

IMPORTANT

Installing Support Software for the Compaq Integrated Netelligent 10/100TX Controller

IMPORTANT This information applies only if you are reinstalling Microsoft Windows NT Workstation on a Compaq Professional Workstation 6000 or 8000. If you complete the setup for the preinstalled software, the correct support software for your controller has been installed on your workstation and you do not need to follow these procedures.

You can also disregard these procedures if you plan to use SmartStart for Workstations to reinstall software on your Professional Workstation. SmartStart installs the support software for your controller automatically. Refer to the *Software Installation Guide* for instructions on using SmartStart.

If you will be using the Compaq Integrated Netelligent 10/100TX Controller on the Compaq Professional Workstation **and** you are reinstalling Windows NT Workstation manually, you **must** install updated support software for your controller to connect properly to the network. The support software (Compaq SSD for Windows NT version 1.20C or later) is located on the SmartStart for Workstations CD and on the Compaq website at <http://www.compaq.com>. Do not use other software drivers for this controller.

Note: If you plan to use MS-DOS to install your operating system from a network, download the support software from the Compaq website at <http://www.compaq.com>. Use v1.20C or later.

Installing the Support Software for Windows NT Workstation 4.0

To install the support software for the controller, follow these steps:

1. With Microsoft Windows NT Workstation 4.0 installed and running, log in with administrator privileges.
2. Insert the SmartStart for Workstations CD.
3. Click *Start, Run*.
4. Type `X:\NTSSD\SETUP.EXE` (where *X* is your CD-ROM drive designation), then click *OK*.

5. Click *Express*, then click *Update*.
6. When the support software has been installed, click *Exit*.
7. When prompted, restart your system to activate the installed drivers and remove the CD.

For more information about using the Compaq SSD for Windows NT, click *Help* in the main Setup window.

Installing the Support Software for Windows NT Workstation 3.51

IMPORTANT Before you can install the support software for your controller, you must download the Compaq SSD for Windows NT from the Compaq website at <http://www.compaq.com>. Use v1.20C or later in diskette format.

To install the support software for the controller, follow these steps:

1. With Windows NT Workstation 3.51 installed and running, log in with administrator privileges.
2. Insert SSD diskette 1.
3. From the Program Manager menu, select *File, Run*.
4. Type A:\SETUP.EXE, then click *OK*.
5. Click *Express*, then click *Update*.
6. When the support software has been installed, click *Exit*.
7. When prompted, restart your system to activate the installed drivers and remove the diskette.

For more information about using the Compaq SSD for Windows NT, click *Help* in the main Setup window.

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Third Edition (July 1998)

Part Number 269458-003

COMPAQ

**Compaq Professional
Workstation 6000 and 8000**

Reference Guide

**Second Edition (January 1998)
Part Number 270217-002
Compaq Computer Corporation**

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Compaq Professional Workstation 6000 and 8000 Reference Guide

Second Edition (January 1998)
Part Number 270217-002

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About This Guide

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
<i>FILENAMES</i>	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These always appear in uppercase
Type	When you are instructed <i>to type</i> information, type the information without pressing the Enter key.
Enter	When you are instructed <i>to enter</i> information, type the information and then press the Enter key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Presents clarifying information or specific instructions.

NOTE: Presents commentary, sidelights, or interesting points of information.

Product Safety Information

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.



Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.
WARNING: To reduce risk of injury from electrical shock hazards, do not open this enclosure.



Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection.
WARNING: To reduce risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



Power Supplies or Systems marked with these symbols indicate the equipment is supplied by multiple sources of power.



WARNING: To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Laser Precautions



WARNING: To reduce the risk of injury from laser radiation or damage to the equipment, observe the following precautions:

- Allow only Compaq Authorized Service Technicians to repair the equipment.
 - Do not open any panels, operate controls, make adjustments, or perform procedures to a laser device other than those specified herein.
 - Do not stare into laser beam when panels are open.
-

Rack Stability



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that the leveling jacks extend to the floor and that the full weight of the rack rests on the floor. Each rack should be level and stable. Install stabilizing feet on a single rack or join multiple racks together before starting work.



WARNING: To reduce the risk of personal injury or damage to equipment, heed all warnings and cautions throughout the installation instructions. Because the rack allows you to stack computer components on a vertical rather than a horizontal plane, you must take precautions to provide for rack stability and safety.



WARNING: To reduce the risk of personal injury or damage to the equipment, always install the heaviest items in the bottom of the rack and load the rack from the bottom up. This makes the rack bottom-heavy and helps prevent the rack from becoming unstable. See “Configuration Rules” in the Rack Planning and Installation Guide for the rules that govern the vertical placement of rack-mounted components. This information is also included in the Rack Builder diskette.



WARNING: To reduce the risk of personal injury, always ensure that the rack is adequately stabilized before extending a component outside the rack. Extend only one component at a time. The rack may become unstable if more than one component is extended for any reason.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Website

The Compaq website has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq website by logging on to the Internet at <http://www.compaq.com>.

Telephone Numbers

For the name of your nearest Compaq Authorized Reseller:

In the United States, call 1-800-345-1518

In Canada, call 1-800-263-5868

For Compaq technical support:

In the United States and Canada, call 1-800-386-2172

Elsewhere, call one of the numbers listed in the following table.

Compaq Worldwide Technical Support Telephone Numbers		
Location	Voice	FAX
APD (Asia Pacific Division)	65-7503030	65-7504909
Argentina	54-1 313 3100	54-1 313 3100 Ext 21
Australia	61-2-9911-1955	61-2-9911-1900
Austria	0222-87816-16	0222-87816-82
Bahrain	973-210-214	
Belgium	(02) 716-96-96	(02) 725-22-13
Brazil	55 11 5505-3600	55 11 5505-3922 Ext 4336
Canada	1-800-386-2172	
Caribbean	1-800-345-1518	
Central America	281-378-2206	
Chile	562-274-3007	
China	86-10-834-6721	86-10-834-6713
Colombia	571-345-0266	571-312-0157
Czech Republic	42-2-232-8772	42-2-232-8773
Denmark	45-90-4545	45-90-4595
Ecuador	593-2504540	

continued

Compaq Worldwide Technical Support Telephone Numbers *continued*

Location	Voice	FAX
Europe/Middle East/Africa	(49) 089-9933-2891	
Finland	9800-206-720 (+358-800-1-206720)	90-6155-9899 (+358-0-61559899)
France	(33 1) 41-33-4455	(33 1) 41-33-4263
Germany	0180-5-212111	089-9933-3399
Hong Kong	852-90116633	852-28671734
Hungary	36-1-201-8776	36-1-201-9696
India	(91-80) 559-6023	
Italy	392-57-90300	392-575-00686
Japan	0120-101589	+81 3-5402-5959
Korea	82-2-523-3575	82-2-3471-0321
Malaysia	(603) 718-1636	
Mexico	(525) 229-7910	(525) 229-7988
Netherlands	06-91681616	06-8991116
New Zealand	649-307-3969	
Norway	22-072-020	22-072-021
Poland	48-2-630-3535	48-2-630-3553
Portugal	351-1-4120132	351-1-4120654
Singapore	65-7503030	65-7504909
South Africa	+27-11-728-6999	+27-11-728-3335
Spain	341-640-1302	341-640-0124
Sweden	(46) 8 703 5240	(46) 8 703 5222
Switzerland	411 838 410/2222	01-837-0969
Taiwan	(886) 2-3761170	(886) 2-7322660
Thailand	62-2-679-6222	62-2-679-6220
United Kingdom	44-81-332-3888	44-81-332-3409
United States	1-800-386-2172	1-800-345-1518
Venezuela	(582) 953.69.44	(582) 952.86.70

Chapter 1

Product Features

The Compaq Professional Workstation 6000 and the Compaq Professional Workstation 8000 maximize the latest microprocessor technology to meet customer application requirements. Both are extremely powerful computers designed for complex applications such as 2D or 3D computer-aided design (CAD), computer-aided engineering (CAE), graphics applications, animation, and computer simulations. Both deliver Error Checking and Correcting Memory, PCI architecture, integrated Fast Ethernet, and an integrated Wide-Ultra SCSI-3 Controller on the PCI Local Bus. The new workstation chassis provides exceptional serviceability.

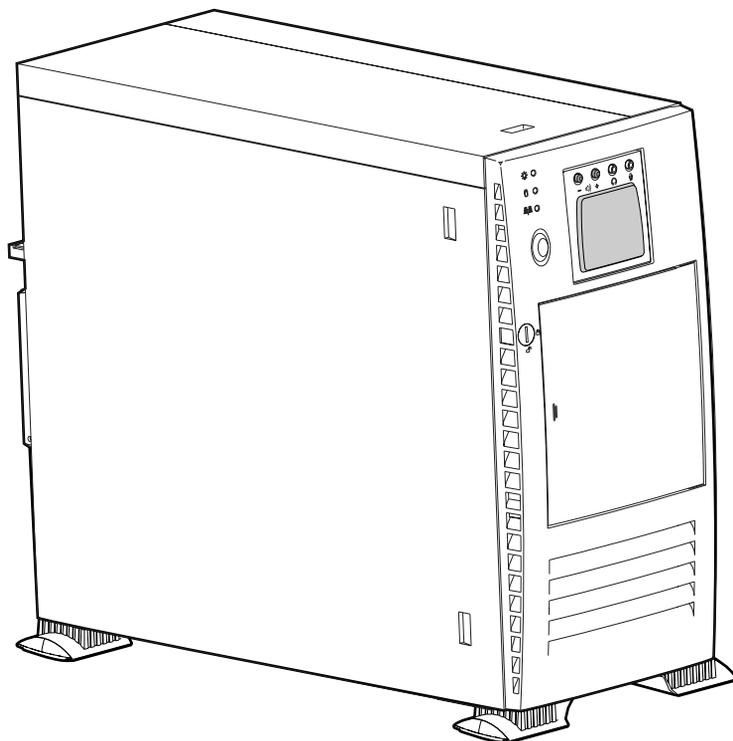


Figure 1-1. Compaq Professional Workstation 6000 or 8000

Standard Features

The following features are standard on the Compaq Professional Workstation 6000 and 8000:

Processors and System Memory

Compaq Professional Workstation 6000

- Standard with one 266-, 300-, or 333-MHz Pentium II processor with an integrated 512-KB Level 2 Cache
- Upgradable to two processors with addition of an optional second processor and processor board
- Error Checking and Correcting (ECC) Memory uses an encoding scheme for memory error detection and correction. Specifically, this feature detects and corrects all single-bit memory errors, and detects and reports double-bit errors.
- 32-, 64-, or 128-MB, EDO buffered, 128-bit system memory expandable to 512-MB
- Supports 60-ns or faster EDO non-parity 16-, 32-, 64-, 128-, or 256-MB, 4-K refreshed DIMMs added in pairs.

Compaq Professional Workstation 8000

- Standard with two 200-MHz Pentium Pro processors with an integrated 512-KB Level 2 Cache
 - Support for up to two additional 200-MHz Pentium Pro processors with the addition of an optional second processor board (four processors maximum)
 - Error Checking and Correcting (ECC) Memory uses an encoding scheme for memory error detection and correction. Specifically, this feature detects and corrects all single-bit memory errors, and detects and reports double-bit errors.
-

- 128-MB, EDO buffered, 128-bit system memory expandable to 3-GB
- Supports 60-ns or faster EDO non-parity 16-, 32-, 64-, 128-, or 256-MB, 4-K refreshed DIMMs added in pairs.

Expansion Slots

- Six full-length expansion slots: two dedicated PCI slots and four shared PCI/ISA slots
- The PCI bus provides peripheral transactions at a system clock speed of either 30 or 33 MHz.

Drive Controller

- Integrated Wide-Ultra SCSI-3 Controller on PCI local bus. Controller provides high-performance options for up to seven SCSI devices (in addition to the controller) without using an expansion slot for an additional controller. This controller uses a 16-bit data path and performs at a maximum data transfer rate of 40 megabytes per second (MB/s).
- Optional controller boards are available for expanding storage capacity beyond seven devices.

Network Controller

- Integrated Compaq Netelligent 10/100 TX PCI UTP Controller supports 32-bit data streaming at speeds up to 33 MHz. Incorporates Texas Instruments ThunderLAN chip set.

Mass Storage

- Maximum of 10 drive bays (four bays in removable media area and six standard hard drive bays in drive cage)
 - One Wide-Ultra SCSI-3 hard drive installed, either 2.1-GB or 4.3-GB
 - One third-height dedicated removable media drive bay occupied by 1.44-MB diskette drive

1-4 Product Features

- ❑ One half-height removable media drive bay occupied by IDE 16X or 24X Max CD-ROM drive (IDE)
- ❑ Two half-height, vacant 5.25" removable media drive bays standard

Standard Interfaces

- Wide-Ultra SCSI-3
- Serial (2)
- Graphics
- Audio (external volume control, headphone, two microphone connectors, line in/line out)
- Parallel
- USB (2) (hardware-ready)
- Keyboard
- Mouse (2- or 3-button)
- Ethernet - 10BaseT or 100TX (RJ-45 and AUI connectors)

Graphics Controllers

Depending on the model, your workstation offers *one* of the following graphics controllers:

- **MGA Millennium II**—supports high-performance 2D graphics
- **GLoria Synergy-4**—supports high resolution 2D and 3D graphics
- **GLoria-L 3D**—supports high resolution 3D graphics
- **FireGL 4000**—supports high resolution 3D graphics

For additional information on graphics controllers, see Chapter 7.

Audio

The Compaq PremierSound Audio System features:

- Integrated/ported speaker built into the cabinet
- Integrated audio chip provides stereo sound and FM music synthesis
- Stereo inputs for CD-ROM
- Monaural input for microphone (2 jacks)
- Line in/line out
- Headphone jack

ROM

- Software upgradable firmware
- ROMPaq Utility used to upgrade ROM

Power Supply

The Compaq Professional Workstation 6000 and 8000 are equipped with a Power Factor Correction auto-sensing power supply.

Compaq SmartStart for Workstations

SmartStart for Workstations, which is located on the SmartStart for Workstations CD is the intelligent way to configure your workstation with Microsoft Windows NT. SmartStart uses a step-by-step process to configure the workstation and to load the system software, thereby achieving a well-integrated workstation that ensures maximum dependability and supportability. For information concerning SmartStart, refer to the *Software Installation Guide* included in the SmartStart for Workstations CD binder.

Security Features

Security features are as follows:

- Keyboard Password
- Administrator Password
- QuickLock
- Diskette Write Control
- Diskette Boot Override
- Serial Interface Control
- Parallel Interface Control
- Security Lock Provision

These security features are established through the Computer Setup utility. For information concerning workstation security features, see Chapter 3.

Diagnostic Tools

The software and firmware diagnostic tools available for your use are:

- Power-On Self-Test (POST)
- Diagnostics (DIAGS)
- Computer Setup and Inspect
- ROMPaq utilities to upgrade flash ROMs

For information on using the diagnostic tools, see Chapter 4.

Front Panel Components

The following figure shows the components on the front panel of the workstation. See the corresponding table for component names.

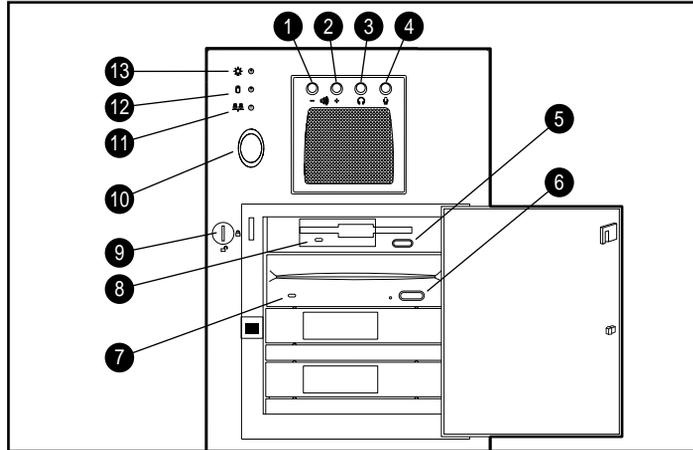


Figure 1-2. Identifying front panel components

Table 1-1
Front Panel Components

Ref.	Component	Function
1	Volume down button	Decreases sound level
2	Volume up button	Increases sound level
3	Headphone jack	Connect to headphone set
4	Microphone jack	Connect to microphone
5	Diskette drive ejector button	Partially ejects 3 1/2" diskette from diskette drive

continued

Front Panel Components *continued*

Ref.	Component	Function
6	CD-ROM drive ejector button	Partially ejects compact disk from CD-ROM drive
7	CD-ROM drive LED	Lights when the CD-ROM drive is reading data
8	Diskette drive LED	When lighted, indicates the drive is reading or writing data
9	Front Bezel lock	Locks the Front Bezel to the chassis
10	Power switch	Turns the workstation on or off
11	Network activity LED	When lighted, indicates the workstation is receiving or sending data on the network
12	Hard drive activity LED	When lighted, indicates the workstation is reading or writing data to the hard drive(s)
13	Power on/off LED	When lighted, indicates the workstation is turned on.

Rear Panel Components

The following figure shows the connectors on the rear panel of the workstation. Each connector includes an icon to help identify its function. See the corresponding table for component names.

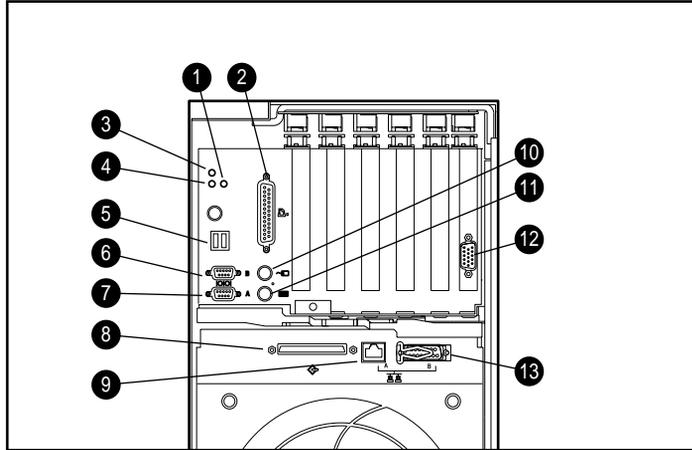


Figure 1-3. Identifying rear panel components

Table 1-2
Rear Panel Components

Ref.	Component	Function
1	Audio line-in connector	Connects a device that supplies sound, such as a tape deck or CD player
2	Parallel port connector	Connects a parallel device such as a printer
3	Microphone connector	Connects a microphone
4	Audio line-out connector	Connects an external amplifier (to power additional speakers) or a tape deck for recording

continued

Rear Panel Components *continued*

Ref.	Component	Function
5	USB connectors (2)	Connects a series of USB devices
6	Serial port connector (COM2)	Connects a serial device, such as a serial printer
7	Serial port connector (COM1)	Connects a serial device, such as a serial printer
8	Wide-Ultra SCSI-3 connector	Connects to external SCSI devices
9	Ethernet RJ-45 connector	Connects to the Ethernet network
10	Mouse connector	Connects to a mouse (green icon)
11	Keyboard connector	Connects to a keyboard (orange icon)
12	Graphics port	Connects to a monitor
13	Ethernet AUI connector	Connects to the Ethernet network

Warranty

- Three-year limited worldwide warranty
- Prefailure warranty on processors, memory, and hard drives. See the *Limited Warranty* for additional information.

Chapter 2

Hardware Upgrades

This chapter explains how to remove the mechanical components necessary to upgrade the workstation. Installation guidelines and overviews for the following optional hardware are also included:

- Expansion board
- Optional drives
- Additional memory
- Additional processor

Refer to the documentation provided in the hardware upgrade kit for complete installation procedures. For additional information, refer to the *Quick Setup* poster included in the shipping box and the hood labels attached to the interior of the large access panel and the small access panel. If you have any problems, contact your Authorized Compaq Reseller.

Installation Sequence

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



WARNING: This equipment is designed for connection to a grounded AC outlet. The grounding type plug is an important safety feature. To reduce the risk of electric shock or damage to your equipment, do not disable this feature.



WARNING: To reduce the risk of injury or damage to the equipment when installing options, ensure that the power to the workstation is turned off and that the AC power cord is disconnected.



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



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



CAUTION: Make sure the power outlet you plug your power cord into is easily accessible and is located as close to the equipment operator as possible. When you need to disconnect power from the equipment, be sure to unplug the power cord from the power outlet.



CAUTION: Protect the workstation from power fluctuations and temporary interruptions with a regulating uninterruptible power supply (UPS). This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.



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. See Appendix D for more information.

IMPORTANT: Do not place anything on power cords or cables. Arrange them so that no one may accidentally step on or trip over them. Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

1. If the workstation is already on, turn it off and disconnect the power cord from the wall outlet.
2. Open the workstation by removing the outside panels and front bezel. See the sections “Removing the Small Access Panel,” “Removing the Large Access Panel,” and “Removing the Front Bezel” in this chapter for instructions.
3. Install any optional equipment (ISA or PCI expansion board, processor upgrade, memory, or drive). Refer to the applicable sections of this manual or the documentation provided with the option kit for instructions.
4. Replace the front bezel, large access panel, and small access panel.
5. Plug the power cord into a grounded AC outlet.
6. Turn on the monitor, workstation, and any devices you want to test.
7. Reconfigure the workstation, if necessary. See Chapter 4 for instructions.
8. Test the workstation (optional) using the TEST utility.

Reconfiguring the Workstation

System configuration is the process of specifying the devices and programs that make up a system. When you add or remove optional equipment, you must reconfigure the workstation to recognize these changes.

Run the Computer Setup utility *after* you complete the installation. To configure in Windows NT, use Control Panel and configure your specific option.

If configuration settings are incorrect, one or more devices may not work properly, and you may receive an error message. If this occurs, run the Computer Setup utility again. See Chapter 4 for instructions.

Installing Hardware Upgrades

The Compaq Professional Workstation 6000 and 8000 chassis facilitates the installation of hardware upgrades. Most hardware options are installed on the system board, on the processor board, or in the drive bay area.

To Gain Access To:	You Will Need To:
System I/O board	Remove the expansion cage
Expansion slots	Open front bezel and remove the small access panel
Side of media drive bays	Open the front bezel and remove large access panel
Front of media drive bays	Open the front bezel
Processor (s) and memory	Remove the processor cage
Processor board	Remove the processor cage

Opening the Front Bezel

To open the front bezel:

1. If the keylock is locked, unlock it by turning the key clockwise.
2. Open the front bezel (door).

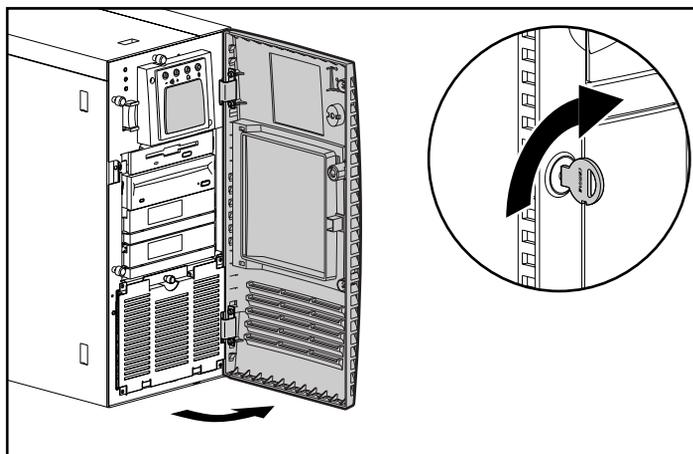


Figure 2-1. Opening the front bezel

Removing the Small Access Panel

To remove and replace the small access panel:

1. If the workstation is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment.
3. Open the front bezel.
4. Loosen the thumbscrew above the speaker.
5. Slide the small access panel toward the rear of the unit about 0.5 inch (1.5 cm), and then slide the panel to the side of the workstation.
6. Lift and remove the panel.



CAUTION: Do not operate the workstation with the small access panel removed. The small access panel is an integral part of the cooling system and removing it while the system is running may adversely affect data integrity.

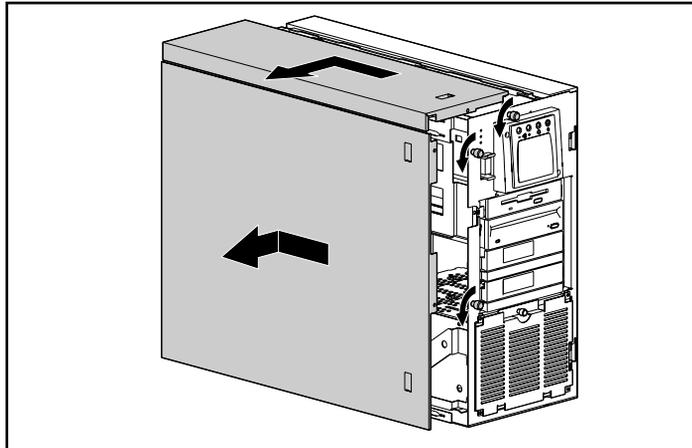


Figure 2-2. Removing the small access panel and the large access panel

Removing the Large Access Panel

To remove the large access panel:

1. If the workstation is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment.
3. Open the front bezel.
4. Loosen the two thumbscrews located on the left side of the front chassis (see previous illustration).
5. Slide the large access panel toward the rear of the unit 0.5 inch (1.5 cm).
6. Lift and remove the panel.



CAUTION: Do not operate the workstation with the large access panel removed. The large access panel is an integral part of the cooling system and removing it while the system is running may adversely affect data integrity.

Removing Security Screws

The Compaq Professional Workstation 6000 and 8000 ship with two security screws installed. The screws secure the processor cage and expansion cage to the chassis. To remove the security screws, use a T-15 Torx screwdriver.

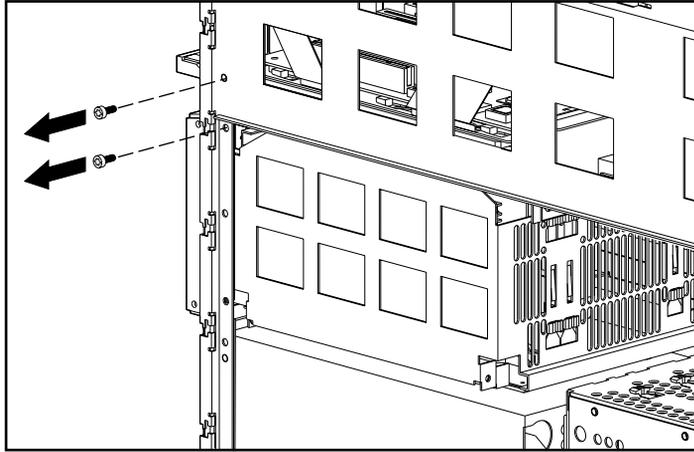


Figure 2-3. Removing the security screws

Removing the Processor Cage

The processor cage contains the processor cage system board and the following components:

- Processor(s)
- Processor board(s)
- Terminator board (if a single-processor system)
- Memory expansion board
- DIMM modules
- Switches and connectors

To remove the processor cage:

1. If the workstation is on, turn it off and disconnect the power cord.

NOTE: If you inadvertently remove the processor cage without turning OFF the power switch, the workstation will automatically power down. This is not, however, a recommended procedure for powering off the workstation.

2. Disconnect any other external equipment.
3. Unlock and open the front bezel.
4. Remove the following components:
 - large access panel
 - security screws

5. Remove the processor cage from the chassis by:
 - ❑ Pressing up on the latch ❶ in the center of the release lever.
 - ❑ Swinging the release lever ❷ out to disengage the processor cage slightly from the chassis.
6. Remove the processor cage ❸.

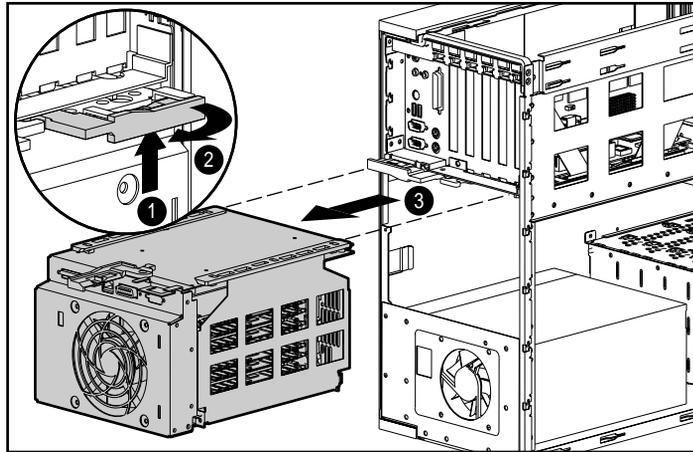


Figure 2-4. Removing the processor cage

7. Turn the cage over, loosen the thumbscrew, and lift the cover to gain access to the processor cage system board, processor(s), processor board(s), terminator board (if present), DIMM modules, memory expansion board, switches, and connectors.
 8. For information on upgrading or installing processor cage components, refer to the documentation included with the option kit, the Quick Setup Poster, or the hood labels.
 9. To replace the processor cage, align the rails on the processor cage with the rails on the chassis.
-



CAUTION: To replace the processor cage, be certain the plastic rails on the sides of the cage and the plastic rails on the chassis are properly aligned on both sides. Visually locate the rails inside the chassis and guide the cage carefully into the chassis. Otherwise, the cage may jam part way into the chassis and the rails may be damaged.

IMPORTANT: The processor cage must be properly installed in order for the workstation to power up.

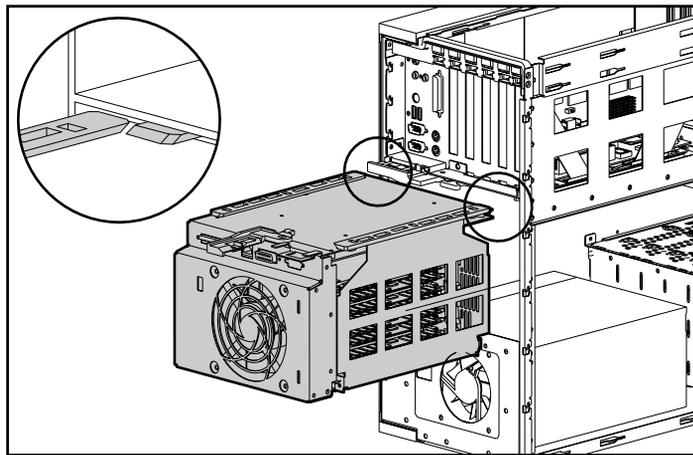


Figure 2-5. Aligning the rails

10. Reassemble the workstation.

Locating the Expansion Slots

The expansion cage is located directly beneath the small access panel and contains six expansion slots:

- Four shared PCI/ISA expansion slots (slots 1 - 4)
- Two dedicated PCI local bus expansion slot (slots 5 and 6)

NOTE: Although there are two physical connectors (one ISA and one PCI) for each shared PCI/ISA slot, the connectors are placed so that only one of the connector slots can have a board installed at a time.

The following figure shows a rear view of the workstation. Expansion boards can be installed in the slots identified.

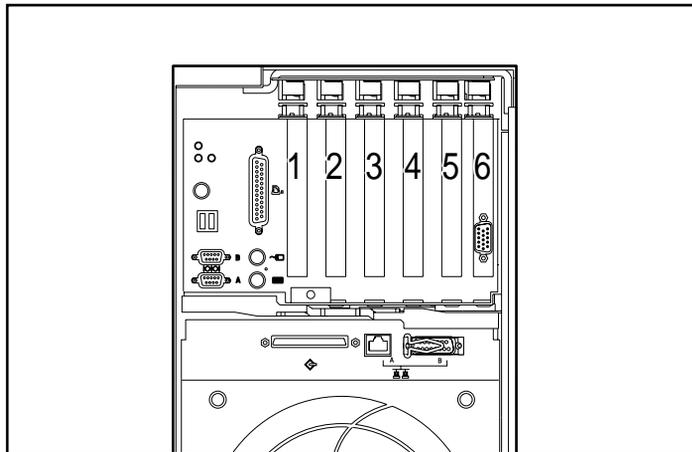


Figure 2-6. Identifying expansion slots

Installing an Expansion Board

This section provides an overview for installing an expansion board. For complete installation procedures, refer to the documentation included with the option kit. Additional information is also provided on the *Quick Setup* poster included in the shipping box and the expansion board installation hood label located on the inside of the large access panel.

1. If the workstation is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment.
3. Unlock and open the front bezel.
4. Remove the small access panel.
5. Press on the top **1** of the expansion slot latch and open the latch toward the rear **2** of the expansion slot cage.
6. Remove the expansion slot cover **3**.

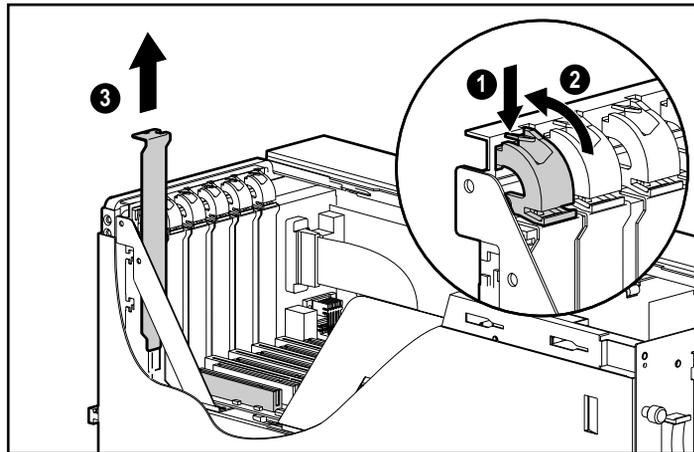


Figure 2-7. Opening expansion slot latch and removing slot cover

7. Insert the expansion board.

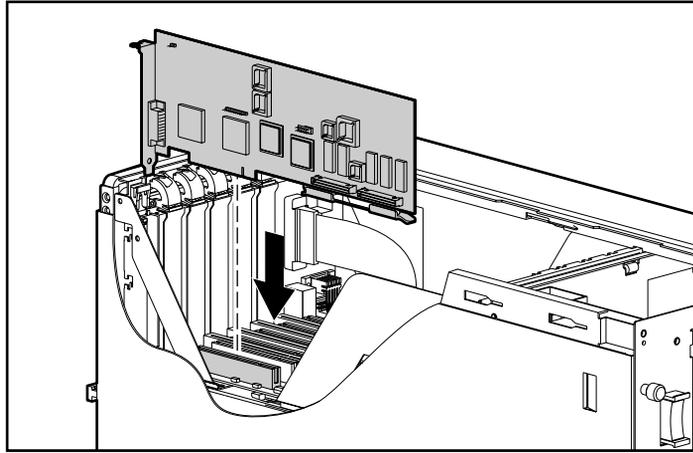


Figure 2-8. Inserting an expansion board

8. Close the expansion slot latch to secure the board.

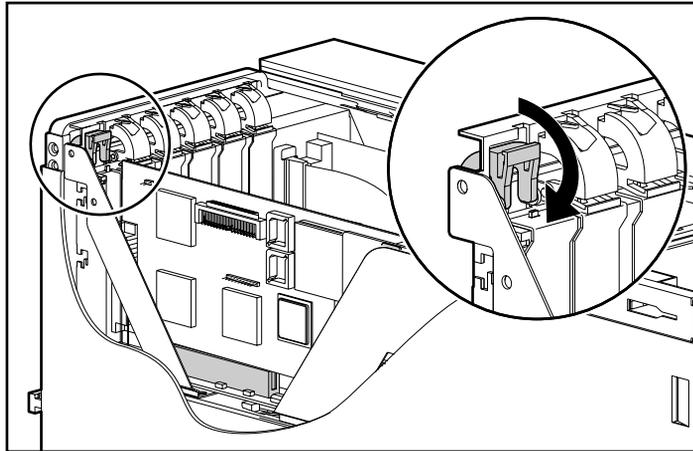


Figure 2-9. Securing an expansion board

9. Reassemble the workstation.
 10. Run the Computer Setup utility, if necessary.
-

Installing Additional Memory

You can expand system memory by installing industry standard Dual Inline Memory Modules (DIMMs) on the processor cage system board and on the memory expansion board.

The maximum memory capacity is as follows:

- 512-MB (Compaq Professional Workstation 6000)
- 3-GB (Compaq Professional Workstation 8000)

Important Guidelines for DIMM Installation

The following guidelines **MUST** be followed when installing additional memory:

- Use only 16-MB, 32-MB, 64-MB, 128-MB, or 256-MB buffered EDO DIMMs, 3.3 volts.
- DIMMs must be installed in matched pairs, identical in size and speed. The pairs of DIMMs, however, need not be of the same size. For example, two 16-MB DIMMs may be installed in slots 1 and 2 on the system board, and two 32-MB DIMMs in slots 3 and 4 on the system board.
- To optimize system performance, fill the DIMM slots in the following order, bearing in mind that some slots already will be filled:
 - DIMM slots 1 and 2
 - DIMM slots 5 and 6 (on the memory expansion board)
 - DIMM slots 3 and 4
 - DIMM slots 7 and 8 (on the memory expansion board)
 - DIMM slots 9 and 10 (on the memory expansion board)
 - DIMM slots 11 and 12 (on the memory expansion board)

IMPORTANT: To optimize system performance, fill DIMM slots 5 and 6 on the memory expansion board *before* filling slots 3 and 4 on the system board.

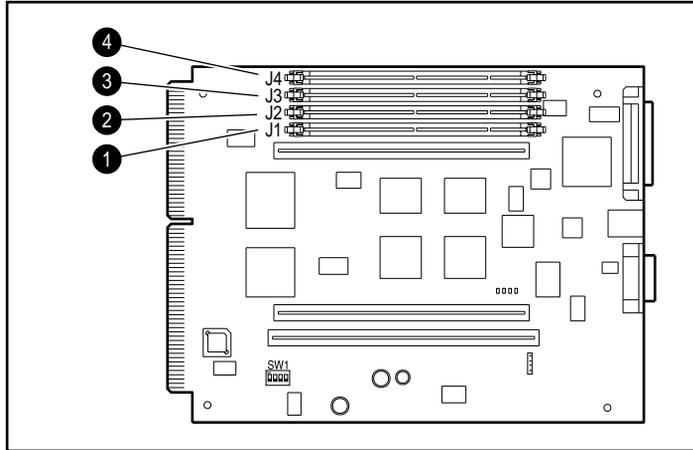


Figure 2-10. Identifying DIMM slots on the processor cage system board

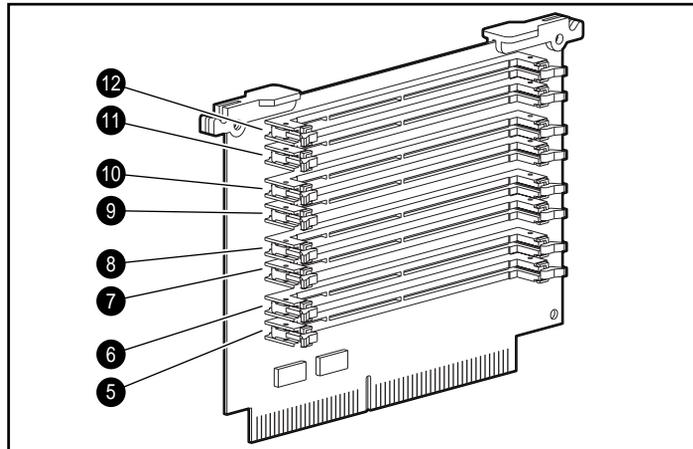


Figure 2-11. Identifying DIMM slots on the memory expansion board



CAUTION: Compaq recommends using Compaq DIMMs because they have been tested to ensure maximum performance and data integrity. Power-On Self-Test (POST) may not recognize non-supported DIMMs.

Installing DIMM Modules

This section provides an overview of DIMM installation. For complete installation procedures, refer to the documentation included with the option kit.

IMPORTANT: Prior to installing a DIMM, read the important guidelines in the previous section.

To install a DIMM:

1. If the workstation is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment.
3. Unlock and open the front bezel.
4. Remove the following components:
 - large access panel
 - security screw
 - processor cage
5. Place the processor cage on a flat surface and open the cage.
6. If adding DIMMs to the memory expansion board, remove the board and place it, component side up, on a flat, static-dissipating surface.
7. Open the appropriate DIMM socket latches.
8. Align the key slot on the bottom edge of each DIMM with the tab in the DIMM socket.

9. Insert each DIMM directly into the socket ❶.

IMPORTANT: A memory module can only be installed in one way. Match the notch on the module with the tab on the memory socket. Push the module down into the socket, ensuring that the module is fully inserted and properly seated.

10. Close the DIMM socket latches ❷.

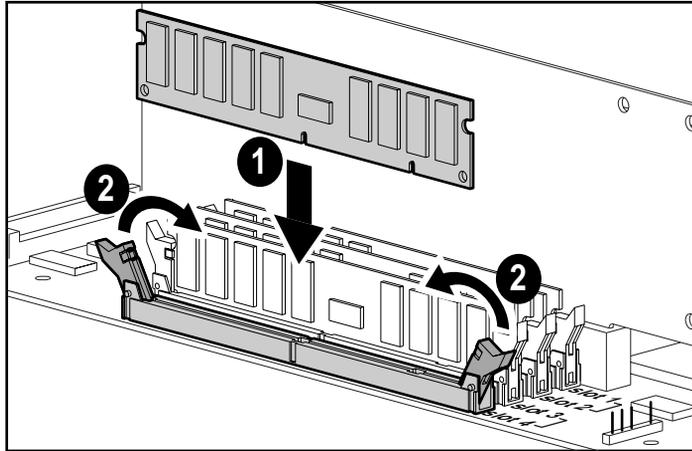


Figure 2-12. Installing DIMMs on the processor cage system board

11. Reinstall the memory expansion board.
12. Reassemble the workstation.

Installing Additional Mass Storage Devices

The Compaq Professional Workstation 6000 and 8000 have vacant bays for installing additional internal mass storage devices. SCSI devices such as tape drives or hard drives can be installed in the two vacant removable media drive bays (bays 6 and 7). All models have a drive cage that will accept a maximum of four 1.6-inch hard drives (bays 0 - 3), or six 1-inch hard drives (bays 0-5).

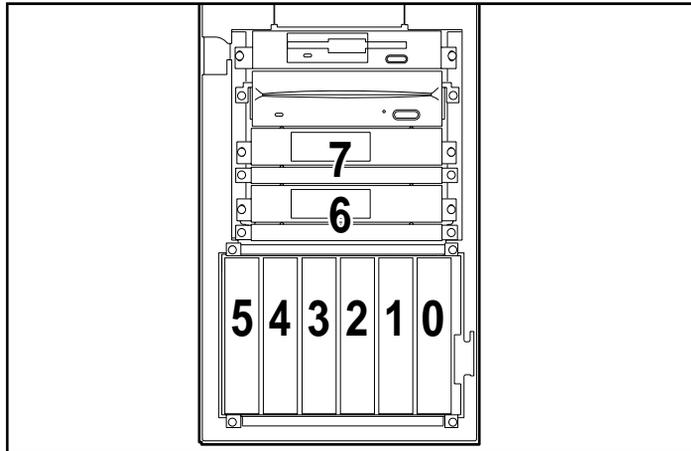


Figure 2-13. Identifying the drive bays with six 1-inch hard drives installed

IMPORTANT: SCSI devices on the Integrated Wide-Ultra SCSI-3 Controller must be either internal or in an external storage system, but not both.

Removable Media Area Drive Bays

The Compaq Professional Workstation 6000 and 8000 have four removable media drive bays. The top two bays are occupied with a 3.5-inch diskette drive and a 16X or 24X Max CD-ROM drive (IDE); the bottom two half-height 5.25-inch bays are vacant.

Two half-height removable storage devices such as tape drives or hard drives can be installed in the bottom two removable media drive bays. Also, one full-height storage device such as a DLT tape drive can be installed in the area occupied by the bottom two removable media drive bays. To install a device in this area and to cable the device, refer to the installation documentation provided with the drive.

The illustrations below provide only an overview of removing the blank panel and inserting a storage device.

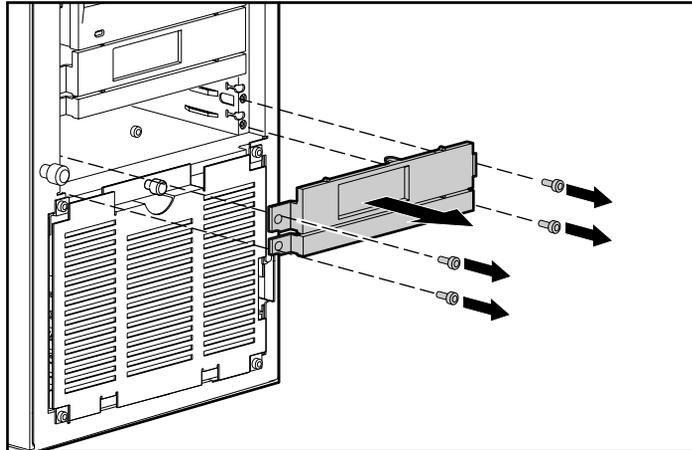
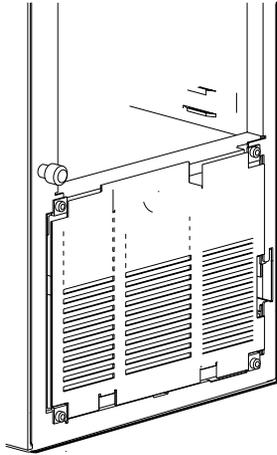


Figure 2-14. Removing a blank bezel



- Compaq SCSI cables for the Compaq Professional Workstation are terminated. Be sure to remove all terminating jumpers from third-party SCSI devices.
- Run the Computer Setup utility after installing a drive.

Installing Hard Drives in the Drive Cage

This section provides an overview for installing an additional hard drive. For complete installation procedures, refer to the documentation provided with the drive.

To install a hard drive in the drive cage:

1. If the workstation is on, turn off the power switch.
 2. Disconnect the power cord.
 3. Unlock and open the front bezel.
 4. Loosen the thumbscrew to open the drive cage door.
 5. Set the jumper and SCSI IDs. Remember that the system will attempt to boot from the hard drive with the lowest SCSI ID.
 6. Using the screws provided, attach the green rails to the drive.
-

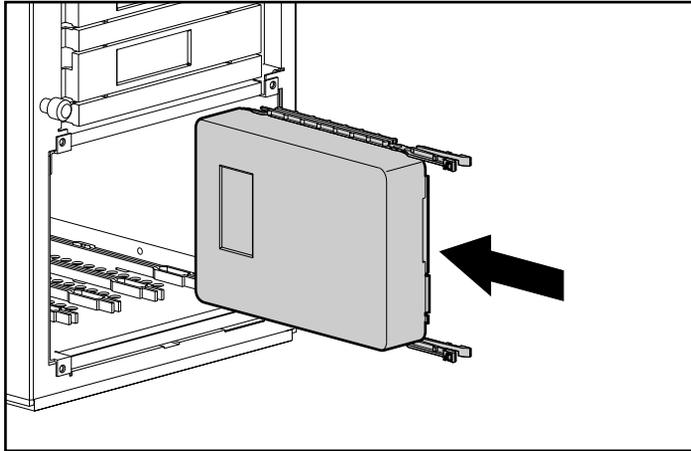


Figure 2-16. Installing a hard drive

7. Align the rails and slide the hard drive into the drive cage.
8. Connect the signal and power cables.

Installing a Processor

This section provides an overview for installing an additional Pentium Pro or Pentium II processor. For complete installation procedures, refer to the documentation provided with the processor upgrade kit. Additional information is also available on the Quick Setup Poster and the hood labels.

To install an additional processor:

1. If the workstation is on, turn it off and disconnect the power cord.
2. Disconnect any other external equipment.
3. Unlock and open the front bezel.

4. Remove the following components:
 - large access panel
 - security screw
 - processor cage
5. Loosen the thumbscrew to open the processor cage.
6. To install a second Pentium II processor on a Compaq Professional Workstation 6000:
 - Remove the terminator board.
 - Install the new processor board. The board ships with the Pentium II processor, heatsink, and Processor Power Module already attached. (Refer to the documentation included with the processor upgrade kit for more complete instructions.)
7. To install an additional (third) Pentium Pro processor on a Compaq Professional Workstation 8000:
 - Remove the terminator board.
 - Install the additional processor and a Processor Power Module on a new processor board. (Refer to the documentation included with the processor upgrade kit for more complete instructions.)
8. Reassemble the workstation.

IMPORTANT: If you are upgrading from one processor to two or more, you must install a new Multiprocessing HAL from an NT Support Software Diskette. For additional information, see instructions provided with the processor upgrade kit.

Upgrading the Processor

To upgrade the processor, follow the installation procedures included with the processor upgrade kit.

Chapter 3

Security Features

Your workstation includes security features that provide solutions for potential security problems. This chapter identifies these features and describes their purposes.

The following table describes how the security features function. In some cases you may also need to set switches. For more information about these switches, refer to the *Quick Setup* poster or to the hood labels located on the interior of the large access panel and the small access panel.

For information about protecting the software on your workstation, see Chapter 4.

Table 3-1
Security Features

Feature	Purpose	How It Is Established
Setup Password	Prevents reconfiguration of the workstation (use of the Computer Setup utility) until the Setup Password is entered. Utilized by system administrator.	Computer Setup from the Compaq Utilities menu
Power-On Password	Prevents use of the workstation until the Power-On Password is entered. Blocks unauthorized users.	Computer Setup from the Compaq Utilities menu
Logon Password	Prevents use of the workstation unless logon password is entered. Allows file security for multiple users.	Windows NT Security

continued

3-2 Security Features

Security Features *continued*

Feature	Purpose	How It Is Established
QuickLock/ QuickBlank	Disables keyboard and can blank the screen without exiting application; enabled with a Power-On Password	Computer Setup from the Compaq Utilities menu
Serial Interface Control	Prevents transfer of data through the integrated serial interface	Computer Setup from the Compaq Utilities menu
Parallel Interface Control	Prevents transfer of data through the integrated parallel interface	Computer Setup from the Compaq Utilities menu
Removable Media Control	Prevents writing to the removable media drives. Allows read only	Computer Setup from the Compaq Utilities menu
Front Bezel Lock	Prevents access to the removable media area and the drive cage.	Keylock on front bezel

Password Security

Your workstation supports security password features, which can be established by selecting:

- Security icon from the Control Panel in Windows NT
- Computer Setup from the Compaq Utilities menu

To access these features, complete the procedures described in the sections that follow.

NOTE: Windows NT can override some security features you set through the Compaq Utilities menu at startup. Because of this, Compaq recommends that you set your passwords by using the Windows NT Security icon, located in the Control Panel.

Establishing a Power-On Password Using Computer Setup

Establishing a Power-On Password through Computer Setup prevents access to the workstation when power is turned on, unless the password is entered. The password must be entered each time the workstation is turned on, when the key icon () appears on the monitor.

To establish a Power-On Password through Computer Setup:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.

NOTE: The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press **F10** during this time, you must turn the workstation off, then on again to access the utility.

3. Press **Enter** to bypass the welcome screens and display the main menu.
4. From the main menu, select Computer Setup, and press **Enter**. The workstation prompts you to reboot. Press **Enter** and the workstation will restart into Computer Setup.
5. From the Computer Setup main menu, select the Security Management feature under Built In Devices.
6. Locate the Power-On Password option and follow the instructions provided to enable it.
7. For more information about the various screen and configuration options, see Chapter 4.
8. Save the configuration and exit the utility.

NOTE: The Power-On Password may only be established (for the first time) using the Computer Setup utility. Once established, the Setup utility cannot be used to change or delete the Power-On Password. To change or delete the Power-On Password, see “Changing a Power-On Password” or “Deleting a Power-On Password” in this chapter.

Entering a Power-On Password

To enter the Power-On Password:

1. Turn on the workstation.
2. When the key icon () appears on the monitor, enter your current password.

NOTE: Type carefully; for security reasons, the characters you type do not appear on the screen.

If you enter the password incorrectly, a broken key icon () appears. Try again. After three unsuccessful tries, you must turn off the workstation, then turn it on again before you can continue.

Changing a Power-On Password

To change the password:

1. Turn on the workstation.
2. When the key icon () appears, type your current password, a slash (/) or alternate delimiter character, your new password, another slash (/) or alternate delimiter character, and your new password again as shown:

current password/new password/new password

NOTE: Type carefully; for security reasons, the characters you type do not appear on the screen. Refer to the “National Keyboard Delimiter Characters” section in this chapter for information about the alternate delimiter characters.

Completing this procedure causes the new password to take effect the next time you turn on the workstation.

Deleting a Power-On Password

To delete the password:

1. Turn on the workstation.
2. When the key icon () appears, type your current password followed by a slash (/) or alternate delimiter character as shown:

current password/

NOTE: Refer to the “National Keyboard Delimiter Characters” section in this chapter for information about alternate delimiter characters.

Completing this procedure deletes the password until you establish a new one.

National Keyboard Delimiter Characters

Each keyboard is designed to meet country-specific requirements. The syntax and keys that you use for changing or deleting your password depend on the keyboard that came with your workstation.

To determine the delimiter key required for changing or deleting your password, find your keyboard in the following table.

Table 3-2
National Keyboard Delimiter Characters

Arabic	/	Greek	-	Slovakian	-
Belgian	=	Hungarian	-	Spanish	-
BHCSY*	-	Italian	-	Swedish/Finnish	/
Brazilian	/	Japanese	/	Swiss	-
Chinese	/	Hangul	/	Taiwanese	/
Czech	-	Latin American	-	Thai	/
Danish	-	Norwegian	-	Turkish	.
French	!	Polish	-	U.K. English	/
French Canadian	é	Portuguese	-	U.S. English	/
German	-	Russian	/		

* Bosnia-Herzegovina, Croatia, Slovenia, and Yugoslavia

Clearing a Power-On Password

If you forget your password, you cannot access the workstation. To clear the Power-On Password:

1. Turn off the workstation.
2. Open the front bezel.
3. Remove the small access panel to access the expansion cage.
4. Remove any expansion boards, if necessary, to locate the SW1 switch on the expansion cage system board. The following figure shows the default switch setting for each switch on SW1.

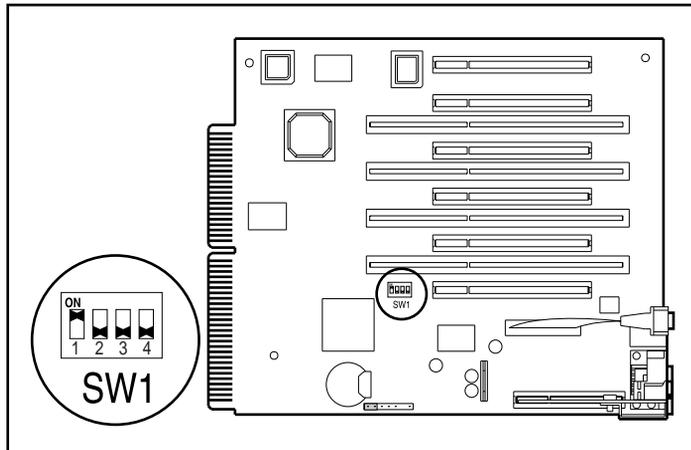


Figure 3-1. Locating the SW1 switch and identifying default settings

5. On SW1, move switch 2 to the ON position (not shown).

IMPORTANT: Switch 2 has a default setting of OFF. When the switch is OFF, your system is password-protected. To re-enable password protection, you **MUST** return the switch to its *default* position later in this procedure.

6. Restart the workstation to erase your password from system memory.

NOTE: Clearing the Power-On Password will also clear the Setup Password. Be sure to reestablish your Setup Password after clearing the Power-On Password.

3-8 Security Features

7. Turn off the workstation once more.
8. Return switch 2 to its original default (OFF) position.
9. Reassemble and restart the workstation.
10. Establish a new Power-On Password, if desired.

Advanced Security Management

The following security features can be accessed through the Computer Setup option on the Compaq Utilities menu.

- Setup Password
- Disable removable media boot ability
- Disable removable media write ability
- Disable serial port
- Disable parallel port
- QuickLock/QuickBlank
- Disable/enable keyboard and mouse interface

NOTE: QuickLock/QuickBlank must be used in combination with the Power-On Password.

Establishing a Setup Password

Establishing a Setup Password through the Computer Setup utility prevents reconfiguration of the workstation until the Setup Password is entered.

If your workstation does not have a Setup Password enabled, the ROM is not write-protected. Updates may occur that could disrupt the operating system. The Setup Password is disabled when the workstation leaves the factory.

NOTE: The Setup Password is different from the Power-On Password. The Setup Password is designed for network administrators to lock in the proper configuration settings of the workstation. Individual users can still retain local control of the workstation by using the Power-On Password feature.

To establish a Setup Password through Computer Setup:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.

NOTE: The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press **F10** during this time, you must turn the workstation off, then on again to access the utility
3. Press the **Enter** key to bypass the welcome screens and display the main menu.
4. From the main menu, select Computer Setup, and press **Enter**. The workstation prompts you to reboot. Press **Enter** and the workstation reboots into Computer Setup.
5. From the Computer Setup main menu, select the Security Management feature under Built-In Devices.
6. Locate the Setup Password option and follow the instructions on the screen to enable it.
7. Save the configuration and exit the Computer Setup utility.

Entering the Setup Password

To enter the Setup Password:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.
3. When the key icon () appears, enter your current Setup Password carefully.

NOTE: Be sure to enter the Setup Password, not the Power-On Password. Type carefully; for security reasons, the characters you type do not appear on the screen. If you enter the Setup Password incorrectly, a broken key icon () appears. Try again. After three unsuccessful tries, you must turn off the workstation, then turn it on again before you can continue.

Changing a Setup Password

To change the Setup Password:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.
3. When the key icon () appears, type your current password, a slash (/) or alternate delimiter character, your new password, another slash (/) or alternate delimiter character, and your new password again as shown:

current password/new password/new password

NOTE: Refer to the “National Keyboard Delimiter Characters” section in this chapter for information about the alternate delimiter characters.

NOTE: Type carefully; for security reasons, the characters you type do not appear on the screen.

Completing this procedure causes the new password to take effect the next time you turn on the workstation.

NOTE: The Setup Password may also be changed by using the Computer Setup utility. Follow the “Establishing a Setup Password” procedure. Locate the Setup Password option and follow the instructions to change the Setup Password.

Deleting a Setup Password

To delete the Setup Password:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.
3. When the key icon () appears, type your current password followed by a slash (/) or alternate delimiter character as shown:

current password/

NOTE: Refer to the “National Keyboard Delimiter Characters” section in this chapter for information about alternate delimiter characters.

Completing this procedure deletes the password until you establish a new one through Security Management.

NOTE: The Setup Password may also be deleted by using the Computer Setup utility. Follow the “Establishing a Setup Password” procedure. Locate the Setup Password option and follow the instructions to delete the Setup Password. The Setup utility will provide an option to disable the Setup Password; disabling the Setup Password is the same as deleting it.

Clearing a Setup Password

If you forget your Setup Password, you cannot use the Computer Setup utility to change the configuration settings. You may view the current settings, but you may not change them unless you know the Setup Password.

To clear the Setup Password:

1. Turn off the workstation.
2. Open the front bezel.
3. Remove the small access panel to access the expansion cage.

3-12 Security Features

4. Remove any expansion boards, if necessary, to locate the SW1 switch on the expansion cage system board. The following figure shows the default switch setting for each switch on SW1.

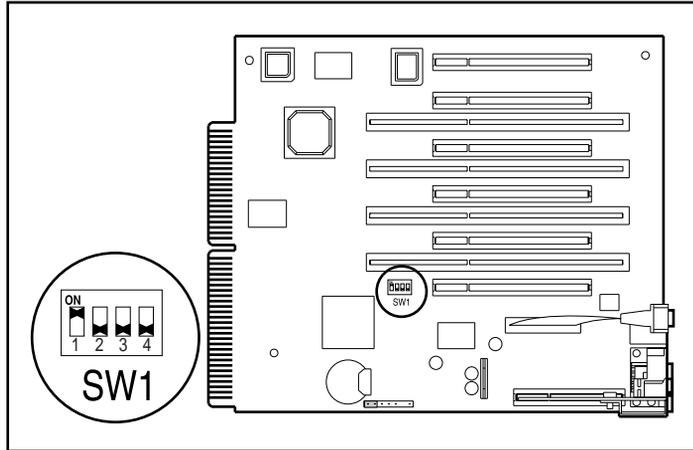


Figure 3-2. Locating the SW1 switch and identifying default settings

5. On SW1, move switch 2 to the ON position (not shown).

IMPORTANT: Switch 2 has a default setting of OFF. When the switch is OFF, your system is password-protected. To re-enable password protection, you **MUST** return the switch to its *default* position later in this procedure.

6. Restart the workstation to erase your password from system memory.

NOTE: Clearing the Setup Password will also clear the Power-On Password. Be sure to reestablish your Power-On Password after clearing the Setup Password.

7. Turn off the workstation once more.
 8. Return switch 2 to its original default (OFF) position.
 9. Reassemble and restart the workstation.
 10. Establish a new Setup Password, if desired.
-

Disabling Diskette Boot or Diskette Write

To disable the factory settings that permit the workstation to boot from a diskette, or to prohibit a user from saving data to a diskette:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.

NOTE: The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press **F10** during this time, you must turn the workstation off, then on again to access the utility.

3. Press **Enter** to bypass the welcome screens and display the main menu.
4. From the main menu, select Computer Setup, and press **Enter**. The workstation prompts you to reboot. Press **Enter** and the workstation will restart into Computer Setup.
5. From the Computer Setup main menu, select the Security Management feature under Built In Devices.
6. Select Storage.
7. Under Removable Media, select the function you want to disable.
8. Save the configuration and exit the utility.
9. Reboot the workstation.

NOTE: Compaq recommends that you establish a Setup Password to prevent another user from entering the Computer Setup utility and changing any settings.

Disabling a Serial Port or Parallel Port

To disable either of the serial ports or the parallel port:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**.

NOTE: The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press **F10** during this time, you must turn the workstation off, then on again to access the utility.
3. Press **Enter** to bypass the welcome screens and display the main menu.
4. From the main menu, select Computer Setup, and press **Enter**. The workstation prompts you to reboot. Press **Enter** and the workstation will restart into Computer Setup.
5. From the Computer Setup main menu, select Communications under Built In Devices.

Disabling a Serial Port

- a. Click on the down arrow of Available Serial Ports.
- b. Under Settings, select Disable for Serial Port 1 or Serial Port 2, whichever you want to disable.

Disabling the Parallel Port

- a. Under Settings, click the down arrow to locate Parallel Port.
 - b. Select Disable.
6. Save the configuration and exit the utility.
 7. Reboot the workstation.
-

QuickLock/QuickBlank

QuickLock and QuickBlank are enabled through Security Management in Computer Setup. The keyboard and mouse interface can be disabled and the screen blanked from within an application. Entering a QuickLock key combination (**Ctrl+Alt+L**) disables the keyboard and the mouse interface. If QuickBlank is not activated, the application remains in view on the screen, but it cannot be accessed.

To re-enable the input device interface and access the application, you must enter the Power-On Password that you established in Security Management. Therefore, you must establish a Power-On Password in order to utilize Quick Lock and Quick Blank.

Enabling QuickLock and QuickBlank

To enable the QuickLock and QuickBlank features, the Power-On Password must be enabled. Then:

1. Turn on the workstation.
2. When the cursor appears in the upper-right corner of the screen, press **F10**. The cursor displays in the upper-right corner of the screen for approximately two seconds. If you do not press **F10** during this time, you must turn the workstation off, then on again to access the utility.
3. Press **Enter** to bypass the welcome screens and display the main menu.
4. Select Computer Setup from the main menu and press **Enter**. The workstation prompts you to reboot. Press **Enter** and the workstation reboots into Computer Setup.
5. From the Computer Setup main menu, select the Security Management feature under Built-In Devices.

6. Select Enable QuickLock of the Keyboard to enable the Quick Blank the Screen When Locked and Initiate Quick Lock When Entering Energy Saver Modes.

NOTE: In order to use Initiate QuickLock when entering Energy Saver Mode, the Power Management option must be enabled.

For more information about the various screen and configuration options, see Chapter 4.

7. Check the function desired by clicking in the appropriate box.
8. Save the configuration and exit the utility.

Disabling the Keyboard and Mouse Interface

Once in an application, enter the QuickLock key combination (**Ctrl+Alt+L**).

The keyboard and mouse (or other input device connected to the mouse connector) are disabled. The application cannot be accessed, but remains in view, unless the QuickBlank feature was also enabled through the Computer Setup utility.

Enabling the Keyboard and Mouse Interface

To enable the keyboard and input device connected to the mouse connector, enter the Power-On Password.

NOTE: For security reasons, the characters you type do not appear on the screen. The application will not be affected by the characters typed.



CAUTION: If your workstation does not have a Setup Password enabled, then the ROM is not write-protected. Updates may occur that could disrupt the operating system. The Setup Password is disabled when the workstation leaves the factory.

Front Bezel Lock

A keylock on the front bezel secures the bezel to the chassis. It also locks the removable media door on the bezel and prevents access to the drive cage.

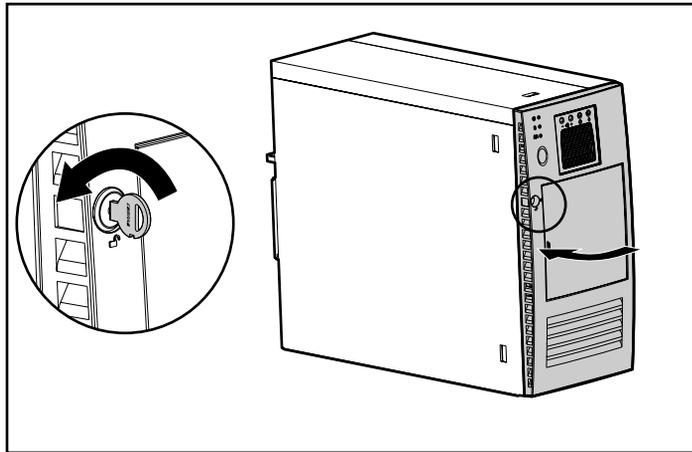


Figure 3-3. Closing and locking the front bezel

Chapter 4

Compaq Setup and Diagnostics Software

Your Compaq Professional Workstation comes with Compaq software. This software includes Compaq Utilities preinstalled on a hard drive partition and ROM BIOS (Read Only Memory Basic Input/Output System). This chapter explains how to access the Compaq Utilities menu, describes the options available in Compaq Utilities, and discusses the ROM BIOS. For more specific information about this software, see the online help.

If you have reformatted your hard drive and removed the Compaq Utilities partition, it can be reinstalled by using the Compaq SmartStart for Workstations CD, or you can download Setup and User Diagnostics diskettes from the Compaq website at <http://www.compaq.com>.

NOTE: For more information about installing your operating system, drivers, and other support software, refer to the *Workstation Reference* included on the Compaq SmartStart for Workstations CD.

Accessing the Compaq Utilities Menu

To access the Compaq Utilities menu:

1. Turn on or restart the workstation.

NOTE: Do not restart your workstation while in Windows NT. Instead, exit Windows NT, then restart the workstation.

2. When the cursor blinks in the upper-right corner of the screen, press **F10**. You have approximately two seconds to press **F10** or you must restart the workstation.
3. Press **Enter** to bypass the title and welcome screens. The Compaq Utilities menu appears.

4-2 Compaq Setup and Diagnostics Software

The Compaq Utilities menu consists of the following choices:

- Computer Setup
- Computer Checkup (TEST)
- View System Information (INSPECT)
- Create a Diagnostics Diskette
- Manage Diagnostics Partition
- Exit from this Utility

Computer Setup

Use Computer Setup in the following instances:

- To verify configuration parameters when resolving problems.
- To get an overview of the workstation's hardware.
- To modify settings for graphics, processor, memory, audio, storage, communications, and input devices.
- To enable or disable removable media drive boot ability.
- To enable or disable removable media drive write control.
- To enable or disable the serial or parallel ports.
- To resolve errors when a system configuration error is detected during the Power-On Self-Test (POST) and is not automatically fixed by POST.
- To change factory default settings.
- To add new options, such as a network interface controller upgrade.

IMPORTANT: Be sure to configure new options and drivers in your operating system after they have been configured by the Setup utility.

Security Management

Your workstation offers security features that provide solutions for a variety of potential concerns. Use the Security Management feature of Computer Setup in the following instances:

- To set or change your Power-On Password.
- To set or change the Setup (administrator) Password, which protects the workstation configuration.
- To password-protect access to your system.
- To set or change QuickLock/QuickBlank features.

See Chapter 3 to identify the security features, their purposes, and how to establish them.

Power Management

Use the Power Management feature of Computer Setup in the following instances:

- To create a custom power conservation level.
- To enable or disable power management.
- To change component time-out periods.



CAUTION: Using the Energy Save Monitor feature with non Energy Star-compliant monitors may cause video distortion when the Screen Save time-out occurs.

Computer Checkup (TEST)

Use Computer Checkup (TEST) in the following instances:

- To determine if all devices are recognized by the system and functioning properly. Running TEST is optional, but recommended, after you install or connect a new device.
- To save, print, or display the information generated by TEST. It is recommended that you run TEST and have the printed report available before placing a call to the Compaq Customer Support Center.
- To assist your Compaq authorized dealer, reseller, or service provider in analyzing the system by allowing the service provider to reproduce the same environment on another workstation for testing.

To run Computer Checkup (TEST):

1. Turn on only the external devices that you wish to test. You may wish to leave the printer connected to log error messages.
2. Access the Compaq Utilities menu.
3. From the Compaq Utilities menu, select Computer Checkup (TEST).
4. When the test option menu appears, select the option to view the device list.
5. Verify that TEST correctly detected the devices installed.

NOTE: This utility will detect all devices manufactured by Compaq; devices from other manufacturers may not be detected.

- If the list is correct, select OK and go on to step 6.
 - If the list is incorrect, be sure that any new devices are installed properly. If you do not find an installation problem, call your Compaq authorized dealer, reseller, or service provider.
-

6. Select one of the following from the test option menu:
 - ❑ **Quick Check Diagnostics**—This option runs a quick, general test on each device with a minimal number of prompts. If errors occur, they are displayed when the testing is complete.
 - ❑ **Automatic Diagnostics**—This option runs unattended, maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or file a log of errors.
 - ❑ **Prompted Diagnostics**—This option allows maximum control over the device testing process. You can choose attended or unattended testing, decide to stop on errors, or choose to print or file a log of errors.
7. Follow the instructions on the screen as the diagnostic tests are run on the devices. When the testing is complete, the screen displays the test option menu again.

NOTE: When running TEST, record any error message numbers and have them available when you contact your Compaq authorized dealer, reseller, or service provider for assistance.
8. Exit to the Compaq Utilities menu.

View System Information (INSPECT)

Use View System Information (INSPECT) in the following instances:

- To view information about the system once it has been configured.
- To save, print, or display the information generated by INSPECT. It is recommended that you run INSPECT and have the printed report available before placing a call to the Compaq Customer Support Center.
- To assist your Compaq authorized dealer, reseller, or service provider in analyzing the system by allowing the service provider to reproduce the same environment on another workstation for testing.

INSPECT provides the following information about the system's operating environment:

- Contents of the operating system startup files
- Current memory configuration
- ROM versions
- Type of processor and coprocessor
- Types of drives installed
- Active printer and communications interfaces
- Type of modem installed
- Graphics details

Create a Diagnostics Diskette

This option allows you to create *both* Setup or Diagnostics diskettes from the diagnostics partition. To create the diskettes:

1. Turn on or restart the workstation. If Windows NT is running, click Start, Shut Down, Restart the computer.

Immediately after the workstation completes Power-On Self-Test (POST), which is indicated on the screen by the memory check, the system beeps twice and the cursor moves to the upper-right corner of the screen.
2. Press **F10** as soon as the cursor moves to the upper-right corner of the screen.
3. If prompted, select the desired language.
4. Press **Enter** to bypass the Welcome to Compaq Utilities screen.
5. From the Compaq Utilities menu, select Create a Diagnostics Diskette. One diagnostic and two setup diskettes will be created.

NOTE: The Diagnostics and Setup diskettes can also be created by downloading the latest version from the Compaq website.

Manage a Diagnostics Partition

This option allows you to create, delete, or upgrade the diagnostics software on the workstation. This must be performed from a diagnostics diskette.



CAUTION: Creating a diagnostics partition involves performing a low-level format on the hard drive. Normally, this is only done to add diagnostics to a new replacement hard drive. If the diagnostics software is deleted, you will no longer be able to access the Compaq Utilities menu.

Exit from This Utility

Use this option to exit the Compaq Utilities menu.

ROM BIOS

Your workstation contains a set of software called Basic Input/Output System (BIOS) stored in Read Only Memory (ROM) on the system board. The BIOS contains a set of routines for Power-On Self-Test (POST) and accessing hardware specific information.

Power-On-Self-Test

When you turn on your workstation, the BIOS runs a number of tests, called power-on self-tests. These tests check and initialize many hardware components. The basic sequence for POST is:

1. Check and initialize low level hardware.
2. Count memory.

The memory count is displayed in the upper left corner of the monitor screen in increments of kilobytes (KB).

4-8 Compaq Setup and Diagnostics Software

3. Detect and spin up hard drives and other SCSI devices. A message will be displayed:

"SCSI Device Detected - System Board, SCSI Idx: <disk ID> where x is from 0 to 15 and disk ID is the drive type."
4. Boot from, in sequence, either a CD, a diskette, or the hard drive.

Runtime Services

After your workstation boots to the operating system, the BIOS still provides some runtime services to the operating system. For instance, the BIOS provides information to the operating system on how many processors are installed, how the system interrupts are configured, and information on the disk drives. BIOS also provides information about your workstation's configuration and maintenance.

Upgrading the ROM BIOS

The ROM BIOS on your workstation may be upgraded. Since the BIOS is stored in ROM on the system board, the upgrade procedure is different than the upgrade procedure for other software.

New versions of BIOS may be downloaded from the Compaq website at <http://www.compaq.com>. BIOS upgrades are called ROMPaq.

To upgrade your ROM BIOS, execute the ROMPaq software and follow the directions given by the ROMPaq software.

Chapter 5

Network Communications

This chapter provides information about networks and the hardware connectors and software device drivers that allow you to access a network. Once your network connection is active, you can share resources such as a printer, exchange information from device to device, and run common software programs.

Your workstation comes Ethernet network-ready, which means that it has an integrated network controller and network device drivers on the Compaq SmartStart for Workstations CD. The integrated Netelligent network controller is a PCI bus mastering dual speed 10Base-T standard 100Base-TX controller that will automatically detect network connection speed and adjust accordingly. The controller supports full duplex Ethernet, allowing two-way transmission between nodes for up to 20 or 200 Mbits/sec aggregate bandwidth.

NOTE: Your workstation is also Token Ring Network capable. To connect to a Token Ring Network, you must install a Token Ring board.

Identifying the Ethernet Connectors

The following Ethernet connectors are located on the rear panel of the workstation:

- ❶ RJ-45 (8-pin) connector
- ❷ AUI (thick-coax cable, 10Base-T only) 15-pin connector

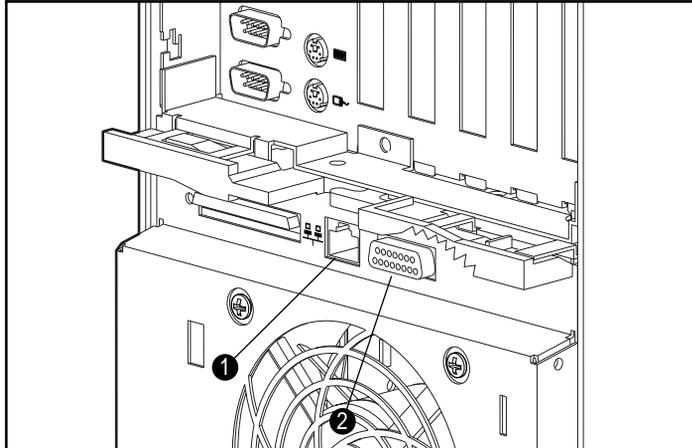


Figure 5-1. Identifying the Ethernet connectors



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

Connecting to an Ethernet Cable

Two types of network connectors are included on your workstation. Each type requires different equipment and installation procedures, as explained in the following sections.

IMPORTANT: To avoid configuration problems, do not attempt to utilize the RJ-45 and AUI connectors simultaneously.

Attaching a Network Cable to the RJ-45 Connector

Insert one end of the network cable into the main network connection and the other end into the RJ-45 connector on your workstation as shown in the following figure. Make sure both connectors are securely joined.

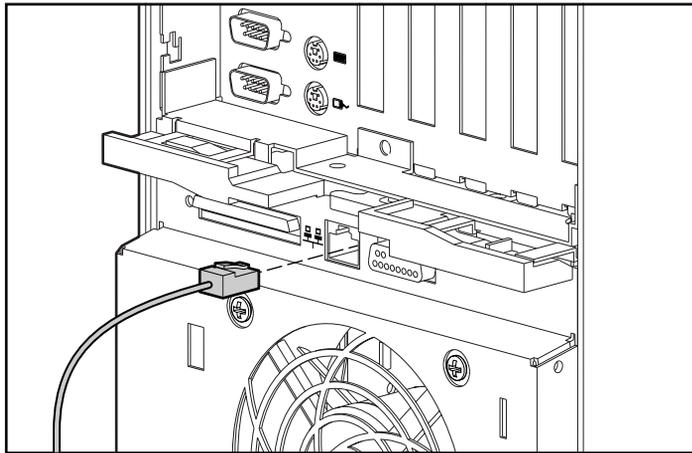


Figure 5-2. Attaching the network cable to the RJ-45 connector

Attaching a Network Cable to the AUI Connector

Attach one end of the network cable to the main network connector and attach the other end to the AUI connector on your workstation. Make sure both connectors are securely joined.

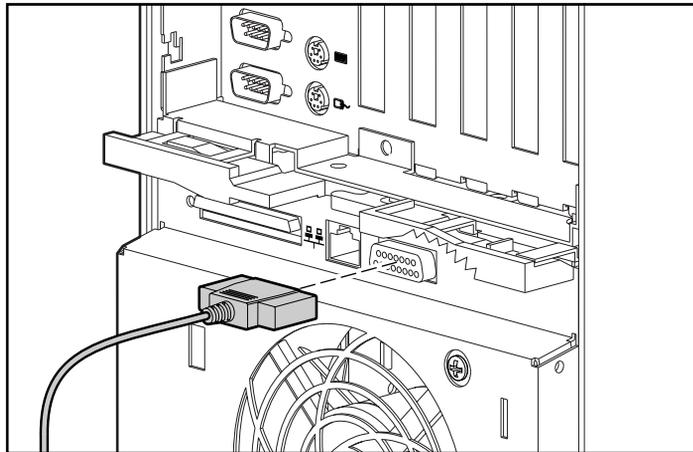


Figure 5-3. Attaching the network cable to an AUI connector

Installing the Network Drivers

The device drivers in the network software enable the workstation to communicate with the network. For information about installing drivers, operating systems, and other support software, refer to the *Workstation Reference* included on the SmartStart for Workstations CD.

Changing the Default Configuration

To change the default configuration settings, run the Setup utility. See Chapter 4 for instructions.

Chapter 6

CD-ROM Drive and PremierSound Audio System

The 16X or 24X Max CD-ROM drive (IDE) installed in the workstation is a random access, read-only storage device capable of retrieving data from a removable compact disc.

Using the Slot-Load CD-ROM Drive

1. Turn on the workstation, if it is not already on.
2. Hold the compact disc by the edges, label side up, being careful not to touch the flat surfaces of the disc, and insert it straight into the slot. Discs inserted at an angle may not be accepted.

The drive performs a diagnostic check and automatically begins reading the table of contents (TOC). The busy indicator turns amber while the drive reads the TOC.

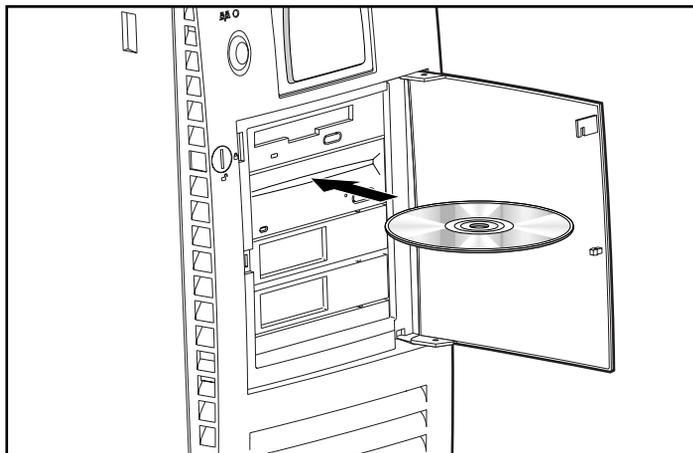


Figure 6-1. Inserting a CD in the slot-load CD-ROM drive

6-2 CD-ROM Drive and PremierSound Audio System

NOTE: The compact disc is automatically ejected if the disc is upside down or if any other condition prevents the drive from reading the disc.

3. When the busy indicator turns green, the drive is ready to receive commands and data may be retrieved from the disc.
4. To remove the compact disc, press the Eject button.

IMPORTANT: Certain applications or operating system software may disable the load/unload button to prevent accidental damage to the disc. If the load/unload button is disabled by the application software, it will not operate.



CAUTION: Do not apply labels to CDs. With 16X and faster CD-ROM drives, the presence of a label will cause the CD not to be balanced and may cause either inconsistent operation or failure of the drive.

Using CD-ROM Software

The first time you use a software program that comes on a compact disc, it may load a certain amount of program data onto the hard drive of your workstation. This enables the program to run more efficiently and quickly in the future.

NOTE: Some software compact discs take control of the hardware volume controls. If this occurs, adjust the volume controls *before* starting the software.

Read the software manufacturer's instructions that accompany the compact disc before you attempt to use it. Information to look for includes:

- How much hard disk space will this program require? Do you have enough disk space?
- Will you activate the disc from Windows NT or from the system prompt?
- Have you connected any special devices this program requires, such as a joystick?
- Do you have the required information (such as serial number) available to answer any questions during the setup program?

PremierSound Audio System

Your workstation features a PremierSound audio subsystem that provides sound capabilities for increased productivity in the Microsoft Windows NT operating environment.

The audio system allows you to integrate voice messages and music directly into your files. Using the supplied microphone, you can record sounds as data on the hard drive. This sound data may be used in many ways, for example; you can enhance presentation data with voice and music.

If you choose to upgrade your audio system, you must disable the integrated audio controller:

IMPORTANT: Do not remove the ESS 1868 driver from the Drivers window in the Control Panel. Follow the instructions below.

1. From the Control Panel in Windows NT, select Devices.
 2. From the Devices window, select the AudioDrive device.
 3. Select the Stop button to stop the AudioDrive device.
 4. Select the Startup button.
 5. Select Disabled as the Startup Type for the AudioDrive.
 6. Select OK.
 7. Close the Devices window.
 8. Restart the workstation for the changes to take effect.
 9. Proceed with the installation process for your upgrade audio controller board.
-

Using Audio Compact Discs

To play audio CDs, follow these steps:

1. Select Programs from the Start button.
2. Then select Multimedia from the Accessories menu.
3. Click CD Player, found in the Accessories group box, to control audio compact disc play.

Information on using CD Player can be found in the online help for that utility.

CD-ROM Drive Precautions

Operating Precautions

To ensure that the CD-ROM drive operates properly, observe the following precautions:

- 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 Precautions

- 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 Precautions

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



Chapter 7

Graphics Controllers

Overview

The purpose of a graphics controller is to generate and send the graphics signal to the monitor. The quality of the picture you see depends on the resolution of your monitor and the number of colors that the graphics controller can display. High-resolution graphics with many colors requires that the graphics controller have its own memory.

The Compaq Professional Workstation 6000 and 8000 come standard with *one* of the following graphics controllers:

- MGA Millennium II
- GLoria Synergy
- GLoria-L 3D
- FireGL 4000

For more complete information on each graphics controller, refer to the individual installation guides on the SmartStart for Workstation CD. The guides are located at X:\docs, where X is your CD-ROM drive designation.

Multi-Monitor Support

Depending on the graphics controller installed, your workstation can support multiple monitors. The following table illustrates the configurations required for multiple monitor support.

Table 7-1
Graphics Controllers
Configurations for Multi-Monitor Support

Graphics Controller	Hardware Configurations
MGA Millennium II	Supports one monitor. For multiple monitor support, install additional controllers.
GLoria Synergy	Supports one monitor. For multiple monitor support, install additional controllers.
GLoria-L 3D	Supports one monitor. For multiple monitor support, install additional controllers.

NOTE: The FireGL 4000 graphics controller does not support multiple monitor configurations at this time.

For more information on each graphics controller, see the documentation included in the option kit or on the SmartStart for Workstations CD.

MGA Millennium II Graphics Controller

The MGA Millennium II graphics controller offers the following key features:

- Standard 4-MB WRAM, upgradable to 8- or 16-MB.
- Single-monitor support, expandable to multiple monitor support by installing additional controllers
- Single-buffer and double-buffer (16-Bit and 32-Bit Z Buffer) resolution modes

Upgrading Memory

To install a memory upgrade module on the MGA Millennium II graphics controller, refer to the documentation included in the memory upgrade kit.

Installing an Additional Controller

The MGA Millennium II graphics controller installed on your workstation provides single-monitor support. To upgrade your workstation to a multiple-monitor system, you must install an additional controller. Additional MGA Millennium II graphics controllers are available through your local Compaq distributor or service provider. Refer to the documentation included in the option kit for installation procedures.

Resolutions and Color Support

Table 7-2
Maximum Color Support
MGA Millennium II
Double Buffer Mode, 16-Bit Z Buffer

Resolutions	4 MB	8 MB	16 MB
1800 x 1440	-	-	65,536
1920 x 1200	-	-	65,536
1920 x 1080	-	256	65,536
1920 x 1034 I*	-	256	65,536
1600 x 1200	-	256	65,536
1600 x 1024	-	256	16,777,216
1280 x 1024	-	65,536	16,777,216
1152 x 864	256	65,536	16,777,216
1024 x 768	256	16,777,216	16,777,216
800 x 600	65,536	16,777,216	16,777,216
640 x 480	16,777,216	16,777,216	16,777,216

I* = interlaced screen mode

Table 7-3
Maximum Color Support
MGA Millennium II
Double Buffer Mode, 32-Bit Z Buffer

Resolutions	4 MB	8 MB	16 MB
1800 x 1440	-	-	256
1920 x 1200	-	-	256
1920 x 1080	-	-	65,536
1920 x 1034 I*	-	-	65,536
1600 x 1200	-	-	65,536
1600 x 1024	-	-	65,536
1280 x 1024	-	256	16,777,216
1152 x 864	-	65,536	16,777,216
1024 x 768	-	65,536	16,777,216
800 x 600	65,536	16,777,216	16,777,216
640 x 480	16,777,216	16,777,216	16,777,216

I* = interlaced screen mode

Table 7-4
Maximum Color Support
MGA Millennium II
Single Buffer Mode

Resolutions	4 MB	8 MB	16 MB
1800 x 1440	256	65,536	65,536
1920 x 1200	256	16,777,216	16,777,216
1920 x 1080	65,536	16,777,216	16,777,216
1920 x 1034 I*	65,536	16,777,216	16,777,216
1600 x 1200	65,536	16,777,216	16,777,216
1600 x 1024	65,536	16,777,216	16,777,216
1280 x 1024	16,777,216	16,777,216	16,777,216
1152 x 864	16,777,216	16,777,216	16,777,216
1024 x 768	16,777,216	16,777,216	16,777,216
800 x 600	16,777,216	16,777,216	16,777,216
640 x 480	16,777,216	16,777,216	16,777,216

I* = interlaced screen mode

GLoria Synergy Graphics Controller

The GLoria Synergy graphics controller offers the following key features:

- 4-MB SGRAM upgradable to 8-MB
- High resolution 2D and 3D graphics
- Single-monitor support, expandable to multiple monitor support by installing additional controllers
- Single-buffer and double-buffer (16-bit Z buffer) resolution modes

Upgrading Memory

To install a memory upgrade module on the GLoria Synergy graphics controller, refer to the documentation included in the memory upgrade kit.

Installing an Additional Controller

The GLoria Synergy graphics controller installed on your workstation provides single-monitor support. To upgrade your workstation to a multiple-monitor system, you must install an additional controller. Additional GLoria Synergy graphics controllers are available through your local Compaq distributor or service provider. Refer to the documentation included in the option kit for installation procedures.

Resolutions and Color Support

Table 7-5
Maximum Color Support
GLoria Synergy

Resolutions	4 MB	8 MB
1920 x 1200	256	32,768
1920 x 1080	256	32,768
1600 x 1280	32,768	32,768
1600 x 1200	32,768	32,768
1600 x 1000	32,768	16,777,216
1536 x 1152	32,768	32,768
1280 x 1024	32,768	16,777,216
1152 x 864	16,777,216	16,777,216
1024 x 768	16,777,216	16,777,216
800 x 600	16,777,216	16,777,216
640 x 480	16,777,216	16,777,216

GLoria-L 3D Graphics Controller

The GLoria-L 3D graphics controller offers the following key features:

- 8-MB VRAM for display memory
- 8-MB DRAM for Z-buffer and texture buffer upgradable to 16-MB
- Single monitor support, expandable to multiple monitor support by installing additional controllers

Upgrading Memory

To install a memory upgrade module on the GLoria-L 3D graphics controller, refer to the documentation included in the memory upgrade kit.

Installing an Additional Controller

The GLoria-L 3D graphics controller installed on your workstation provides single-monitor support. To upgrade your workstation to a multiple-monitor system, you must install an additional controller. Additional GLoria-L 3D graphics controllers are available through your local Compaq distributor or service provider. Refer to the documentation included in the option kit for installation procedures.

Resolutions and Color Support

Table 7-6
Maximum Color Support
GLoria-L 3D

	Single Buffer Mode	Double Buffer Mode
Resolution	Colors	Colors
1600 x 1200	16,777,216	32,768
1280 x 1024	16,777,216	32,768
1152 x 864	16,777,216	32,768
1024 x 768	16,777,216	32,768
800 x 600	16,777,216	32,768

FireGL 4000 Graphics Controller

The FireGL 4000 graphics controller offers the following key features:

- RealImage Graphics Technology from Evans & Sutherland
- CIRRUS Logic 5446 VGA controller with 1 MB DRAM
- Connector and support for stereographics display
- Standard 15-MB 3D-RAM (frame buffer and Z-buffer)
- Standard 16-MB CDRAM texture buffer memory

Resolution and Color Support

Table 7-7
Maximum Color Support
FireGL 4000 Graphics Controller
Single Buffer Mode

Resolution	Color	Refresh Rate (Hz)
1280 x 1024 *	16.7 M	85
1024 x 768	16.7 M	100
800 x 600	16.7 M	120
640 x 480	16.7 M	120

* Stereographic CrystalEyes applications must be set for 1280 x 1024 at 60 Hz.

NOTE: Due to its frame buffer and drawing engine architecture, the FireGL 4000 graphics controller supports only TrueColor (16.7 M simultaneous colors) 32-bit RGBA video output modes.

Chapter 8

Troubleshooting

This chapter provides information on how to identify and correct some common disk, display, memory, network, SCSI, and software problems. It also identifies and explains some common messages you may receive on the screen.

See Appendix E for an explanation of specific error messages that may display during the Power-On-Self-Test at startup.

Checklist for Minor Problems

If you encounter some minor problem with your workstation, monitor, or software, refer to the following list of general suggestions before taking further action:

- Check that the workstation and monitor are plugged into a working electrical outlet.
- Check to see that the workstation is turned on and the green power light is on.
- Check to see that the monitor is turned on and the green monitor light is on.
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- Press and hold any key. If the system beeps, then your keyboard is operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Make sure you ran the Setup utility *after installing* an expansion board, ISA board, or other option (memory, disk drives).
- Check that all switch settings have been set as instructed by the Setup utility.
- Be sure that all the needed device drivers have been installed (for example, if you are using a mouse, you need a mouse device driver).

8-2 Troubleshooting

- Make sure all printer drivers have been installed for each application.
- Take out all diskettes from the diskette drives before you turn on your system.
- If you have corrupted your Windows NT configuration, reboot the workstation. When the startup program prompts you to press the spacebar to invoke the last known good menu, press the spacebar. Windows NT remembers your last working configuration and runs it.

Troubleshooting Common Problems

Although your workstation is configured for your particular hardware and software, problems you encounter while working may not be unique. Eliminating the typical problems described in this section may save you time and money. If you do have a problem with your workstation, consider the problems and possible solutions outlined in the following series of tables. You may discover something you can resolve easily for yourself. If the condition persists, contact your Compaq authorized reseller or service provider.

Minor Problems

Table 8-1
Minor Problems and Solutions

Problem	Possible Cause	Possible Solution
Workstation won't turn on	Workstation is not connected to an external power source.	Connect to an external power source.
	Cables to the external power source are unplugged.	Ensure that cables connecting the workstation and the external source are plugged in properly.
	A defective PCI or ISA card has been installed.	Remove any adapter card that was just installed.
	Boards or cages are not properly installed.	Ensure boards are properly seated in the Processor Cage. Ensure cages are properly installed in unit.
Workstation doesn't automatically display the date and time	RTC (real-time clock) battery may need to be replaced. Battery life is approximately 5 years.	Replace the RTC battery. Refer to Appendix D, "Installing a New Battery," for installation instructions, or contact your Compaq authorized reseller or service provider for RTC battery replacement.

continued

8-4 Troubleshooting

Minor Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
Workstation does not beep during the power-on self-test (POST)	Speaker cable is not properly attached.	Ensure that speaker cable is connected.
	Speaker volume is turned down.	Press volume up button. Win Windows NT, select Volume Control under Accessories and adjust
	Headphones are plugged in.	Unplug headphones
Workstation powered off automatically	The unit temperature was exceeded. The fan may be blocked.	<ol style="list-style-type: none">1. Unit is in an exceedingly hot environment. Let it cool down.2. Contact your Compaq authorized reseller or service provider.

Disk Problems

Table 8-2
Disk Problems and Solutions

Problem	Possible Cause	Possible Solution
Diskette drive light stays on	Diskette is damaged.	Run CHKDSK on the diskette.
	Diskette is incorrectly inserted.	Remove diskette and reinsert.
	Drive button is not pushed in.	Push in drive button.
	Software program is damaged.	Check the program diskettes or reinstall software from original media.
	Drive cable is not properly connected.	Reconnect drive cable.
Diskette drive cannot write to a diskette	Diskette is not formatted.	Format the diskette.
	Diskette is write-protected.	Use another diskette or remove the write protection.
	Writing to the wrong drive.	Check the drive letter in your path statement.
	Not enough space is left on the diskette.	Use another diskette.
	Diskette write control is enabled.	Check your security feature settings by running the Setup utility.

continued

Disk Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
A problem has occurred with a disk transaction	The directory structure is bad, or there is a problem with a file.	Run CHKDSK to check for fragmentation.
Diskette drive cannot read a diskette	Diskette is not formatted.	Format the diskette.
	You are using the wrong diskette type for the drive type.	Check the type of drive you are using and use the correct diskette type.
Drive not found	Cable is loose.	Check connections.
Nonsystem disk message	The system is trying to start from a diskette that is not bootable.	Remove the diskette from the drive.

Display Problems

Table 8-3
Display Problems and Solutions

Problem	Possible Cause	Possible Solution
Blank screen	Monitor is not turned on and the monitor light is not on.	Turn on the monitor and check that the monitor light is on.
	The cable connections are not correct.	Check the cable connection from the monitor to the workstation and to the electrical outlet.
	The QuickBlank feature has been enabled through Computer Setup.	Run Computer Setup and disable the QuickBlank feature.
	The energy saver feature has been enabled.	Press any key or type your password and wait a few moments for the screen to activate.
	The RGB (Red, Green, Blue) input switch on the back of the monitor is incorrectly set.	Set the monitor's RGB input switch to 75 ohms and, if there is a sync switch, set it to External.
	You are using a fixed-sync monitor and it won't sync at the resolution chosen.	Be sure that the monitor can support the selected resolution and refresh rate.

continued

Display Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
Monitor does not function properly when used with energy saver features	Monitor without energy saver capabilities is being used with energy saver features enabled.	Disable monitor energy saver feature.
Video colors are wrong	This indicates that either the cabling or monitor impedance is incorrect.	<ol style="list-style-type: none"> 1. Ensure that the Red, Green, and Blue BNC cables are connected to the corresponding monitor connectors. 2. Be sure your monitor's RGB inputs are set to 75 ohms.

Audio Problems

Table 8-4
Audio Problems and Solutions

Problem	Possible Cause	Possible Solution
Sound does not come out of the speaker	Software volume control is turned down in Microsoft Sound System Control Panel.	In Windows NT, select Volume Control under Accessories and adjust volume.
	Volume control on front bezel is turned down.	Press volume up button
	Headphones are plugged in.	Unplug headphone jack
	Speaker cable is loose.	Ensure that the speaker cable is properly connected

Printer Problems

Table 8-5
Printer Problems and Solutions

Problem	Possible Cause	Possible Solution
Printer will not print	Printer is not turned on and online.	Turn the printer on and make sure it is online.
	The correct printer drivers for your application are not installed.	Install the correct printer drivers for your application.
	If you are on a network, you may not have made the connection to the printer.	Make the proper network connections to the printer.
Printer will not turn on	The cables may not be connected properly.	Reconnect all cables and check the power cord and electrical outlet.
Prints garbled information	The correct printer drivers for your application are not installed.	Install the correct printer driver for your application.
	The cables may not be connected properly.	Reconnect all cables.
Printer is offline	The printer may be out of paper.	Check the paper tray and refill it if it is empty. Select online.

Hardware Installation Problems

Table 8-6
Hardware Problems and Solutions

Problem	Possible Cause	Possible Solution
A new device is not recognized as part of the system	Computer Setup or the SCSI software utility has not been run to configure the new device.	Run Computer Setup or the SCSI software utility.
	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the workstation, turn on the external device, then turn on the workstation to integrate the device with the system.

Network Problems

Table 8-7
Network Problems and Solutions

Problem	Possible Cause	Possible Solution
Setup utility does not detect a network controller.	Possible I/O address conflict with another expansion board.	Either remove and reconfigure the conflicting expansion board, or reconfigure the network controller. If the address is changed, ensure that the drive parameters match the new I/O address for the network controller.
Setup utility reports unprogrammed EEPROM.	Possible I/O address conflict with another expansion board.	Either remove and reconfigure the conflicting expansion board, or reconfigure the network controller. If the address is changed, ensure that the drive parameters match the new I/O address for the network controller.
	The network controller is defective.	Contact your Compaq authorized service provider.
	Network drivers are not loaded.	Boot the workstation without the network drivers, using a system boot diskette, and reconfigure the network controller.

continued

Network Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
Diagnosics reports a failure.	Possible I/O address conflict with another expansion board.	Factory default is 300h to 30Fh for Ethernet. Either remove and reconfigure the conflicting expansion board, or reconfigure the network controller. If the address is changed, ensure that the drive parameters match the new I/O address for the network controller.
	The cable is not securely connected.	Ensure that the cable is securely attached to the network connector and that the other end of the cable is securely attached to the correct device.
	The cable is attached to the incorrect connector.	Ensure that the cable is attached to the correct connector.
	There is a problem with the cable or a device at the other end of the cable.	Ensure that the cable and device at the other end are operating correctly.
	The network controller is defective.	Contact your Compaq authorized service provider.
	Network controller interrupt overlaps the interrupt of an expansion board.	Run the Setup utility and modify the network controller memory value.

continued

Network Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
Diagnostics passes, but the workstation does not communicate with the network.	Network drivers are not loaded, or driver parameters do not match current configuration.	Make sure the network drivers are loaded and that the driver parameters match the configuration of the network controller.
	The network controller is not configured for this workstation.	In Windows NT, select the Network icon at the Control Panel.
	Network controller interrupt overlaps the interrupt of an expansion board.	Run the Setup utility and modify the network controller memory value.
Network controller stopped working when an expansion board was added to the workstation.	Network drivers are not loaded, or driver parameters do not match current configuration.	Make sure the network drivers are loaded and that the driver parameters match the configuration of the network controller.
	The cable is not securely connected.	Ensure that the cable is securely attached to the network connector and that the other end of the cable is securely attached to the correct device.
	Network controller interrupt overlaps the interrupt of an expansion board.	Run the Setup utility and modify the network controller memory value.
	The network controller requires drivers.	Verify that the drivers were not accidentally deleted when the drivers for a new expansion board were installed.
	The files containing the network drivers are corrupted.	Reinstall the network drivers using your backup diskettes.

continued

Network Problems and Solutions *continued*

Problem	Possible Cause	Possible Solution
Network controller stopped working without apparent cause.	The files containing the network drivers are corrupted.	Reinstall the network drivers using your Compaq SmartStart for Workstations CD.
	The cable is not securely connected.	Ensure that the cable is securely attached to the network connector and that the other end of the cable is securely attached to the correct device.
	The network controller is defective.	Contact your Compaq authorized service provider.

Memory Problems

Table 8-8
Memory Problems and Solutions

Problem	Possible Cause	Possible Solution
Out of Memory error	Memory configuration may not be set up correctly.	Run Computer Setup.
	You have run out of memory to run the application.	Check the application documentation to determine the memory configuration requirements.
Memory count during POST is wrong	The memory modules may not be installed correctly.	Check that the memory modules have been installed correctly and run the Setup utility.
Insufficient memory error during operation	You have run out of memory for your application.	Check the memory requirements for the application, or add more memory to the workstation.

CD-ROM Problems

Table 8-9
CD-ROM Problems and Solutions

Problem	Possible Cause	Possible Solution
System will not boot from CD-ROM drive	The CD-ROM boot is not enabled through the Setup utility.	Run the Setup utility and set the drive priorities.
Data read from CD-ROM drive is inconsistent or drive cannot read data	Paper or plastic label has been applied to surface of the CD in use.	Remove label and any adhesive residue.
CD-ROM devices are not detected, driver is not loaded	CD-ROM drive is not connected properly or not properly terminated.	Refer to the documentation included with the CD-ROM.

Appendix A

Regulatory Compliance Notices

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (i.e., personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

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 instructions, 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 personal expense.

Class B Equipment

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Declaration of Conformity for Products Marked with FCC Logo, United States Only

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

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or call (281) 514-3333

To identify this product, refer to the Series number found on the product.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian Notice (Avis Canadien)

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

Japanese Notice

お使いになっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

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Laser Devices

The CD-ROM drive contains a laser device. All Compaq systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

Laser Safety Warnings



WARNING: To reduce the risk of fire, bodily injury, and damage to the equipment, observe the following precautions:

- Do not operate controls, make adjustments, or perform procedures to a laser device other than those specified herein or in the CD-ROM drive installation guide.
 - Allow only Compaq Authorized Service Technicians to repair the laser equipment.
-

Compliance with CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

Compliance with International Regulations

All Compaq systems equipped with CD-ROM drives comply with appropriate safety standards including IEC 825.

Laser Product Label

The following label or equivalent is located on the surface of your CD-ROM drive.



This label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label appears on a laser device installed in your product.

Laser Information

A-6 Regulatory Compliance Notices

Laser Type	Semiconductor GaAlAs
Wave Length	780 nm +/- 35 nm
Divergence Angle	53.5 degrees +/- 0.5 degrees
Output Power	Less than 0.2 mW /10,869 W·m ⁻² sr ⁻¹
Polarization	Circular 0.25
Numerical Aperture	0.45 inches +/- 0.04 inches

Battery Replacement Notice

Your computer is provided with a lithium battery powered Real-Time Clock circuit. There is a danger of explosion and risk of personal injury if the battery is incorrectly replaced or mistreated.



WARNING: To reduce the risk of personal injury, do not attempt to recharge the battery, disassemble it, immerse it in water, or dispose of it in fire.



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 Compaq Partners, or their agents.

Mouse Compliance Statement

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

Appendix B

Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. 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.

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 megohm \pm 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps 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.

B-2 Electrostatic Discharge

If you do not have any of the suggested equipment for proper grounding, have an Authorized Compaq Reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your Authorized Compaq Reseller.



Appendix C

Power Cord Set Requirements

The power cord set meets the requirements for use in the country where you purchased your equipment. The voltage selection switch allows you to select the appropriate line voltage for your server.

Power cord sets for use in other countries must meet the requirements of the country where you use the server. For more information on power cord set requirements, contact your Authorized Compaq Dealer.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord must be at least 6.0 feet (1.8 m) and a maximum of 12 feet (3.7 m).
- The power cord set must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord will be used.
- The power cord set must have a minimum current capacity and nominal voltage rating of 10 A/125 volts AC, or 10A/250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN60320/IEC 320 Standard Sheet C13 Connector, for mating with the appliance outlet on the computer.

Country-Specific Requirements

Use the following table to identify the appropriate accredited agency in your country.

Table C-1
Power Cord Set Requirements - By Country

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	SETI	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes:

1. Flexible cord must be <HAR> Type H05VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. Flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. Wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V).
3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 1.0 mm² conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7A, 125V) configuration.

Appendix D

Installing a New Battery

When your workstation no longer automatically displays the correct date and time, it may mean the battery providing power to the real-time clock needs to be replaced. Battery life is usually about five years. Before replacing the battery in a workstation, perform the steps in “Running Computer Setup” and “Preparing the Workstation for Battery Installation.”



CAUTION: Do not remove the lithium battery from the system I/O board. If the battery fails, install the battery replacement module. Failure to follow this procedure could cause permanent damage to the system I/O board.

Running Computer Setup

Computer Setup automatically detects and configures most Compaq components, including Compaq hard drives. If your workstation has a Compaq hard drive, go to the next section, “Preparing the Workstation for Battery Installation.”

If your workstation has a third-party hard drive, you **MUST** complete the following steps before installing the battery:

1. Run Computer Setup and record the drive type displayed in the System Configuration Summary.
2. If the drive type number is 65 or 66, record the drive parameters.

Drives with these designators are user-defined types, also called soft-drive types. Whenever the nonvolatile memory (CMOS) has become invalid, such as after the installation of a new battery, drive parameters must be entered manually for these user-defined drives.

After you have completed the battery installation, run Computer Setup and use the drive table parameters recorded earlier to reconfigure the system.

NOTE: Drive parameters must be reentered after battery installation in order to reconfigure the hard drive. The hard drive is inoperable until this is done.

Preparing the Workstation for Battery Installation

To prepare the workstation:

1. If the workstation is on, turn it off.
 2. Unplug the workstation.
 3. Unlock and open the front bezel.
 4. Remove the large access panel.
 5. If the expansion board cage security screw is in place, remove it.
 6. Remove the expansion board cage.
 7. Locate the jumper on the expansion cage system board, as shown in Figure D-1.
 8. Remove any expansion boards that may interfere with your access to the jumper.
-

Attaching the Replacement Battery

The battery that came with this workstation is non-removable and is permanently installed on the system board. A second battery is installed when the first becomes inoperative.



WARNING: The battery/clock module contains a lithium battery that could explode if mishandled. Do not abuse, recharge, disassemble, or dispose of in fire or heat about 90 degrees C, incinerate, or expose to water or fire. Use only battery/clock modules supplied by Compaq Computer Corporation.

1. Remove and discard the protective covering from the adhesive backing on the hook-and-loop connector on the back of the battery.
2. Attach the battery to the workstation chassis as shown.

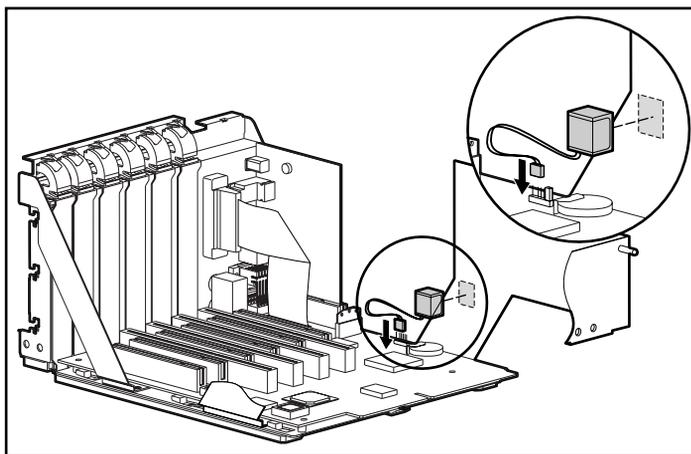


Figure D-1. Attaching the replacement battery

D-4 Installing a New Battery

3. Plug the battery connector onto pins 1-4 on the expansion cage system board, as shown in Figure D-2.
4. Change the jumper at from pins 6-7 to pins 5-6, as shown.

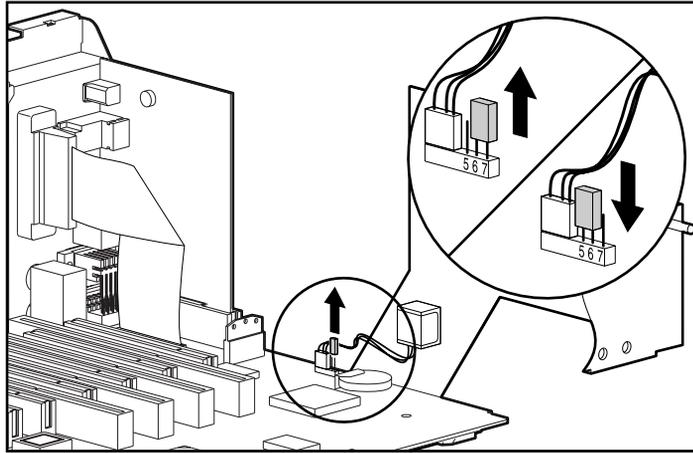


Figure D-2. Changing the jumper from pins 6-7 to pins 5-6

5. Place the pale blue sticker (included with the battery kit) above the power connector on the back of the workstation.
6. Replace the expansion board cage and workstation cover.
7. Plug in the workstation.
8. Turn on the workstation.
9. Run Computer Setup to reconfigure the system.
10. If the workstation has a Compaq hard drive, you have now successfully completed the installation.

If the workstation has a third-party hard drive, you must reconfigure the hard drive using the parameters you recorded before you began the installation procedure.

Appendix E

Error Messages

This appendix lists the error codes that you may encounter during the Power-On Self-Test (POST) or after restarting the workstation, the probable source of the problem, and what steps you can take to resolve the error condition.

Table E-1
POST Error Messages and Codes

Error Code	Probable Source of Problem	Action
101-ROM Error	System ROM checksum.	Contact your Compaq authorized service provider.
101-Option ROM Checksum Error	Options ROM checksum.	Contact your Compaq authorized service provider.
102-System Board Failure	DMA, timers, etc.	Replace the Expansion Cage System Board. Run the Computer Setup utility.
162-System Options Error	No diskette drive or mismatch in drive type.	Run Computer Setup.
162-System Options Not Set	Configuration incorrect.	Run Computer Setup.
163-Time & Date Not Set	Invalid time or date in configuration memory.	Run Computer Setup.
164-Memory Size Error	Configuration memory incorrect.	Run Computer Setup.

continued

POST Error Messages and Codes *continued*

Error Code	Probable Source of Problem	Action
172-1 Configuration Nonvolatile Memory Invalid	NVRAM Configuration Error	Allow system to complete boot. Reboot. If condition persists, contact your Compaq authorized service provider.
201-Memory Error	RAM failure.	Contact your Compaq authorized service provider.
202-Memory Type Mismatch	RAM failure	Contact your Compaq authorized service provider.
203-Memory Address Error	RAM failure.	Contact your Compaq authorized service provider.
205-Memory Error	Cache memory error.	Run the Computer Checkup or Diagnostics utility.
207-ECC Corrected Single Bit Errors in DIMM/SIMM Pair(s)	A memory error on one of the installed DIMMs has been detected and corrected with the system's ECC logic. The workstation will continue to operate correctly with this error.	Run Diagnostics to get more information; then contact your Compaq authorized service provider.
210-Invalid Memory Configuration Detected. Maximum of 512 MB of Memory Supported. System Halted.	RAM failure (Professional Workstation 6000 only).	Remove memory from system until total amount is less than 512 MB.

continued

POST Error Messages and Codes *continued*

Error Code	Probable Source of Problem	Action
212-Failed Processor	Failed processor. (X is 0 or 1 in Workstation 6000) (X is 0, 1, 2 or 3 in Workstation 8000)	Contact your Compaq authorized service provider.
301-Keyboard Error	Keyboard failure.	Check that you do not have a key stuck or something on the keyboard. Ensure that the keyboard is plugged in. Replace the keyboard if necessary.
303-Keyboard Controller Error	I/O keyboard controller.	Contact your Compaq authorized service provider.
304-Keyboard or System Unit Error	Keyboard.	Contact your Compaq authorized service provider.
40X-Parallel Port X Address Assignment Conflict	Both external and internal ports are assigned to parallel port X.	Run Computer Setup.
402-Monochrome Adapter Failure	Monochrome display controller.	Replace the monochrome display controller.
404-Parallel Port Address Conflict Detected	Both external and internal ports are assigned to parallel port X.	Run Computer Setup.
501-Display Adapter Failure	Graphics display controller.	Replace the memory upgrade module.

continued

E-4 Error Messages

POST Error Messages and Codes *continued*

Error Code	Probable Source of Problem	Action
601-Diskette Controller Error	Diskette controller circuitry.	Contact your Compaq authorized service provider.
605-Diskette Drive Type Error	Mismatch in drive type.	Run Computer Setup.
611-Primary Floppy Port Address Assignment Conflict	Configuration error.	Run Computer Setup.
612-Secondary Floppy Port Address Assignment Conflict	Configuration error.	Run Computer Setup.
1151-System Board COM Port 1 Address Assignment Conflict	Configuration Error	Run Computer Setup
1152- System Board COM Port 2 Address Assignment Conflict	Configuration Error	Run Computer Setup
1155-COM Port Address Assignment Conflict	Both external and internal serial ports.	Run Computer Setup.
1610-Temperature violation detected	The system is too hot.	Turn off the workstation and let it cool off. If the condition persists, Run Diagnostics to get more information; then contact your Compaq authorized service provider.

continued

POST Error Messages and Codes *continued*

Error Code	Probable Source of Problem	Action
1611-Fan failure detected	The fan is not operating properly.	Run Diagnostics to get more information; then contact your Compaq authorized service provider.
1720-SMART Hard Drive Detects Imminent Failure	SCSI hard drive(s).	Contact your Compaq authorized service provider.
1771-Primary Disk Port Address Assignment Conflict	IDE configuration	Run Computer Setup
1772-Secondary Disk Port Address Assignment Conflict	IDE configuration	Run Computer Setup
1780- Disk 0 failure	IDE hard drive failure	Contact your Compaq authorized service provider.
1781-Disk 1 Failure	IDE hard drive failure	Contact your Compaq authorized service provider.
1782-Disk Controller Failure	IDE circuitry failure	Contact your Compaq authorized service provider.
1783-Fixed Disk Locked	IDE hard drive failure (X is 0 or 1)	Contact your Compaq authorized service provider.
1790-Disk 0 Failure (Secondary)	IDE hard drive failure	Contact your Compaq authorized service provider.
1791-Disk 1 Failure (Secondary)	IDE hard drive failure	Contact your Compaq authorized service provider.
1792-Secondary Disk Controller Failure	IDE circuitry failure	Contact your Compaq authorized service provider.

continued

E-6 Error Messages

POST Error Messages and Codes *continued*

Error Code	Probable Source of Problem	Action
1793-Secondary Controller or Disk Failure	An error has been detected with the CD-ROM interface.	Run the Diagnostics utility.
A Critical Error Occurred Prior to this Power-Up	Critical failure (POST) recorded into the wellness log.	None.
A Collectable Memory Error Occurred Prior to this Power-Up	Single-bit ECC during POST.	None.
Audible (beep)	Power-on successful.	None.
Invalid Electronic Serial Number	The electronic serial number is corrupt.	Run the Setup and Diagnostics utilities.
(RESUME= "F1" KEY)	As indicated to continue.	Press the F1 key.

Appendix F

External Connectors

Pin Assignments

The following tables provide pin assignments for each external connector on the Compaq Professional Workstation 6000 and 8000.

Table F-1
Keyboard

Connector and Icon (Orange)	Pin	Signal
	1	Data
	2	Unused
	3	Ground
	4	+5 VDC
	5	Clock
	6	Unused

Table F-2
Mouse

Connector and Icon (Green)	Pin	Signal
	1	Data
	2	Unused
	3	Ground
	4	+5 VDC
	5	Clock
	6	Unused

**Table F-3
Parallel Interface**

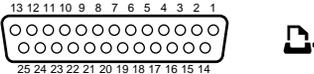
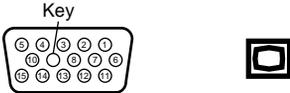
Connector and Icon	Pin	Signal
	1	Strobe
	2	Data Bit 0
	3	Data Bit 1
	4	Data Bit 2
	5	Data Bit 3
	6	Data Bit 4
	7	Data Bit 5
	8	Data Bit 6
	9	Data Bit 7
	10	Acknowledge
	11	Busy
	12	Paper End
	13	Select
	14	Auto Linefeed
	15	Error
	16	Initialize Printer
	17	Select IN
	18-25	Signal Ground

Table F-4
Serial Interfaces

Connector and Icon	Pin	Signal
	IOIOI	1 Carrier Detect
		2 Receive Data
		3 Transmit Data
		4 Data Terminal Ready
		5 Signal Ground
		6 Data Set Ready
		7 Request to Send
		8 Clear to Send
		9 Ring Indicator

**Table F-5
Monitor**

Connector and Icon	Pin	Signal
 <p>The diagram shows a 15-pin connector with a key pointing to the top-right pin. The pins are numbered 1 through 15 in a grid. To the right of the connector is a square icon with a smaller square inside it.</p>	<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</p>	<p>Red Analog Green Analog Blue Analog Monitor ID Bit2 Ground Ground Analog Ground Analog Ground Analog Not Connected Ground Monitor ID Bit 0 Bi-directional Data (SDA)* Horizontal Sync Vertical Sync Data Clock (SCL)*</p>

* For DDC support (I²C monitors)

Table F-6
USB

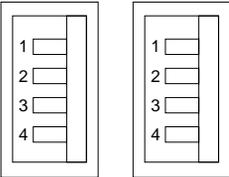
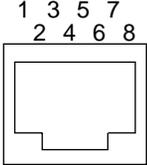
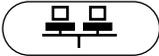
Connector	Pin	Signal
	1	VCC
	2	-Data
	3	+Data
	4	Ground

Table F-7
Ethernet RJ-45

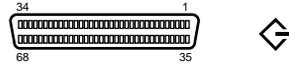
Connector and Icon	Pin	Signal
	1	(+) Transmit Data
	2	(-) Transmit Data
	3	(+) Receive Data
	4	Unused
	5	Unused
	6	(-) Receive Data
	7	Unused
	8	Unused

**Table F-8
Ethernet AUI**

Connector	Pin	Signal
	1	Signal Ground
	2	CI-A (Control In-Circuit A)
	3	DO-A (Data Out-Circuit A)
	4	Signal Ground
	5	DI-A (Data In-Circuit A)
	6	Signal Ground
	7	No Connect
	8	Signal Ground
	9	CI-B (Control In-Circuit B)
	10	DO-B (Data Out-Circuit B)
	11	Signal Ground
	12	DI-B (Data In-Circuit B)
	13	VP (Voltage Plus (+12V))
	14	Signal Ground
	15	No Connect

Table F-9
Wide-Ultra SCSI Connector

Connector and Icon



Pin	Signal	Pin	Signal
1-16	Ground	51 - 52	TERMPWR
17 - 18	TERMPWR	53	Reserved
19	Reserved	54	Ground
20 - 34	Ground	55	-ATN
35	-D12	56	Ground
36	-D13	57	-BSY
37	-D14	58	-ACK
38	-D15	59	-RST
39	-DP1	60	-MSG
40	-D0	61	-SEL
41	-D1	62	-C/D
42	-D2	63	-REQ
43	-D3	64	-I/O
44	-D4	65	-D8
45	-D5	66	-D9
46	-D6	67	-D10
47	-D7	68	-D11
48	-DP0		
49 - 50	Ground		

**Table F-10
Line-In Audio Connector**

Connector and Icon		
		1/8-inch Miniphone

**Table F-11
Line-Out Audio Connector**

Connector and Icon		
		1/8-inch Miniphone

**Table F-12
Microphone Connector**

Connector and Icon (Blue)		
		Stereo 1/8-inch Miniphone

Table F-13
Headphone Connector

Connector and Icon



Stereo 1/8-inch Miniphone

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