battery in the proper position.

5. Replace any expansion boards you removed.
6. Replace the computer cover or access panel.
7. Plug in the computer and turn on power to the computer.
8. Reset the date and time, your passwords, and any special system setups, using Compaq Computer Setup. Refer to Appendix B, “Computer Setup.”

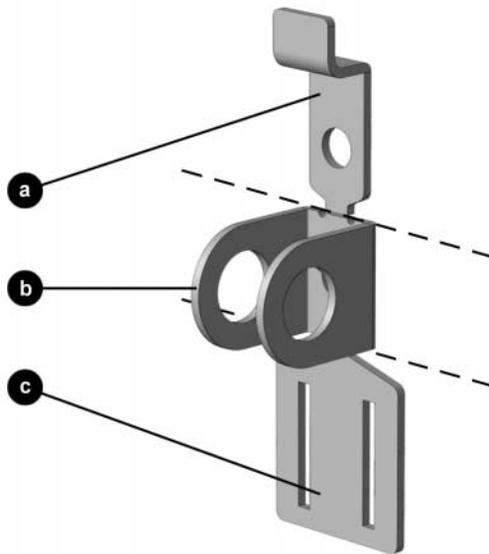
appendix E

SECURITY LOCK PROVISIONS

Installing a Cable Lock

The cable lock is an optional device used to help secure the workstation.

1. Separate the pieces of the security bracket by bending the metal where the three pieces join.

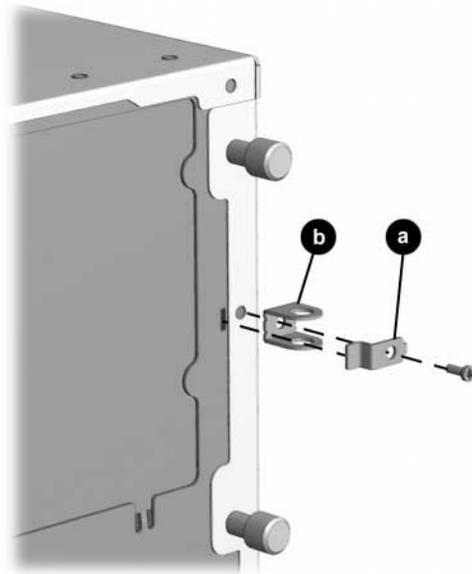


Separating the security brackets

2. Insert the tang (tongue) of the narrow bracket (Bracket A) into the slot on the chassis and slide the U-shaped bracket (Bracket B) between it and the system unit cover; then install the self-tapping screw included in the cable lock it.

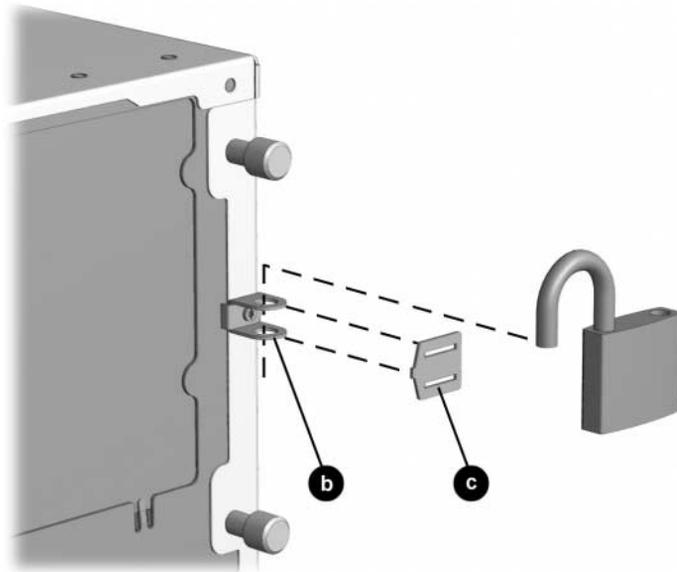


Due to differences between chassis, the slot may be located in a different position than shown.



Installing brackets A and B

3. Cover the screw with the flat bracket (Bracket C).
4. Install a lock (not provided) in the security bracket to control access to the inside of the workstation. Install a cable lock (not provided) to secure the workstation to a fixed object.



Securing the workstation with a padlock

appendix F

ELECTROSTATIC DISCHARGE

A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 Mohm +/- 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heelstraps, toestraps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, contact your Compaq authorized dealer, reseller, or service provider.



For more information on static electricity, contact your Compaq authorized dealer, reseller, or service provider.

appendix G

ROUTINE COMPUTER CARE AND SHIPPING PREPARATION

Routine Computer Care

Follow these suggestions to take care of your computer and monitor:

- Operate the computer on a sturdy, level surface. Leave a 3-inch (7.6-cm) clearance at the back of the system unit and above the monitor to permit the required airflow.
- Never operate the computer with the cover or side panel removed.
- Never restrict the airflow into the computer by blocking the front vents or air intake. Do not place the keyboard, with the keyboard feet down, directly against the front of the unit that is in a desktop configuration as this also restricts airflow.
- Never use a desktop computer on its side (resembling a “tower” configuration) unless it is a computer that has the convertible minitower (CMT) chassis.
- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold. For information about the recommended temperature and humidity ranges for your computer, refer to Appendix A, “Specifications,” in this guide.
- Keep liquids away from the computer and keyboard.
- Never cover the ventilation slots on the monitor with any type of material.

- Turn off the computer before you do either of the following:
 - ❑ Wipe the exterior of the computer with a soft, damp cloth as needed. Using cleaning products may discolor or damage the finish.
 - ❑ Occasionally clean the air vents on the front and back of the computer. Lint and other foreign matter can block the vents and limit the airflow.

CD-ROM Drive Precautions

Be sure to observe the following guidelines while operating or cleaning your CD-ROM drive.

Operation

- Do not move the drive during operation. This may cause it to malfunction during reading.
- Avoid exposing the drive to sudden changes in temperature, as condensation may form inside the unit. If the temperature suddenly changes while the drive is on, wait at least one hour before you turn off the power. If you operate the unit immediately, it may malfunction while reading.
- Avoid placing the drive in a location that is subject to high humidity, extreme temperatures, mechanical vibration, or direct sunlight.

Cleaning

- Clean the panel and controls with a soft, dry cloth or a soft cloth lightly moistened with a mild detergent solution. Never spray cleaning fluids directly on the unit.
- Avoid using any type of solvent, such as alcohol or benzene, which may damage the finish.

Safety

If any object or liquid falls into the drive, immediately unplug the computer and have it checked by an authorized Compaq service provider.

Shipping Preparation

Follow these suggestions when preparing to ship your computer:

1. Back up the hard drive files onto PD discs, tape cartridges, or diskettes. Be sure that the backup media is not exposed to electrical or magnetic impulses while stored or in transit.



The hard drive locks automatically when the system power is turned off.

2. Remove and store any program diskettes from the diskette drives.
3. Insert a blank diskette into the diskette drive to protect the drive while in transit. Do not use a diskette on which you have stored or plan to store data.
4. Turn off the computer and external devices.
5. Disconnect the power cord from the electrical outlet, then from the computer.
6. Disconnect the system components and external devices from their power sources, then from the computer.



Ensure that all boards are seated properly and secured in the board slots before shipping the computer.

7. Pack the system components and external devices in their original packing boxes or similar packaging with sufficient packing material to protect them.



For environmental nonoperating ranges, refer to Appendix A, “Specifications,” in this guide.

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