

COMPAQ

REFERENCE GUIDE

Compaq Deskpro 2000
Series of Personal Computers



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Reference Guide

Compaq Deskpro 2000 Series of Personal Computers

Second Edition (September 1997)
Part Number 278019-002

Compaq Computer Corporation

preface

USING THIS GUIDE

This *Reference Guide* includes general information about your computer, troubleshooting and diagnostics information, and technical specifications.

Symbols and Conventions

The following format conventions distinguish elements of the text throughout this guide:

- Computer models featuring the Intel Pentium processor with MMX technology will be referred to as Pentium systems.

Computer models featuring the Intel Pentium II processor will be referred to as Pentium II systems.

- When keys must be pressed at the same time, the action is represented by the key names and the plus (+) symbol. For example, Ctrl+Alt+Delete.
- The names of files are presented in uppercase italic type as shown here: *FILENAME*.
- The names of commands, folders, or directories are presented in uppercase type as shown here: COMMAND or DIRECTORY. Commands that are to be entered at the system prompt are shown on a separate line.
- When you are asked to type something without pressing the Enter key, you are directed to “type” the information.
- When you need to type information and press the Enter key, you will be directed to “enter” the information.
- When you need to make a selection with a mouse, you will be directed to “select” or “click” the information.


The following words and symbols mark special messages throughout this guide:



WARNING: Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

 Text set off in this manner presents clarifying information, specific instructions, commentary, sidelights, or interesting points of information.

Environmental Commitment

Compaq is committed to making environmentally friendly products. Your computer was produced in a chlorofluorocarbons (CFC)-free factory. All plastics used in the product are stamped with material composition to make recycling more efficient. Reduce, reuse, and recycle are words to live by at Compaq.

chapter 1

COMPUTER AT A GLANCE

Features

- Microsoft Windows 95 or Windows NT 4.0 operating system software
- Intel Pentium processor with MMX technology running at a speed of 166 MHz, 200 MHz, or 233 MHz, or Intel Pentium II processor running at a speed of 233 MHz, 266 MHz, or 300 MHz.

MMX technology is designed to enhance performance in applications written to take advantage of MMX instructions, while preserving compatibility with existing software and operating systems. Additional performance enhancements are provided for advanced media and communication applications, such as motion video, combined graphics with video, image processing, audio synthesis, speech synthesis and compression, telephony, video conferencing, and 2D and 3D graphics.

- Pentium systems: 16- or 32-megabyte (MB) synchronous dynamic random access memory (SDRAM) standard; expandable to 384 megabytes of SDRAM installed in dual inline memory modules (DIMMs)

Pentium II systems: 32-megabyte (MB) synchronous dynamic random access memory (SDRAM) standard; expandable to 384 megabytes of SDRAM installed in dual inline memory modules (DIMMs)

- Pentium systems: 256- or 512-kilobyte (Kbyte) secondary (L2) cache module; Pentium models with 256-Kbyte cache expandable to 512 Kbytes

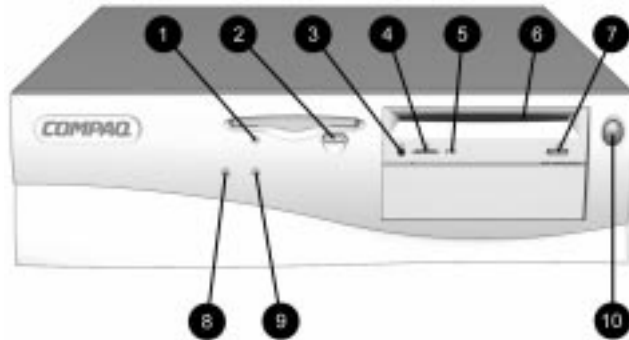
Pentium II systems: 512-kilobyte (Kbyte) secondary (L2) cache integrated into the processor module (not expandable)

- Peripheral Components Interconnect (PCI) chipset used for PCI/ISA, memory, USB ports, and peripheral control
- Super I/O controller (integrates a serial port, parallel port, diskette drive interface, real-time clock, CMOS RAM, and mouse and keyboard controller)
- PCI and ISA peripheral connectors on the expansion riser board
- BIOS in a flash memory device supporting PCI auto-configuration
- Desktop chassis includes expansion slots for up to five expansion boards:
 - Two dedicated half-length PCI slots
 - Two dedicated ISA-bus slots (one half-length and one full-length)
 - One full-length “combination” slot for either a PCI or an ISA expansion board
- Minitower chassis includes expansion slots for up to five expansion boards:
 - Two dedicated full-length PCI slots
 - Two dedicated full-length ISA-bus slots
 - One full-length “combination” slot for either a PCI or an ISA expansion board
- 145-watt (desktop models) or 185-watt (minitower models) surge-tolerant continuous power supply, switch-selectable for 115 and 230 VAC operation
- One RS-232C-compatible 9-pin serial connector
- One multimode, 25-pin enhanced parallel connector
- Two Universal Serial Bus (USB) Plug and Play connectors on all models, for use with USB devices such as a mouse, keyboard, most joysticks, and other future USB peripherals

- Five drive bays on desktop models:
 - ❑ One external 3.5-inch, one-third height diskette drive bay
 - ❑ One internal 3.5-inch, one-third height drive bay
 - ❑ Two external 5.25-inch half-height bays for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive
 - ❑ One internal 5.25-inch third-height bay for optional hard drive
- Five drive bays on minitower models:
 - ❑ One external 3.5-inch, one-third height diskette drive bay
 - ❑ One internal 3.5-inch, one-third height drive bay
 - ❑ Three external 5.25-inch half-height bays for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive
- Pentium systems: One 2.1- or 3.2-gigabyte (GB) Enhanced IDE (EIDE) SMART II hard drive
 Pentium II systems: One 2.1- or 3.2-gigabyte (GB) Ultra ATA SMART II hard drive
 All drives feature drive fault prediction.
- One 1.44-MB, 3.5-inch high-density diskette drive installed
- Pentium systems: One 16X slot-load IDE CD-ROM drive, 16-bit audio card, and enhanced speaker, installed on select models
 Pentium II systems: One 24X slot-load IDE CD-ROM drive, 16-bit audio card, and enhanced speaker, installed on select models
- Pentium systems: S3 Trio64V2/GX enhanced 64-bit graphics controller installed with 1-MB SGRAM, expandable to 2 MB
 Pentium II systems: Matrox MGA-1064 SG Graphics Accelerator installed with 2-MB SGRAM, expandable to 4 MB

- Compaq Enhanced Keyboard, featuring Microsoft Windows-specific keys
- Mouse
- Keyboard and mouse connectors on the back panel
- Internal speaker mounted on system board
- Security features, including passwords and cable lock provision
- Intelligent Manageability features designed to make Compaq computers easier to inventory, configure, upgrade, troubleshoot, protect, and maintain
- Compaq Diagnostics and Configuration utilities, support software, and device drivers (available in select languages)

Front Panel Components



Desktop Front Panel Components

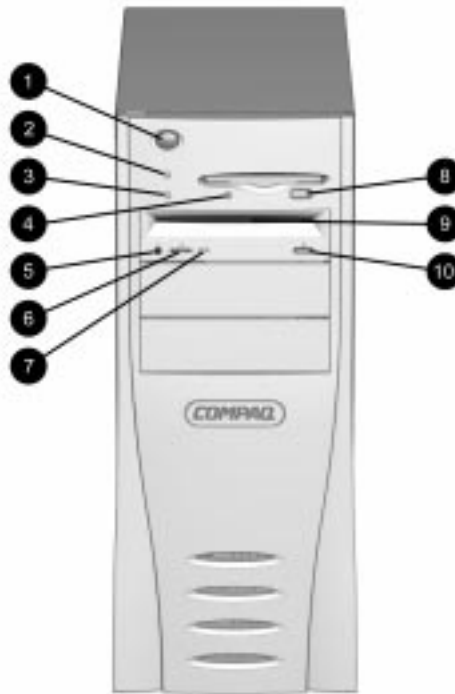
Desktop Front Panel Components

Ref.	Component	Function
①	Diskette Drive Activity Light	Turns on when the diskette drive is reading information from the disk or storing information on the disk.
②	Diskette Eject Button	Ejects a diskette.
③	CD-ROM Headphone Jack	Connects a headphone to the CD-ROM drive.
④	CD-ROM Headphone Volume Control	Increases and decreases the CD-ROM headphone volume.
⑤	CD-ROM Drive Activity Light	Turns on when the CD-ROM drive is reading information from the compact disc.
⑥	CD-ROM Slot	Holds the compact disc.
⑦	CD-ROM Eject Button	Ejects the compact disc.
⑧	Power-On Light	Turns on when the computer is turned on.
⑨	Hard Drive Activity Light	Turns on when the hard drive is reading information from the disk or storing information on the disk.
⑩	Power Switch	Turns the computer on and off.

NOTE: CD-ROM and audio features are available on select models only.



WARNING: This equipment is designed for connection to a grounded (earthed) outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to the equipment, do not disable this feature.



Minitower Front Panel Components

Minitower Front Panel Components

Ref.	Component	Function
①	Power Switch	Turns the computer on and off.
②	Power-On Light	Turns on when the computer is turned on.
③	Hard Drive Activity Light	Turns on when the hard drive is reading information from the disk or storing information on the disk.
④	Diskette Drive Activity Light	Turns on when the diskette drive is reading information from the disk or storing information on the disk.
⑤	CD-ROM Headphone Jack	Connects a headphone to the CD-ROM drive.
⑥	CD-ROM Headphone Volume Control	Increases and decreases the CD-ROM headphone volume.
⑦	CD-ROM Drive Activity Light	Turns on when the CD-ROM drive is reading information from the compact disc.

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Minitower Front Panel Components *Continued*

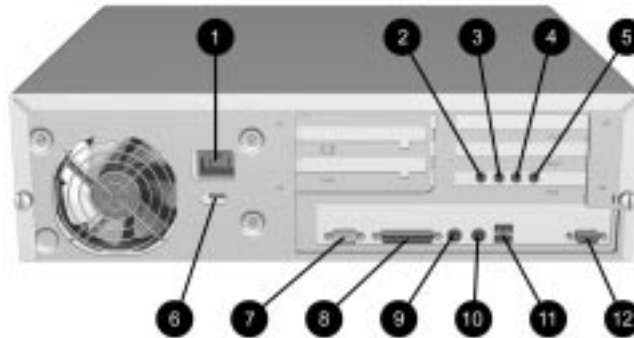
Ref.	Component	Function
⑧	Diskette Eject Button	Ejects a diskette.
⑨	CD-ROM Slot	Holds the compact disc.
⑩	CD-ROM Eject Button	Opens and closes the CD-ROM tray.

NOTE: CD-ROM and audio features are available on select models only.



WARNING: This equipment is designed for connection to a grounded (earthed) outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to the equipment, do not disable this feature.

Rear Panel Connectors

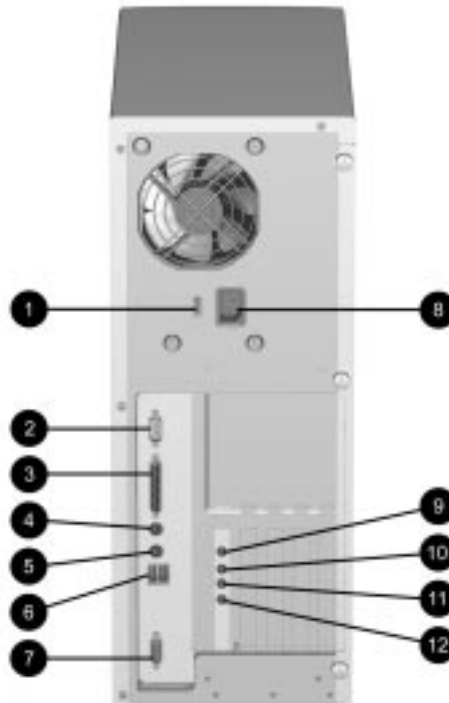


Desktop Rear Panel Connectors

Desktop Rear Panel Connectors

Ref.	Component	Function
①	Power Cord Connection	Connects the computer to an electrical power outlet.
②	Microphone Connector	Connects a microphone for recording sound and voice.
③	Line-In Audio Connector	Connects an audio input device.
④	Line-Out Audio Connector	Connects an external audio output device, such as powered speakers or a cassette tape recorder.
⑤	Headphone Connector	Connects headphones.
⑥	Voltage Select Switch	Switches voltage between 115 V (U.S.) and 230 V to match geographical requirements.
⑦	Serial Connector	Connects a serial device, such as a serial printer.
⑧	Parallel Connector	Connects a parallel device, such as a parallel printer.
⑨	Keyboard Connector	Connects the keyboard.
⑩	Mouse Connector	Connects the mouse.
⑪	Universal Serial Bus Connector	Connects the computer to any peripheral while the computer is operating. Is a fully functional Plug and Play connector.
⑫	Monitor Connector	Connects a monitor to an embedded graphics controller.

NOTE: CD-ROM and audio features are available on select models only.



Minitower Rear Panel Connectors

Minitower Rear Panel Connectors

Ref.	Component	Function
①	Voltage Select Switch	Switches voltage between 115 V (U.S.) and 230 V to match geographical requirements.
②	Serial Connector	Connects a serial device, such as a serial printer.
③	Parallel Connector	Connects a parallel device, such as a parallel printer.
④	Keyboard Connector	Connects the keyboard.
⑤	Mouse Connector	Connects the mouse.
⑥	Universal Serial Bus Connector	Connects the computer to any peripheral while the computer is operating. Is a fully functional Plug and Play connector.
⑦	Monitor Connector	Connects a monitor to an embedded graphics controller.
⑧	Power Cord Connector	Connects the computer to an electrical power outlet.

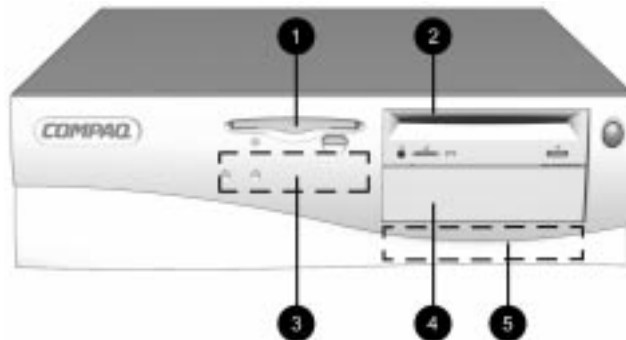
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Minitower Rear Panel Components *Continued*

Ref.	Component	Function
⑨	Microphone Connector	Connects a microphone for recording sound and voice.
⑩	Line-In Audio Connector	Connects an audio input device.
⑪	Line-Out Audio Connector	Connects an external audio output device, such as powered speakers or a cassette tape recorder.
⑫	Headphone Connector	Connects headphones.

NOTE: CD-ROM and audio features are available on select models only.

Drive Positions

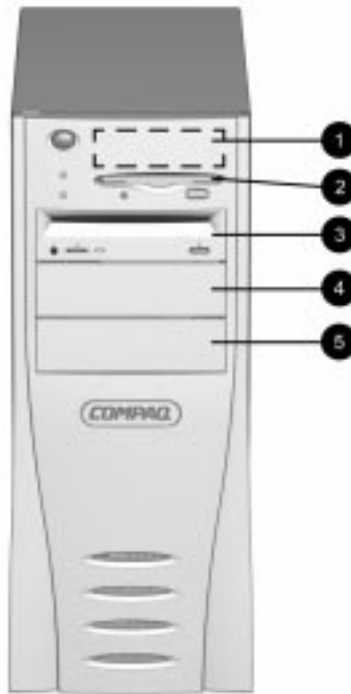


Desktop Drive Positions

Desktop Drive Positions

Drive	Configuration
①	Standard 3.5-inch 1.44-MB diskette drive
②	One 5.25-inch half-height bay for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive
③	Primary hard drive bay (3.5-inch, third-height)
④	One 5.25-inch half-height bay for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive
⑤	Optional hard drive (5.25-inch, third-height)

NOTE: To verify the type, size, and capability of the mass storage devices installed in your computer, run Compaq Diagnostics for Windows, or run the View System Information (INSPECT) utility available at computer startup. Refer to Chapter 3, "Using Compaq Software," for more information..



Minitower Drive Positions

Minitower Drive Positions

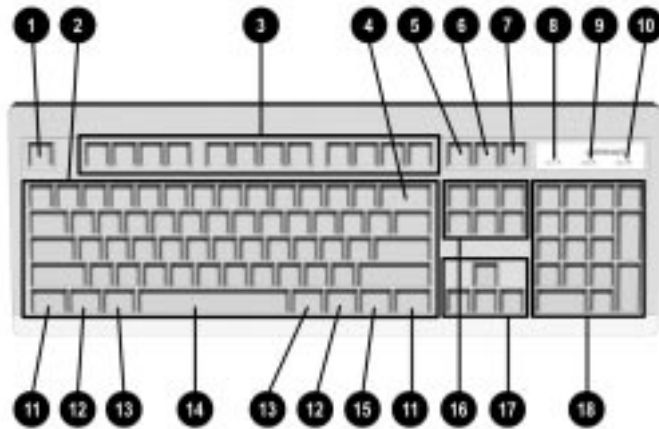
Drive	Configuration
❶	Primary hard drive bay (3.5-inch, third-height)
❷	Standard 3.5-inch 1.44-MB diskette drive
❸	One 5.25-inch half-height bay for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive
❹	One 5.25-inch half-height bay for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive
❺	One 5.25-inch half-height bay for optional CD-ROM drive, LS-120 drive, PD-CD drive, diskette drive, tape drive, or hard drive

NOTE: To verify the type, size, and capability of the mass storage devices installed in your computer, run Compaq Diagnostics for Windows, or run the View System Information (INSPECT) utility available at computer startup. Refer to Chapter 3, "Using Compaq Software," for more information..

The Compaq Enhanced Keyboard

The Compaq Enhanced keyboard features Windows-specific keys:

✍ Keyboard layout and number of keys may vary by country.



Compaq Enhanced Keyboard Layout

Compaq Enhanced Keyboard Features and Functions

Ref.	Key	Function
①	Esc	Function is application-specific. Esc is frequently used as an exit key (for quitting an application), for moving back one screen, or for canceling a command.
②	Main Typewriter Keypad	Similar to a standard typewriter keyboard.
③	F1 - F12	Function is application-specific. Refer to the application software documentation.
④	Backspace	Deletes characters as it moves the cursor to the left one space at a time.
⑤	Print Scrn	Depending on the software in use, prints text and graphics currently displayed on the screen to a printer.

Continued

Compaq Enhanced Keyboard Features and Functions *Continued*

Ref.	Key	Function
⑥	Scroll Lock	When the Scroll Lock light is on, it prevents the screen from scrolling in some spreadsheet applications.
⑦	Pause	Temporarily suspends screen scrolling or some operations.
⑧	Num Lock Light	When the Num Lock light is on, the numeric keypad is activated and the arrow keys are deactivated. (The arrow keys to the left of the keypad perform the same functions as the arrow keys on the keypad.)
⑨	Caps Lock Light	When the Caps Lock light is on, all letters typed are capitalized.
⑩	Scroll Lock Light	When the Scroll Lock light is on, the display will advance a line at a time.
⑪	Ctrl	Function is application-specific; Ctrl is typically used in combination with another key or keys.
⑫	Windows Logo Keys	Opens the Windows Start menu. Function is application-specific when used in combination with another key.
⑬	Alt	Function is application-specific; Alt is typically used in combination with another key.
⑭	Space Bar	Moves the cursor forward one space.
⑮	Windows Application Key	Opens a context menu for the software program you are using.
⑯	Editing Keys	Insert, delete, Home, End, Page Up, and Page Down. Pressing the key will perform the stated function.
⑰	Arrow Keys	Pressing the left or right arrow keys will move the cursor one character space at a time in the direction shown. Pressing the up or down arrow key will move the cursor up or down one line at a time.
⑱	Numeric Keypad	These keys act as they do on a calculator style keypad.
⑪ + ⑬ + ⑯	Ctrl+Alt+Delete	Holding down Ctrl and Alt while pressing Delete allows you to close an application that is not responding or to restart the computer.

The keyboard has feet on the bottom that enable the user to tilt the keyboard to a more comfortable typing angle.



Keyboard Tilt Foot

Using the Mouse

The Compaq mouse comes with your computer, but any serial PS/2 mouse may be used. The mouse controls the on-screen pointer or cursor when you use Windows and other graphical software.




Compaq Mouse

Most software applications that support a mouse use the four basic mouse techniques described below:

- **Point:** Move your mouse to point to your selection on the screen.
- **Click:** Press and release the left mouse button.
- **Double-Click:** Press and release the left mouse button twice (quickly).
- **Click and Drag** (also called **Drag and Drop**): Press and hold the left mouse button, then move the mouse. Release the button when you finish dragging your selection.

To use the mouse:

1. Make sure the mouse is properly connected to the computer and that the computer startup is complete.
2. Place the mouse on a clean, flat surface, such as your desktop.
3. Move your mouse across the flat surface and a pointer moves across your screen.
 - ❑ To type, move the pointer to a spot on the screen where you want to begin typing, then press and release (this is called clicking) the left mouse button once. The cursor will begin blinking at the spot you clicked, and you may begin typing there.
 - ❑ To make a selection in a program menu, use the mouse to click on the menu name, then click on your selection in the drop-down menu list.
 - ❑ To open icons (small pictures that represent files and programs), position the mouse pointer on the icon, then double-click.

 The double-click speed is timed. If you double-click too slowly, your computer responds as if you single-clicked twice. Remember, click quickly.

Cleaning the Mouse

For the most part, a mouse cleans itself as you move it around. However, if you find that the pointer does not move smoothly, or that the ball does not move freely, you should clean the mouse.

To clean the mouse, complete the following steps:

1. Turn off your computer.
2. Disconnect the mouse cable from the computer.
3. Turn the mouse upside down.
4. Remove the mouse ball cover.
5. Gently turn the mouse over and let the ball drop into your hand.

6. Use a cotton swab dipped in isopropyl (rubbing) alcohol to wipe the ball clean. Squeeze the excess liquid out of the cotton swab before wiping the ball.
7. Dry the ball with a clean, lint-free cloth.
8. Blow into the ball cage to remove any dust or lint from inside. (The cage contains rollers like those on a tape recorder. Use a cotton swab and tape head cleaner to wipe off any oil on these surfaces. Turn the rollers to clean all surfaces.)
9. Put the ball back into the mouse and close the mouse ball cover.
10. Plug the mouse cable into the computer.

Caring for Your Computer

Follow these suggestions to protect your computer and monitor:

- Operate the computer on a sturdy, level surface such as a desk or table. Leave a three-inch (7.6-cm) clearance at the back of the system unit and above the monitor to permit required airflow.
- Never restrict the airflow into the computer by blocking the front vents or air intake. Do not place the keyboard, with the keyboard feet down, directly against the front of the unit as this will restrict the airflow.
- Keep the computer away from excessive moisture, direct sunlight, and extremes of heat and cold. For information about the recommended temperature and humidity ranges for your computer, refer to Appendix B, “Specifications.”
- Keep liquids away from the computer and keyboard.
- Never cover the ventilation slots on the monitor with any type of material.

✍ For the following suggestions, be sure the computer is turned off.

- Clean the exterior of the computer, the monitor casing, and the outer surfaces of the keyboard with a soft cloth dampened with water as needed. Wipe with a soft, lint-free cloth to remove any moisture. Using cleaning products may discolor or damage the finish.
- Visible debris underneath or between the keyboard keys may be removed by vacuuming or gentle shaking.
- Wipe the monitor screen with a clean cloth moistened with water or with a towelette designed for cleaning monitors. Do not use sprays or aerosols directly on the screen, as liquid may seep into the housing and damage internal components.

Occasionally clean the air vents on the front and back of the computer. Lint and other foreign matter can block the vents and limit the airflow.

chapter 2

PROTECTING INFORMATION ON THE COMPUTER

Security Features

Security features built into the Compaq Deskpro 2000 Series of Personal Computers provide solutions for a variety of potential security problems.

- Physical security features such as the cable lock provision help prevent theft or unauthorized access to internal components such as processor and memory.
- Passwords help prevent unauthorized configuration changes and access to information stored on the computer or the network.
- DIMM memory module configuration changes will trigger local and remote alert messages, providing timely notice of unauthorized additions, changes, or removals. This feature is supported on all Compaq DIMM memory modules and others that comply with the DIMM Serial Presence Detect (SPD) standard.
- The Ownership Tag displays ownership information during system restart. The Ownership Tag information can be entered or modified in Computer Setup and is protected by the Setup Password.
- Drive and media security features control access to the information stored on the computer and can prevent unauthorized transfer of data to a diskette drive or other removable storage media.
- Device disabling features can prevent unauthorized transfer of data over fax/modems, serial ports, parallel ports, USB ports, or infrared ports.
- QuickLock/QuickBlank lets you disable the keyboard and mouse interface and optionally blank the screen while applications are running.

Physical Security

The cable lock provision can be used with a padlock to help prevent theft or unauthorized access to internal components such as processor and memory. For additional security, the cable lock provision can be used with a cable and padlock to secure the computer to a fixed object.

Installing the Cable Lock Provision

To install the cable lock provision, complete the following steps:

- ✍ Your computer may already have the cable lock provision installed.
- 1. Remove one thumbscrew from the rear of the computer. Use a flat-bladed screwdriver if needed.
- 2. Separate the pieces of the security bracket by bending the metal where the three pieces join.
- 3. Insert the tang of the narrow bracket into the slot and slide the u-shaped bracket between it and the system unit cover; then, install the self-tapping screw included in the cable lock kit.
- 4. Cover the screw with the flat portion of the bracket.
- 5. Install a lock (not provided) to secure the top part of the security bracket to control access to the inside of the computer. Install a cable lock (not provided) to secure the computer to a fixed object.



Installing the Cable Lock Provision and Padlock

Password Security

The Power-On Password prevents unauthorized access to the information stored on your computer or on the network. When set, a password is required each time the computer is turned on or restarted.

The Setup Password protects the system configuration settings from unauthorized modifications.

Passwords may be any combination of 1 to 8 alphanumeric characters, excluding the National Keyboard Delimiter Characters shown later in this chapter.

Establishing a Power-On Password

Passwords are established using the Security Management features of the Computer Setup. To access Computer Setup, complete the following steps:

1. Turn on or restart the computer.
- ✎ Do not restart your computer using Ctrl+Alt+Delete while in Windows. Instead, exit Windows then restart the computer.
2. When the F10 Setup message appears in the lower-right corner of the screen, press the F10 key.
- ✎ If you do not press the F10 key while the message is displayed, you must turn the computer off, then on again to access the utility.
3. Press Enter to bypass the title and welcome screens. The Compaq Utilities menu appears.
4. From the Compaq Utilities menu, select Computer Setup and press the Enter key.
5. Select Built-in Devices.
6. Select Security Management.
7. Click Enable Power-On Password and, when prompted, enter the password twice to set and confirm it.
8. Click Prompt for Password at Warm Boot to require entry of the Power-On Password each time the operating system is restarted.
- ✎ Compaq Configuration and Diagnostic utilities are installed in a special partition on the hard drive of the computer.

Establishing a Setup Password

By establishing a Setup Password, you can protect the system configuration and prevent unintentional or unauthorized Flash ROM upgrades. Once this password is established, you cannot change the system configuration until you enter the password. This password should be used by network administrators or advanced users.


Passwords are established using the Security Management features of the Computer Setup. To access Computer Setup, complete the following steps:

1. Turn on or restart the computer.
- ✎ Do not restart your computer using Ctrl+Alt+Delete while in Windows. Instead, exit Windows then restart the computer.
2. When the F10 Setup message appears in the lower-right corner of the screen, press the F10 key.
- ✎ If you do not press the F10 key while the message is displayed, you must turn the computer off, then on again to access the utility.
3. Press Enter to bypass the title and welcome screens. The Compaq Utilities menu appears.
4. From the Compaq Utilities menu, select Computer Setup and press the Enter key.
5. Select Built-in Devices.
6. Select Security Management.
7. Click Enable Setup Password and, when prompted, enter the password twice to set and confirm it.
8. Click the Change button to change the Setup Password, if desired. You must know and enter the current Setup Password in order to change it.
- ✎ Compaq Configuration and Diagnostic utilities are installed in a special partition on the hard drive of the computer.

Entering a Password

When the Power-On Password is set, you must enter it correctly each time the computer is turned on or restarted. When the Setup Password is set, you must enter it correctly each time you run Computer Setup.

When the key icon appears on the screen, enter your current password.

 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 is displayed. Try again. After three unsuccessful tries, you must turn the computer off, then on again before you can continue.

Changing a Password

To change the password, complete the following steps:


1. To change the Power-On Password, turn on the computer.

To change the Setup Password, turn on the computer and run Computer Setup.

2. When the key icon is displayed, enter your current password, a slash (/) or alternate delimiter character, and your new password, as shown:

current password/new password/new password

Refer to the section “National Keyboard Delimiter Characters” in this chapter for information on the delimiter syntax and keys required to change passwords.

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

The new password takes effect the next time you turn on the computer.

Deleting a Password

To delete the password, complete the following steps:

1. To delete the Power-On Password, turn on the computer.

To delete the Setup Password, turn on the computer and run Computer Setup.

2. When the key icon is displayed, enter your current password followed by a slash (/) or alternate delimiter character as shown:

current password/

This deletes the password until you establish a new one through the Security Management option in Computer Setup.

Clearing a Power-On Password

If you forget your password, you cannot access the computer. You will need to disable the Power-On Password feature by setting the appropriate jumper on the system board. You will then be able to access your system. For more information, refer to Appendix E, “System Board Jumpers.”

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 passwords depend on the keyboard that came with your computer.

To determine which delimiter key is required for changing or deleting your passwords, locate your keyboard in the table below:

National Keyboard Delimiter Characters					
Arabic	/	Greek	-	Slovakian	-
Belgian	=	Hungarian	-	Spanish	-
BHCSY*	-	Italian	-	Swedish/Finnish	/
Brazilian	/	Japanese	/	Swiss	-
Chinese	/	Korean	/	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

Advanced Security Management

The following additional security features are provided by Computer Setup, available from the Compaq Utilities menu displayed when you press F10 at computer startup:

- Disable removable media
- Disable removable media boot ability
- Disable removable media write
- Disable serial port
- Disable parallel port
- Disable USB port
- Ownership Tag
- QuickLock/QuickBlank

QuickLock/ QuickBlank

QuickLock/QuickBlank lets you disable the keyboard and mouse interface and optionally blank the screen while applications are running.

- ✎ To enable QuickLock/QuickBlank, you must first establish a Power-On Password. Refer to the section, Establishing a Power-On Password, earlier in this chapter, for instructions.

When QuickLock and QuickBlank are enabled through the Security Management option in Computer Setup, 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.

Enabling QuickLock and QuickBlank

To enable the QuickLock and QuickBlank features, complete the following steps:

1. Turn on or restart the computer.
2. When the F10 Setup message appears in the lower-right corner of the screen, press the F10 key.

- ✎ If you do not press the F10 key while the message is displayed, you must turn the computer off, then on again to access the utility.

3. Press the Enter key to bypass the welcome screens and display the main menu.
4. Select Computer Setup from the main menu and press the Enter key.
5. Select the Built-In Devices option.
6. Select the Security Management option.
7. Locate the QuickLock and QuickBlank items, in the Power-On Password section, and select Enable QuickLock of the Keyboard.
8. Select any other QuickLock/QuickBlank preferences, then select OK to exit the Security Management screen.

For more information about the various screen and configuration options, refer to Chapter 8, “Using Computer Setup, Diagnostics, and Other Compaq Software.”

9. Select File, Save Changes and Exit from the menu bar near the top of the screen.

✎ If you established a new Power-On Password at the same time you enabled QuickLock/QuickBlank features in Computer Setup, you must turn the computer off, then turn it back on, before QuickLock/QuickBlank features are enabled.

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.

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

Flash ROM

Your computer comes with reprogrammable Flash ROM (Read Only Memory). By establishing a Setup Password, the Flash ROM is protected against unintentional or unauthorized changes. This is important to assure computer operating integrity. Should you need or want to upgrade the ROM, you may order an upgraded ROMPaq diskette from Compaq. For more information on upgrading the Flash ROM, refer to Chapter 3, "Using Compaq Software."

Protecting Your Software

To protect your software from loss or damage, you should keep a copy of all system software, applications, and related files stored on your hard disk. You can order a set of backup diskettes from Compaq at nominal cost, or you can make your own set. For more information, refer to Chapter 3, "Using Compaq Utilities."

chapter 3

USING COMPAQ SOFTWARE

Software

The Microsoft Windows 95 or Windows NT 4.0 operating system is preinstalled on the computer and will be configured for you automatically the first time you turn on the computer. The following Compaq software is also installed for you at that time:

- Configuration and Diagnostic Utilities
- Compaq Support Software including Device Drivers
- Online *Safety & Comfort Guide*
- Intelligent Manageability
- Enhanced Compaq Insight Personal Edition (Diagnostics for Windows)
- Compaq Insight Management Agent
- DMI Support
- Power Management with Energy Saver Features
- Security Management Tools
- Support Software Management Tools

✍ Certain drivers and utilities are available only in selected languages. You can obtain the latest version of these files, in English and selected other languages, in one of two ways:

- *Support Software CD for Compaq Desktop, Portable, and Workstation Products* (Refer to “Enhanced Support Software CD and World Wide Web Site” later in this chapter for ordering information.)
- Compaq *Web Site* at <http://www.compaq.com/support/files/desktops/index.html>



Configuration and Diagnostic Utilities

Compaq Configuration and Diagnostic Utilities provide information you will need about the computer system if you need assistance from Compaq Customer Support. These utilities can also be used

- To change factory default settings, and to set or change the system configuration, which may be necessary when you add or remove hardware.
- To determine if all of the devices installed on the computer are recognized by the system and functioning properly.
- To determine information about the operating environment of the computer.
- To solve system configuration errors detected but not automatically fixed during the Power-On Self-Test (POST).
- To establish and manage passwords and other security features.
- To establish and manage energy-saving timeouts.
- To back up or upgrade the diagnostic software.

Using the Compaq Utilities Menu

To access the Compaq Utilities menu, complete the following steps:

1. Turn on or restart the computer by pressing Ctrl+Alt+Delete at the same time.
 -  Do not restart your computer using Ctrl+Alt+Delete while in Windows. Instead, exit Windows then restart the computer.
2. When the F10 Setup message appears in the lower-right corner of the screen, press the F10 key.
 -  If you do not press the F10 key while the message is displayed, you must turn the computer off, then on again to access the utility.
3. Press Enter to bypass the title and welcome screens. The Compaq Utilities menu appears.

The Compaq Utilities menu offers the following options:

- Computer Setup
- Computer Checkup (TEST)
- View System Information (INSPECT)
- Create a Diagnostics Diskette
- Exit

Computer Setup

Use Computer Setup

- To change factory default settings.
- To set the system date and time.
- To set, view, change, or verify the system configuration, including settings for processor, graphics, memory, audio, storage, communications, and input devices.
- To modify the boot order of bootable devices such as hard drives, diskette drives, CD-ROM drives, or PD-CD drives.
- To enable Quick Boot, which is faster than Full Boot but does not run all of the diagnostic tests run during a Full Boot. Quick Boot can be enabled to 1) always Quick Boot (default), 2) periodically Full Boot (from every 1 to 31 days), or 3) always Full Boot.
- To enable or disable Network Server Mode which allows for restarting from the hard drive or network when the keyboard is disabled.
- To select Clean or Descriptive mode for displaying Power-On Self-Test (POST) messages. Clean mode suppresses most POST messages, such as memory count, product name and other non-error text messages. If a POST error occurs, the error is displayed regardless of the mode selected. To manually switch to Descriptive mode during POST, press any key.
- To establish an Ownership Tag, the text of which is displayed each time the system is turned on or restarted.
- To enter the Asset Tag or property identification number assigned by your company to this Deskpro.

- To enable power-on password prompting during system restarts (warm boots) as well as during power-on.
- To establish a setup password that controls access to Computer Setup and the settings described in this section.
- To enable or disable serial, USB, or parallel ports.
- To enable or disable QuickLock and QuickBlank features.
- To enable or disable removable media boot ability.
- To enable or disable removable media write control.
- To solve system configuration errors detected but not automatically fixed during the Power-On Self-Test (POST).
- To perform a Replicated Setup by saving system configuration information on diskette and restoring it on one or more computers.

You may need to reconfigure the computer when you add or remove hardware. If you install a Plug and Play device, Windows automatically recognizes the device and configures the computer. If you install a non-Plug and Play device, you must reconfigure the computer after completing installation of the new hardware. In Windows 95, double-click the Add New Hardware icon in the Control Panel and follow the instructions that appear on the screen. In Windows NT, use the Compaq Computer Setup utility.

The main screen of Computer Setup includes two buttons: Built-in Devices and Add-in Devices. The following tables list and describe the options available under each of the two buttons:

Built-In Devices		
Button	Configuration Option	Description
Video	Driver and resolution	Lists driver and current resolution settings.
Storage	Diskette drive	Specify diskette drive types. Enable second diskette drive.

Continued

Built-In Devices *Continued*

Button	Configuration Option	Description
	Removable media	Disable boot ability and/or disable write ability.
	IDE Devices	Lists detected IDE devices.
	SCSI Devices	Lists detected SCSI devices.
	Boot Order	Specify device boot order.
Input Devices	Keyboard	Type and IRQ settings. Specify Num Lock state at power on.
	Mouse	Type and IRQ settings.
	Game Port	Enable game port.
Security Management	Power-On Password	Enable power-on password. Specify prompting for power-on password. Enable QuickLock/QuickBlank.
	Setup Password	Enable setup (administrator) password.
	USB	Disable USB connectors.
System Information	Processor	Lists CPU type, maximum speed, and presence of coprocessor.
	System Parameters	Lists Asset Tag and serial number. Specify Ownership Tag.
	Bus Priority	Specify ISA or PCI bus priority.
	Quick Boot	Enable Quick Boot. Specify interval for periodic full boot.
	POST Messages	Specify Clean or Descriptive mode for POST messages.

Continued

Built-In Devices *Continued*

Button	Configuration Option	Description
Communications	Serial Ports	Lists available serial ports and settings.
	Parallel Port	Lists available parallel port and settings.
Power Management	Energy Save	Enable or disable Energy Save. Set hard drive and system timeouts. NOTE: You can also set some power management preferences in Windows 95 by selecting the Power Management and Display icons in the Control Panel.



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

Add-In Devices

Button	Description
ISA Boards	Lists installed ISA boards. Allows you to Add or Remove boards, and to View or Edit board information.
PCI Boards	Lists installed PCI boards. Allows you to View or Edit board information.

The menu bar near the top of the main Computer Setup screen includes the following options: File, View, and Help.

- Use the File menu to Save Changes and Exit, to Exit without Saving Changes, and to Set Defaults and Exit.
- Use the View menu to view DMA, I/O, IRQ, and Memory settings.

Security Management

Use Security Management

- To set the Power-On Password.
- To set or change the Setup Password, which protects the system configuration.
- To set or change QuickLock/QuickBlank features.
- To enable or disable Network Server Mode.

Passwords may be any combination of 1 to 8 alphanumeric characters. Refer to Chapter 2, “Protecting Information on Your Computer,” to learn more about the security features available on the computer and how to use them.

Power Management

Use the Power Management option in Computer Setup to enable, customize, or disable the System Standby Timeout. System Standby shuts down certain components of the computer when they are not in use, saving energy without having to shut down the computer.

- ✍ When using Windows 95, disable monitor timeouts in Computer Setup first, then establish the settings in Windows 95, to avoid potential conflicts.

Use Display Properties to establish, modify, or disable Power Management settings for the monitor. To access Display Properties, right-click on the Windows Desktop, then choose Properties.

Computer Checkup (TEST)

Use Computer Checkup (TEST) in the following instances:

- To determine if all of the devices installed on the computer are recognized by the system and functioning properly. Running TEST is optional but recommended after installing or connecting a new device.

- To save, print, or display the information generated by TEST. You should 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 computer for testing.

To run TEST, complete the following steps:

1. Turn on only the external devices that you wish to test. You also may leave the printer connected to log error messages.
2. Access the Compaq Utilities menu.
3. From the Compaq Utilities menu, select Computer Checkup (TEST).

A test option menu is displayed.

4. Select the option to view the device list.

A list of the installed hardware devices appears.

5. Verify that TEST correctly detected the devices installed.

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. 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 when the testing is complete.

View System Information (INSPECT)

Use View System Information (INSPECT)

- To view information about the system once it has been configured.
- To save, print, or display the information generated by INSPECT. You should 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 computer for testing.

The information provided by INSPECT includes:

- Contents of the operating system startup files
- Current memory configuration
- ROM versions
- Type of processor and coprocessor
- Diskette drives, hard drives, CD-ROM drives, or tape drives installed

- Active printer and communications interfaces
 - Modem type installed
 - Graphics settings
 - Windows *WIN.INI* file details
- ✎ Categories or items of information displayed by View System Information (INSPECT) are similar to but may vary slightly from what is available in Compaq Diagnostics for Windows.

Create Diagnostics Diskettes

Create a Diagnostics Diskette allows you to back up the diagnostics software onto diskette. Compaq strongly recommends that you make a backup copy of this software as soon as possible.

- ✎ This utility is not available in Compaq Diagnostics for Windows; it must be accessed through the Compaq Utilities menu.

Changing Monitor Type and Customizing the Display

Plug and Play monitor types are automatically detected and configured, but if you are not using a Plug and Play monitor or, if you choose to customize your display, you can manually select or change the monitor brand, model, refresh rates, color, resolution, and power management settings.

Power Management

Use the Power Management option in Computer Setup to enable, customize, or disable the System Standby Timeout. System Standby shuts down certain components of the computer when they are not in use, saving energy without having to shut down the computer.

- ✎ When using Windows 95, disable monitor timeouts in Computer Setup first, then establish the settings in Windows 95, to avoid potential conflicts.

Use Display Properties to establish, modify, or disable Power Management settings for the monitor. To access Display Properties, right-click on the Windows Desktop, then choose Properties.

Enhanced 64-Bit Graphics Controller

To change the monitor type using Windows 95, complete the following steps:

1. Click Start, then click Settings.
2. Click Control Panel, then double-click the Display icon.
3. Click the Settings tab.
4. Click the Advanced Properties button.
5. Click the Monitor tab.
6. Click the Change button.
7. Choose Monitor Type.
8. Click the Have Disk button.
9. Insert the manufacturer's installation disk into drive A and click the OK button.

To display driver information, click the Compaq tab.

To customize the display using Windows 95, complete the following steps:

1. Click Start, then click Settings.
2. Click Control Panel, then double-click the Display icon.
3. Click the Settings tab.
4. In the Desktop Area box, drag the pointer to the desired resolution.
5. In the Color Palette box, select the number of colors you want to display.
6. Select Font Size and Refresh Frequency.
7. Click OK for the changes to take effect.


✍ The resolution and color palettes supported depend upon your graphics controller and monitor type. To display driver information, click the Compaq tab.

Matrox MGA-1064 SG Graphics Accelerator

Configuring Your Display Using Windows NT


To customize the display using Windows NT, complete the following steps:

1. Click Start, then click Settings.
2. Click Control Panel, then double-click the Display icon.
3. Click the Settings tab.
4. In the Desktop Area box, drag the pointer to the desired resolution.
5. In the Color Palette box, select the number of colors you want to display.
6. Select Font Size and Refresh Frequency.
7. Select List All Modes and choose a mode from the list of valid modes. Click OK for the changes to take effect.
8. Click Test to test the changes made to the display settings.
9. Click Yes if the test bitmap was properly displayed.
10. Click OK for the changes to take effect.

 The resolution and color palettes supported depend upon your graphics controller and monitor type. To display driver information, click the Compaq tab.

Configuring Your Monitor Type and Display Using the MGA PowerDesk Utilities

To install the MGA PowerDesk utilities, double-click on the MGA PowerDesk Setup icon, located on the Windows NT desktop. Follow the prompts to complete installation.

 To install the MGA PowerDesk utilities, you must have Administrator rights. If you do not have Administrator rights, call your Network Administrator and request support for installing the MGA PowerDesk utilities.

If you have a Plug and Play monitor, a Plug and Play (DDC) button is selected when MGA PowerDesk is first installed. In this case, your monitor automatically determines its correct settings.


If you don't have a Plug and Play monitor, a Default monitor (60 Hz) button is selected when you first install MGA PowerDesk. Use MGA monitor selection to inform the MGA display driver of the monitor's capabilities.

You can also use MGA monitor selection if you have a Plug and Play monitor but don't want to use the default settings.

1. Right-click on the Windows NT desktop.
2. From the Properties menu, click the MGA Monitor tab.
3. Click the MGA monitor button.
A list of monitor manufacturers appears in the MGA monitor list window.
4. Click the plus sign next to the manufacturer of your monitor.
If the manufacturer of your monitor does not appear in the monitor list, use (Standard monitor types).
5. Click the model name for your monitor.
A list of resolutions and their associated refresh rates appears to the right.
6. Click OK to apply the new settings.
After applying new settings, MGA PowerDesk software prompts you to confirm that your monitor supports the new settings. If the new settings don't work, wait 15 seconds and MGA PowerDesk will restore your previous settings.

Use the MGA Settings property sheet to change your display settings. To access MGA display properties, right-click the Windows NT desktop background and then click on the Properties menu item. This lets you:

- Control your display area, color palette, and system font size.
- Set up your desktop area to be larger than your display area. This extends the Windows NT working area beyond the limits of your display.
- Save settings as display schemes.
- Access more property sheets where you can set up shortcut keys, control driver performance settings, and see technical information about your Matrox hardware and software.

 The first time you click the MGA Settings tab, MGA PowerDesk removes the Microsoft Settings tab. This is to prevent the simultaneous use of Matrox and Microsoft display controls. To access the Microsoft Settings tab, close the Display Properties dialog box, open it again, then click the Microsoft Settings tab first.

For more detailed information regarding the Matrox PowerDesk utilities, refer to the online help.

Intelligent Manageability

Intelligent Manageability combines innovative hardware technology with PC LAN management tools from Compaq and other leading vendors to make Compaq desktop and portable computers easier to inventory, troubleshoot, protect, and maintain. Intelligent Manageability features focus on:

- Asset Management
- Fault Management
- Security Management
- Configuration Management
- Integration Management

Asset Management

Conducting a physical inventory of personal computers, key components, and monitors can be time-consuming and costly. The Compaq Deskpro Asset Management solution to this problem begins with AssetControl, hardware designed and built into new Compaq personal computers, key components, and monitors that support the VESA DDC2B, DIMM SPD, and EDID standards.

AssetControl features make it easy and inexpensive to maintain an accurate, up-to-date inventory. AssetControl features:

- Provide detailed inventory information about various components, including:
 - Manufacturer, model, and serial number of Compaq computers, monitors, hard drives, and dual inline memory modules (DIMMs)
 - Asset Tag
 - System board and ROM revision level
 - DMI BIOS
- Allow you to view, print, or electronically save this data, and other system configuration details, using:
 - Enhanced Compaq Insight Personal Edition
 - Compaq Insight Manager
 - PC LAN management products from the Compaq Desktop Management Solutions Partners
 - Management software products supporting the Desktop Management Interface [DMI revision 1.1 is preinstalled; version 2.0 is available on the *Support Software CD for Compaq Desktop, Portable, and Workstation Products* and can be downloaded from the Compaq Web site (www.compaq.com).]
- Simplify and help ensure the accuracy of inventory and accounting procedures
- Streamline service calls by giving the administrator fast access to the Compaq personal computer configuration and history
- Simplify remote software distribution procedures by allowing the system administrator to identify software and revision levels remotely

Enhanced Compaq Insight Personal Edition (Compaq Diagnostics for Windows)

Enhanced Compaq Insight Personal Edition is a component of Intelligent Manageability that allows you to view:

- System overview
- AssetControl information
- Input devices
- Communications ports
- Storage devices
- Graphics information
- Memory configuration
- Security Management settings
- System Health
- Operating system
- Windows version

Using Compaq Insight Personal Edition

To use Compaq Insight Personal Edition (Diagnostics for Windows), complete the following steps:

1. Double-click the Compaq Insight Personal Edition icon, located in the Control Panel.

The screen displays an overview of the computer hardware and software.

2. For specific hardware and software information, select a category from the Category menu or from the toolbar.

✎ As you move your cursor over the toolbar icons, the corresponding category names appear near the cursor.

3. To display more detailed information in a selected category, click More in the Information Level box.

✎ Categories or items of information displayed by Compaq Insight Personal Edition are similar to but may vary slightly from the information presented in View System Information (INSPECT).

4. Review, print, and, if necessary, discuss this information with your authorized Compaq reseller or service provider.

✎ To print the information, click File, then select Print. Select one of the following options: Detailed Report (All Categories), Summary Report (All Categories), or Current Category. Click OK to print the report you selected.

5. To exit Compaq Insight Personal Edition, click File, then click Exit.

Fault Management

Fault Management features combine innovative hardware and software technology to prevent the loss of critical data and minimize unplanned downtime.

When a fault occurs, the computer displays a Local Alert message containing a description of the fault and any recommended actions. You can then view current system health by using Compaq Insight Personal Edition. If the computer is connected to a network managed by Compaq Insight Manager or other SNMP-based management products (e.g., HP OpenView or IBM Tivoli TME10 NetView), the computer also sends a fault notice to the network management application.


SMART II Hard Drive Fault Prediction

The SMART II hard drive monitors hard drive activity to predict failures before they occur. Fault prediction and failure indication parameters, such as abnormal variations in spinup and seek times, or non-correctable read and write errors, are tracked to determine the hard drive condition. Should these errors become significant, the computer displays a warning message. The warning gives you time to back up the hard drive and replace it prior to experiencing downtime or loss of data. The Prefailure Warranty for SMART II hard drives allows you to replace these drives, free of charge, before the drives fail.

SMART II hard drives are compliant with the Small Form Factor Committee Specification for Self-Monitoring, Analysis, and Reporting Technology (SMART) Version II. SMART is the industry standard technology, pioneered by Compaq and originally called IntelliSafe, that allows you to prevent data loss and minimize downtime, in concert with Compaq Insight Management Agents.

ECC Fault Prediction and Prefailure Warranty

When the computer encounters an excessive number of error checking and correcting (ECC) memory errors, the screen displays a Local Alert message. This message contains detailed information about the errant memory module, allowing you to take action before you experience non-correctable memory errors. The Prefailure Warranty for ECC memory modules allows you to replace these modules, free of charge, before the modules actually fail. ECC memory modules are optional on all Compaq Deskpro personal computers.

 To use this feature, you must replace the standard DIMMs with ECC DIMMs.

Monitor Fault Diagnosis

Certain new Compaq monitors detect when the operating temperature exceeds the normal range or when a hardware fault occurs. Hardware faults may include the following:

- Power voltage out of range
- Power current out of range
- Horizontal deflection
- Vertical deflection
- I/O controller operation failure

If the monitor detects one of these conditions, the computer will send an alert over the network to the system administrator.

Proactive Backup

Proactive Backup software initiates a tape or PD-CD backup upon receiving notice of an impending SMART II hard drive failure.

The Seagate Backup Exec SMART Client works with Seagate Backup Exec tape backup software on the server, or with Seagate Backup Exec software supporting the PD-CD drive. Together with the Insight Management Agents, this software offers a Proactive Backup solution. For instructions on configuring the Backup Exec SMART Client, contact your systems administrator or refer to the Seagate Backup Exec documentation.

Cheyenne has also created an agent to support the Proactive Backup solution. The SMART Drive Agent is the component that recognizes and reacts to the SMART II hard drive fault alerts. This agent is an extension to the Microsoft Windows 95 tape backup agent for the standalone application ARCSolo for Windows. This agent works with the SMART II hard drive to ensure that critical data will be protected in the event of a hard drive failure.

Surge-Tolerant Power Supply

An integrated, 200-watt, surge-tolerant power supply provides greater reliability when the computer is hit with an unpredictable power surge. This power supply is rated to withstand a power surge of up to 2000 volts without incurring any system downtime or data loss.

Security Management

As access to a network increases, so does the risk of unauthorized access to critical information and theft of valuable components. The Compaq personal computer provides a robust set of security features to protect the computer and data from unauthorized access.


- Physical security features such as the cable lock provision help prevent theft or unauthorized access to internal components such as processor and memory.
- Setup and Power-On Passwords help prevent unauthorized access to information stored on the computer or the network.
- DIMM memory module configuration changes will trigger local and remote alert messages, providing timely notice of unauthorized additions, changes or removals. This feature is supported on all Compaq DIMM memory modules and others that comply with the DIMM Serial Presence Detect (SPD) standard.

- The Ownership Tag displays ownership information during system restart. The Ownership Tag information can be entered or modified in Computer Setup and is protected by the Setup Password.
- Drive and media security features control access to the information stored on the computer and can prevent unauthorized transfer of data to a diskette drive or other removable storage media (e.g., floppy, LS-120, PD-CD). These features can also prevent startup from the removable media drives.
- Device disabling features can prevent unauthorized transfer of data over fax/modems, serial ports, parallel ports, or infrared ports.
- QuickLock and QuickBlank can be set to lock the keyboard and/or blank the monitor screen when the PC goes into low power mode.

Security management settings can be viewed locally using Compaq Insight Personal Edition or remotely using Compaq Insight Manager.

Configuration Management

Configuration Management features include:

- Remote ROM Flash
 - Remote Security Management
 - Replicated Setup
 - Enhanced Support Software CD and World Wide Web Site
-  Use of remote Configuration Management features requires an established setup password.

Remote ROM Flash

Your computer comes with reprogrammable flash ROM (Read Only Memory). By establishing a setup password in Security Management, you can protect the ROM from being unintentionally updated or overwritten. This is important to ensure computer operating integrity. Should you need or want to upgrade your ROM, you may:

- Order an upgraded ROMPaq diskette from Compaq.
- Order the *Support Software CD for Compaq Desktop, Portable, and Workstation Products*.
- Download the latest ROMPaq images from the Compaq World Wide Web site (www.compaq.com).



CAUTION: For maximum ROM protection, be sure to establish a setup password. The setup password prevents unauthorized ROM upgrades.

Upgrading Flash ROM

To upgrade the ROM after you receive an upgraded ROMPaq diskette, complete the following steps:

1. Insert the ROMPaq diskette in the diskette drive, enter the correct command, and the computer will prompt for the setup password.
2. Enter the setup password.

If the setup password is entered correctly, the ROMPaq utility will take over and run the flash ROM upgrade.

- ✎ Do not turn off the power to your computer until the ROMPaq utility has completed the upgrade process.
 - ✎ If the setup password is incorrectly entered, the procedure will terminate and no changes will be made to the ROM.
3. When the utility finishes upgrading the ROM, remove the diskette from the diskette drive and restart your computer.

Using Remote ROM Flash

Remote ROM Flash allows the system administrator to safely upgrade the ROM on remote Compaq Deskpro personal computers, directly from the centralized network management console. Enabling the system administrator to perform this task remotely, on multiple computers, results in a consistent deployment of and greater control over Deskpro ROM images over the network. It also results in greater productivity and lower total cost of ownership.

Compaq created the Remote ROM Flash capability to be secure and fail-safe. All Deskpro ROMPaq ROM images from Compaq are digitally signed to ensure authenticity and minimize potential corruption. The ROM firmware includes a Boot Block that is protected during the flash process and allows the Deskpro to be restarted, in the unlikely event of an unsuccessful ROM flash.

✍ The digitally-signed ROM functionality is only available with Microsoft Windows 95 or Release 2 of Microsoft Windows NT 4.0.

Remote ROM Flash is performed in two stages:

1. System administrator uses the Remote Management Setup software on a centralized management console to prepare a Deskpro ROMPaq file.
2. System administrator uses a PC LAN management product, such as Microsoft SMS, Intel LANDesk Manager, or Symantec Norton Administrator for Networks, to distribute and execute the file over the network to remote Deskpros.

✍ The Deskpro 2000 must be powered on to take advantage of Remote ROM Flash.

Use of Remote ROM Flash requires an established setup password.

For more information on enabling Remote ROM Flash, refer to the online *Remote Management Administrator's Guide*.

FailSafe Boot Block ROM

The FailSafe Boot Block ROM allows for system recovery in the unlikely event of a ROM flash failure, for example, if a power failure occurs during a ROM upgrade. The Boot Block is a flash-protected section of the ROM that checks to validate the system ROM each time power to the system is turned on.

- If the system ROM is valid, the system starts normally.
- If the system ROM fails the validation check, the FailSafe Boot Block ROM provides enough support to start the system from a ROMPaq diskette, which will program the system ROM with a valid image.

Because there is no video or hard drive support from the Boot Block ROM, the keyboard lights communicate information. When the Boot Block detects an invalid system ROM, the system sounds a series of beeps (one long and three short) and flashes the three keyboard lights.

To recover the system after hearing the FailSafe Boot Block beeps, complete the following steps:

1. Remove any diskettes from the diskette drive and turn off the power.
2. Insert a ROMPaq diskette into the diskette drive.
3. Turn on power to the system.

If a setup password has been established, the Caps Lock light will turn on.

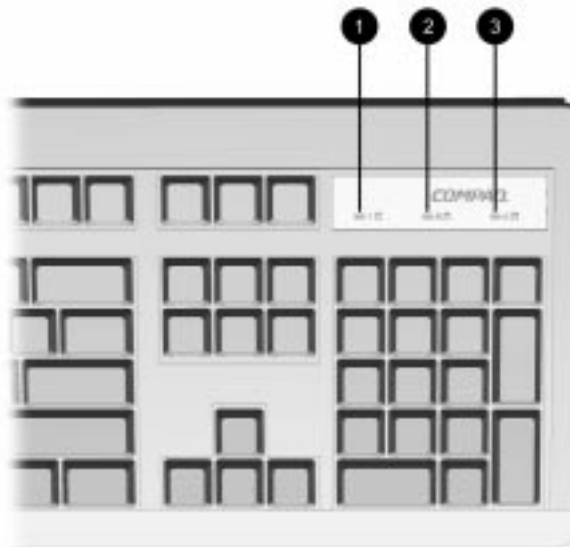
4. Enter the setup password.

When the system successfully starts from the diskette and reprograms the ROM, the three keyboard lights will turn on.

The following table lists the various keyboard light combinations, as well as the meaning and action associated with each combination.

Keyboard Light Combinations

Num Lock ①	Caps Lock ②	Scroll Lock ③	Meaning and Required Action
OFF	ON	OFF	System requires setup password. Enter the setup password. The light remains turned on until you enter a valid setup password.
ON	OFF	OFF	System could not start from diskette because the ROMPaq diskette is not present, is bad, or the drive is not ready. Insert a valid ROMPaq diskette, turn the power off, then turn the power on.
OFF	OFF	ON	ROM upgrade failed. Try another ROMPaq diskette. If the light remains turned on, contact Compaq customer support.
ON	ON	ON	ROM upgrade successfully completed. Turn power off and back on to resume normal system operation.



Keyboard Lights

Remote Security Management

Remote Security Management allows the system administrator to safely set or modify security features on remote Compaq Deskpros, directly from the centralized network management console. Enabling the system administrator to perform these tasks remotely, on multiple computers, results in consistent deployment of and greater control over Deskpro security parameters over the network. It also results in greater productivity and lower total cost of ownership.

✍ The Deskpro 2000 must be powered on to take advantage of Remote ROM Flash.

Use of Remote ROM Flash requires an established setup password.

Remote Security Management is performed in two stages:

1. System administrator uses the Remote Management Setup software on a centralized management console to define the security parameters.
2. System administrator uses a PC LAN management product to distribute the settings over the network to remote Compaq Deskpro personal computers.

For more information on enabling Remote Security Management, refer to the online *Remote Management Administrator's Guide*.

Replicated Setup

The Replicated Setup feature gives an administrator the ability to easily copy one Deskpro Setup configuration to other Deskpro computers of the same model. This allows for faster, more consistent configuration of multiple Deskpro computers.

Using Replicated Setup

To use Replicated Setup in Computer Setup, complete the following steps:


1. Access Computer Setup from the Compaq Utilities menu.
2. Use Computer Setup to select the settings for the Replicated Setup.

3. Select File, Save System Configuration from the menu bar, and follow the instructions on the screen.
4. To restore the Replicated Setup, select File, Restore System Configuration from the menu bar, and follow the instructions on the screen.

For help on specific features provided by the Computer Setup, click Help.

Power Management

Use the Power Management option in Computer Setup to enable, customize, or disable the System Standby Timeout. System Standby shuts down certain components of the computer when they are not in use, saving energy without having to shut down the computer.

-  When using Windows 95, disable monitor timeouts in Computer Setup first, then establish the settings in Windows 95, to avoid potential conflicts.

Use Display Properties to establish, modify, or disable Power Management settings for the monitor. To access Display Properties, right-click on the Windows Desktop, then choose Properties.

Enhanced Support Software CD and World Wide Web Site

Compaq engineers rigorously test and debug software developed by Compaq and third-party suppliers, and develop operating-system specific support software, to ensure the highest level of performance, compatibility, and reliability for Compaq personal computers.

When making the transition to new or revised operating systems, it is important to implement the support software designed for that operating system. If you plan to run any of the following operating systems on your computer, you must install corresponding Compaq device drivers and utilities to ensure all features are supported and functioning properly:

- Microsoft Windows 3.1
- IBM OS/2

- A version of Microsoft Windows 95 or Microsoft Windows NT Workstation that is different from the version included with your computer

Compaq has made the task of locating, accessing, evaluating, and installing the latest support software easier. There are three methods you can use to access support software:

- You can order the *Support Software CD for Compaq Desktop, Portable, and Workstation Products*. This compact disc contains the latest device drivers, utilities, and flashable ROM images needed to run MS-DOS, Microsoft Windows 3.1, Windows 95, Windows NT Workstation, and IBM OS/2 on your Compaq commercial desktop product.
- You can download the software from the Compaq World Wide Web site (www.compaq.com).

✍ Both the CD and the web site include *The Locator with Decision Support*, a comprehensive listing of the device drivers, utilities, flashable ROM images, and more, categorized by operating system, personal computer family, and model for easy retrieval. *Decision Support* provides detailed information for each piece of support software, including descriptions, features, enhancements, dependencies, and update criticalities.

- You can purchase backup diskettes.

If you choose to purchase the *Support Software CD*, you have two options:

- You can purchase a single CD-ROM that gives you one-time access to the latest support software (North America only, Compaq part number 272505-001).
- You can purchase a yearly subscription that delivers up to 12 monthly CD-ROMs (Compaq part number 183426-xxx).

The annual subscription ensures your continuous access to the latest developments.

To order the CD or backup diskettes, call the appropriate number found in the “Worldwide Telephone Numbers” table in Chapter 7, “Troubleshooting.”

- ✎ If you call Compaq to place an order, be sure to have the serial number of your computer available. The serial number is on the right-hand side of your computer, near the system lights. This number is necessary for all purchases.

Compaq Integrated Software

Additional support software is available on the *Support Software CD for Compaq Desktop, Portable, and Workstation Products* and the Compaq World Wide Web site (www.compaq.com). This software supplements the installation of off-the-shelf Microsoft operating systems and lets you quickly and easily install the correct Deskpro device drivers and other software required for top performance.

Universal Driver Manager

Compaq has created a Universal Driver Manager (UDM) release that supports all Compaq QVision, S3, Cirrus Logic, and Matrox graphics adapters found on Compaq Deskpro products. The UDM eases graphics driver deployment across all Compaq Deskpro platforms ensuring cross-compatibility and backward-compatibility. The resulting solution enables customers to manage and control ongoing software maintenance costs. The UDM is available on the *Support Software CD for Compaq Desktop, Portable, and Workstation Products* and the Compaq World Wide Web site (www.compaq.com).

Integration Management

Integration Management features include:

- Desktop Management Interface
- Compaq Insight Manager and the Insight Management Agents
- Compaq Desktop Management Solutions Partners Program
- Systems Management Partners Program

Desktop Management Interface

The Desktop Management Task Force (DMTF) is an industry body created in 1992 with the goal of standardizing systems manageability. DMTF established the Desktop Management Interface (DMI) framework to standardize access to PC configuration data. Compaq, as a Steering Committee and Technical Committee member of the DMTF, delivers hardware and software instrumentation that supports the DMI standard.

For more information on configuring the DMI software, refer to the online *Intelligent Manageability Guide*.

Compaq Insight Manager and the Insight Management Agents

Using the industry-standard Simple Network Management Protocol (SNMP) found in Microsoft Windows 95 and Windows NT Workstation, Compaq has continued the migration of management tools from servers to desktops by enhancing Compaq Insight Manager. Compaq Insight Manager allows the LAN administrator to remotely view AssetControl data, configuration data, memory change alerts, NIC performance data, and contact information. The tool also provides access to the Fault Management features of the Compaq Deskpro Personal Computer.

For more information on integrating with Insight Manager and configuring the Compaq Insight Management Agents, refer to the online *Intelligent Manageability Guide*.

Compaq Desktop Management Solutions Partners Program

Compaq delivers desktop management solutions today under Microsoft Windows 3.1, Windows 95, and Windows NT Workstation through the Compaq Desktop Management Solutions Partners Program. This Compaq initiative ensures compatibility and integration of AssetControl features with leading PC LAN management products. These products provide

remote access to the AssetControl features so that LAN and PC administrators can manage Compaq Deskpro Family of Personal Computers information from a central location. The partnership ensures that the benefits of Intelligent Manageability are accessible through a broad range of vendors. This allows customers to use their tools of choice to remotely manage their Compaq Deskpro computers more confidently and cost effectively.

Compaq Desktop Management Solutions Partners include:

- ASI (AssetPRO)
- BindView (BindView Console)
- Intel (LANDesk Management Suite)
- McAfee Associates (Saber LAN Workstation)
- Microsoft Corporation (Systems Management Server)
- Novell (ManageWise)
- Seagate (LAN Directory)
- Symantec (Norton Administrator for Networks)
- Tally Systems (NetCensus)

For more information on integrating with leading PC LAN management software, refer to the online *Intelligent Manageability Guide*.

Systems Management Partners Program

In addition to integrating Intelligent Manageability features with the PC LAN management applications highlighted above, Compaq also integrates these features with industry-leading enterprise management platform applications. This Compaq initiative ensures compatibility and integration of AssetControl and Fault Management features with tools that manage servers, hubs, routers, uninterruptible power supplies (UPSs), and other network devices. The result is an end-to-end solution that enables management of the entire enterprise from single console.

Systems Management Partners include:

- BMC Software (Patrol)
- Boole & Babbage (COMMAND/Post)

- Cabletron (SPECTRUM Enterprise Manager)
- Hewlett Packard (Compaq Insight Manager for OpenView)
- Seagate (NerveCenter)
- Tivoli (TME10)
- Tivoli (Compaq Insight Manager for TME10 NetView)

For more information on integrating with Systems Management Partners, refer to the Compaq World Wide Web site (www.compaq.com).

Protecting Your Software

To protect your software from loss or damage, you should keep a backup copy of all system software, applications, and related files stored on your hard drive. You can order a set of backup diskettes from Compaq at nominal cost for all of the software preinstalled on your computer, or you can make your own set. Refer to your operating system or backup utility documentation for instructions on making backup copies of your data files.

Ordering Backup Diskettes

You can order all software as a single set, or you can order the various software packages separately.

- ✍ Before calling Compaq to place your order, be sure to have the serial number of your computer available. This number is necessary for all diskette purchases.

Compaq authorized dealers, resellers, and service providers can tell you what backup software combinations are currently available for your computer. For a list of Compaq support telephone numbers, see Chapter 7, “Troubleshooting.”

chapter 4

USING THE CD-ROM DRIVE

The CD-ROM drive, installed on select models of the computer, is a random access, read-only storage device capable of retrieving data from a removable compact disc, which can store as much as 680 megabytes of digital information.

- ✎ This computer also supports PD-CD rewritable optical media drives and LS-120 diskette drives.

Using the Slot-Load CD-ROM Drive

To use the slot-load CD-ROM drive, complete the following steps:

1. Turn on the computer, if it is not already on.
2. Hold the compact disc ❶ by the edges, being careful not to touch the flat surfaces of the disc, and insert it into the slot ❷.



Using the Slot-Load CD-ROM Drive

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.

- ✎ 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 **ⓐ**.

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 computer. This enables the program to run more efficiently in the future.

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 or from the system prompt?
- Have you connected any special devices the disc requires, such as a joystick or a keyboard?
- Does the disc have a setup program that requires you to answer questions?

Audio Compact Discs

To play audio compact discs using the CD-ROM drive, use Media Player. To access Media Player, select the Start menu, click Programs, click Accessories, click Multimedia, then click Media Player. Refer to the Microsoft operating system documentation included with the computer, or to the Media Player online help for more information.

- ✎ Some software compact discs take control of the keyboard. If this occurs, adjust the sound before starting the software.

CD-ROM Drive 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 a sudden temperature change does occur, wait approximately one hour prior to operating the unit; otherwise, 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.

chapter 5

UPGRADING THE DESKTOP COMPUTER

This chapter explains how to remove the computer cover and install the following optional upgrade and replacement equipment or firmware:

- Expansion board
- Processor upgrade
- System memory
- Cache memory
- Graphics memory
- Optional drive

The chapter also includes information about when to reconfigure the computer to ensure that the newly installed equipment is recognized by the computer.

Installation Sequence

To familiarize you with the process, a summary of the installation and configuration sequence begins this chapter. It is very important that you follow the sequence of steps to ensure the proper installation of any optional equipment.

1. If the computer is already on, turn it off and disconnect the power cord from the wall.
2. Disconnect the keyboard, monitor, and any other external equipment connected to the computer.



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



CAUTION: Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix G for more information.

3. Open the computer by removing its outside cover. Refer to the section “Removing the Computer Cover” in this chapter for instructions.
4. Remove the front bezel if necessary. Refer to the section “Removing the Front Bezel” in this chapter for instructions.
5. Remove the drive cage if necessary. Refer to the section “Removing the Drive Cage” in this chapter for instructions.
6. Install any optional equipment (ISA or PCI expansion board, processor upgrade, memory, or drive). Refer to the applicable sections of the documentation that comes with the optional equipment for the instructions.
7. Replace the drive cage if it was removed.
8. Replace the front bezel if it was removed.
9. Replace the computer cover.
10. Reconnect the keyboard and monitor.
11. Turn on the monitor, computer, and any other external devices such as the printer or modem.
12. You may need to reconfigure the computer when you add or remove hardware. If you install a Plug and Play device, Windows automatically recognizes the device and configures the computer. If you install a non-Plug and Play device, you must reconfigure the computer after completing installation of the new hardware.

In Windows 95, double-click the Add New Hardware icon in the Control Panel and follow the instructions that appear on the screen. In Windows NT, use the Compaq Computer Setup utility. Refer to Chapter 3, “Using Compaq Utilities,” for instructions.

Removing the Computer Cover

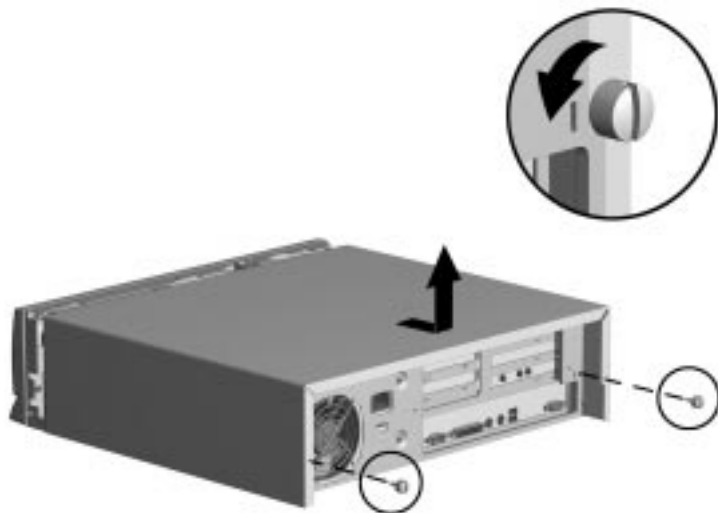
To install optional equipment, you must remove the computer cover to gain access to the drive bays or expansion slots you want to use.




CAUTION: Before removing the computer cover, ensure that the computer is turned off and that the power cord is disconnected from the electrical outlet.

To remove the computer cover, complete the following steps:

1. Turn off the computer and any external devices.
2. Disconnect the power cord from the power outlet and any external devices from the computer.
3. Remove the thumbscrews on the rear panel of the computer. Use a coin to loosen them if they're too tight to loosen by hand.
4. Slide the desktop computer cover backward about 1 inch (2.5 cm); then, lift it up off the unit.



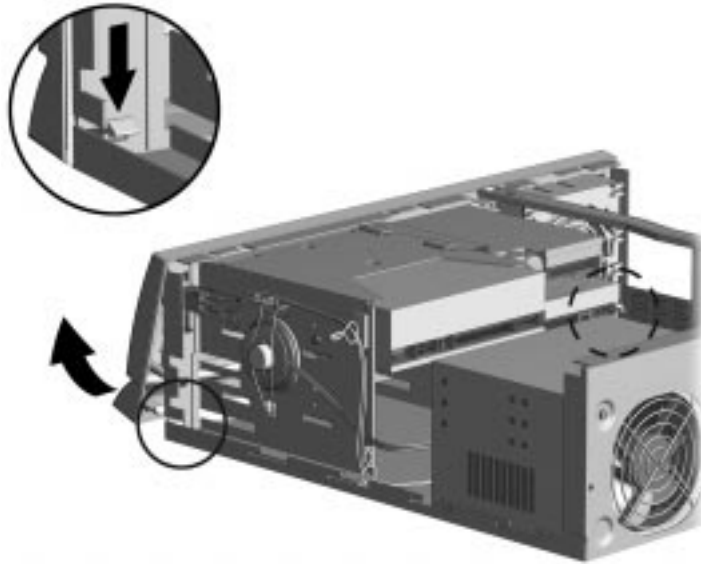
Removing the Desktop Computer Cover

-  The configuration label located inside the computer cover provides information for installing a new battery.

Removing the Front Bezel

The front bezel is attached to the computer chassis with release latches that are integrated into the bezel. To remove the front bezel, complete the following steps:

1. From the inside of the chassis, push down on the release latches (see inset) and push the bottom of the bezel out and away from the chassis.
2. Slide the front bezel up to separate it from the chassis.



Removing the Front Bezel

To install the front bezel, reverse the above procedure. Ensure that the hinge points at the top of the bezel and the release latches at the bottom of the bezel are properly positioned before latching the bezel into place.

Removing the Drive Cage

It may be necessary to remove the drive cage to gain access to certain internal components, such as the processor. To remove the drive cage, complete the following steps:

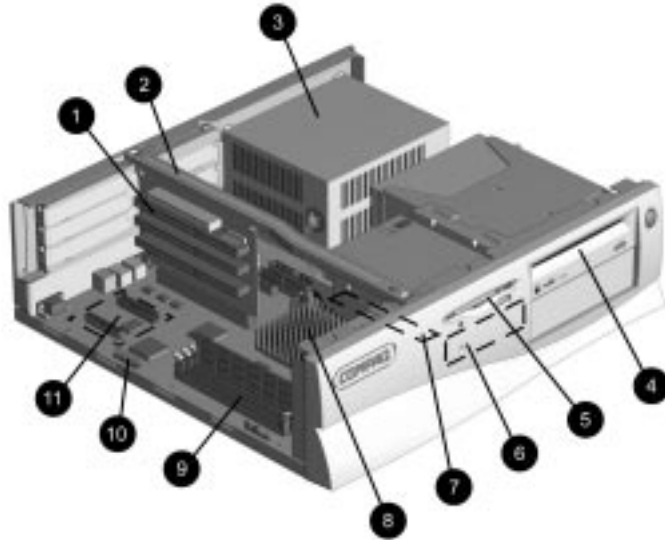
1. Remove the front bezel.
2. Remove the three screws from the drive cage and slide the drive cage back towards the inside of the chassis to release the latches.
3. Lift the assembly up to remove it from the chassis.



Removing the Drive Cage

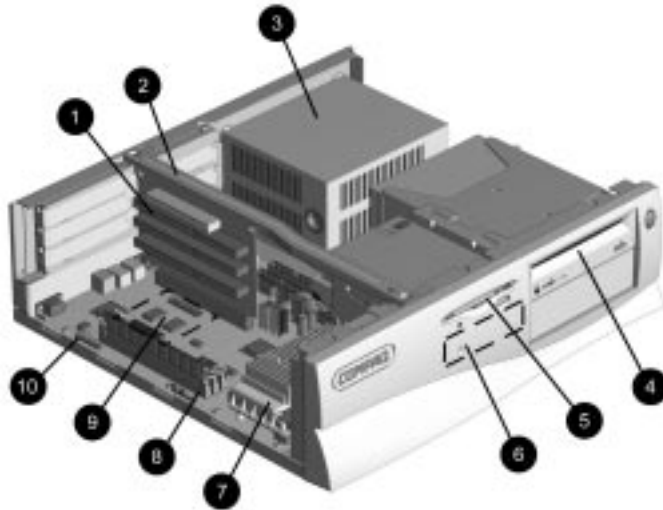
An Inside View of the Computer

The following illustration provides an inside view of the main features of the computer.



An Inside View of the Pentium Computer

Ref.	Interior Components
①	Expansion slots
②	Riser card brace
③	Power supply
④	CD-ROM drive
⑤	Diskette drive
⑥	Internal hard drive
⑦	Cache connector
⑧	Processor
⑨	Memory module sockets
⑩	VESA connector
⑪	Graphics upgrade connector



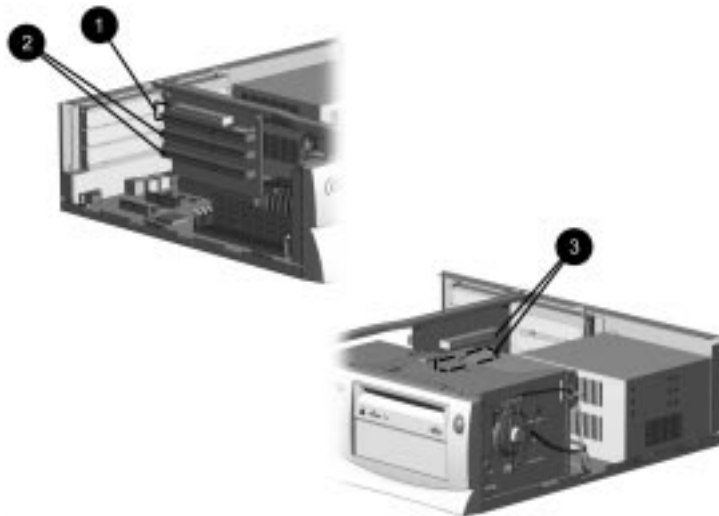
An Inside View of the Pentium II Computer

Ref.	Interior Components
①	Expansion slots
②	Riser card brace
③	Power supply
④	CD-ROM drive
⑤	Diskette drive
⑥	Internal hard drive
⑦	Processor
⑧	Memory module sockets
⑨	Graphics upgrade connector
⑩	VESA connector

Installing an Expansion Board

The computer contains the following five expansion slots: three slots are located on one side of the expansion riser board and two slots are located on the other side of the expansion riser board.

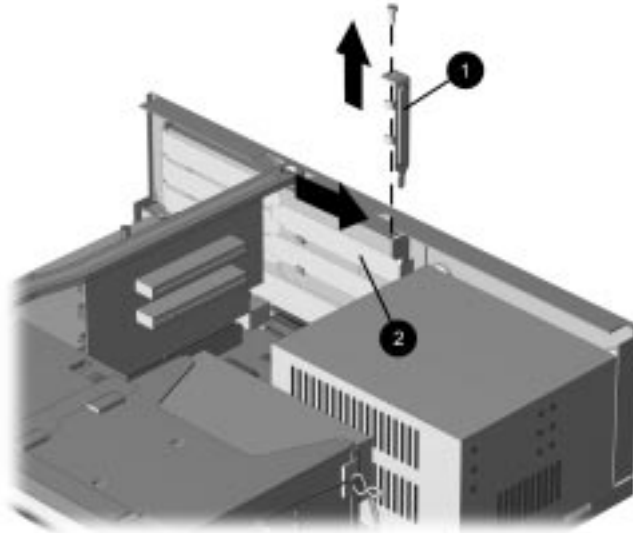
- ❶ One PCI/ISA expansion slot on the outboard side of the riser board in the uppermost position.
- ❷ Two ISA expansion slots on the outboard side of the riser board.
- ❸ Two dedicated PCI expansion slots on the inboard side of the riser board.



Five Expansion Slots on the Desktop Computer

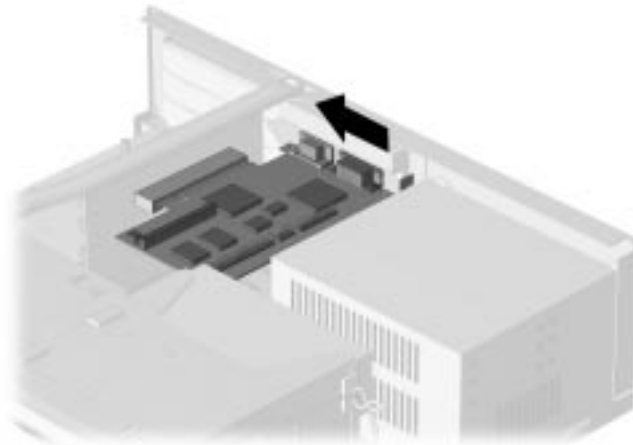
To install an expansion board on the inner side of the expansion riser board, complete the following steps:

1. Locate the correct vacant slot on the expansion riser board.
2. If you are installing an expansion card on the expansion riser board side with two expansion slots (closest to the power supply), first remove the retaining screw and the retainer bracket ❶, then remove the expansion slot cover ❷.



Removing the Retaining Screw, Retainer Bracket, and Slot Cover

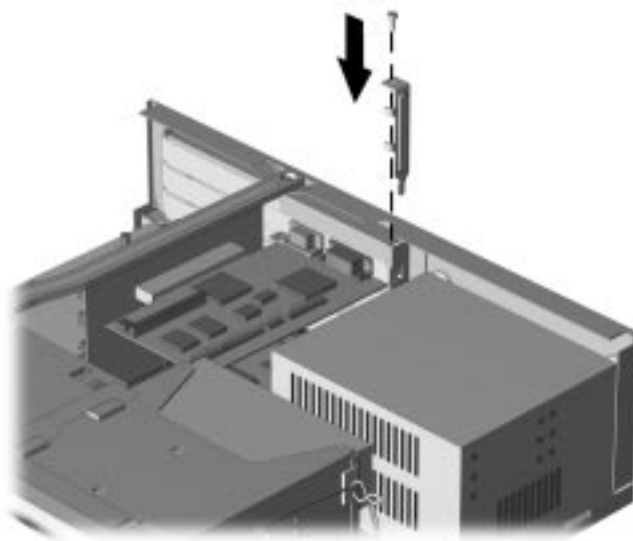
3. Slide the expansion board into the expansion slot and press it firmly into place.



Installing an Expansion Board in a Desktop

- ✎ When you install an expansion board, make sure you press firmly on the board so that the whole connector seats properly in the expansion board slot.

4. Replace the retainer bracket and the retaining screw.

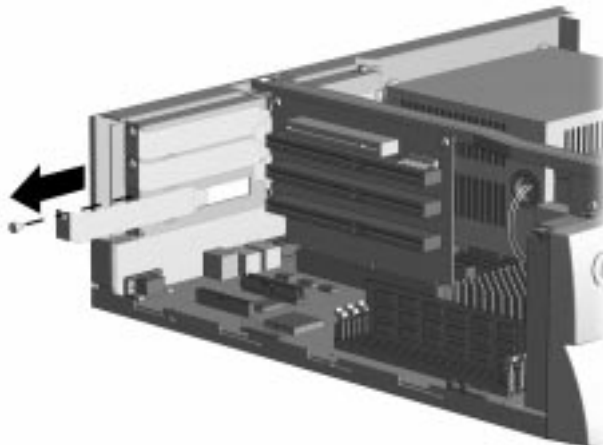


Replacing the Retainer Bracket and Retaining Screw

5. Replace the computer cover.

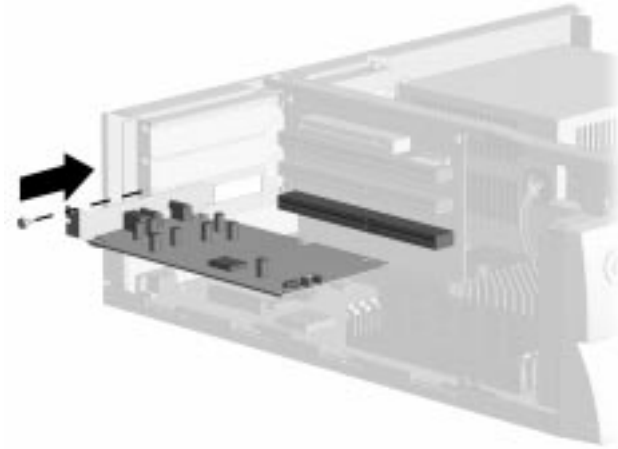
To install an expansion board on the outer side of the expansion riser board, complete the following steps:

1. Locate the correct vacant slot on the expansion riser board.
2. Remove the retaining screw and the expansion slot cover.



Removing the Retaining Screw and the Expansion Slot Cover

3. Slide the expansion board into the expansion slot and press it firmly into place.



Sliding an Expansion Board into Place in a Desktop

- ✎ When you install an expansion board, make sure you press firmly on the board so that the whole connector seats properly in the expansion board slot.
4. Replace the retaining screw.
 5. Replace the computer cover.

Upgrading the Pentium Processor

The 166 MHz Pentium processor can be upgraded to a 200 MHz or 233 MHz processor. The 200 MHz processor can be upgraded to a 233 MHz processor.



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

To replace the installed processor with a processor upgrade, complete the following steps:



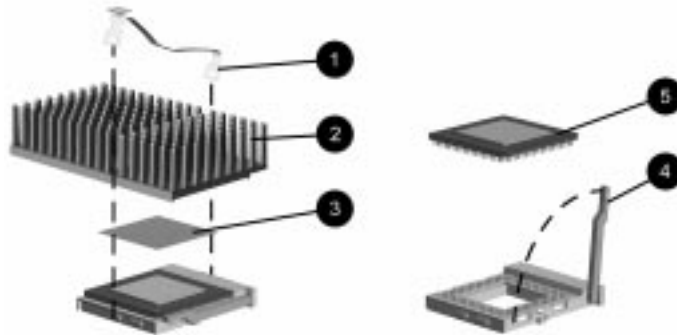
WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.

1. Remove the front bezel and any expansion boards that block access to the processor.
2. Remove the drive cage.



CAUTION: When replacing the processor, you must release the heatsink retaining clip prior to pulling the ZIF socket handle. This clip engages the processor socket to hold the heatsink in place.

3. Remove the heatsink retaining clip **1** by pressing down on the clip's extended tab until it releases from the safety catch.
4. Lift the heatsink **2** off the processor.
5. Release the original processor from the socket by pulling the handle on the ZIF socket out and upward **4**.
6. Lift the processor **5** out of the socket.



Removing the Processor

✎ The handle on the ZIF socket in your computer may not look identical to the handle shown in the drawing. All handle types perform the same function.

7. Align the new processor so that the single pin on the inside corner of the processor aligns with the single pinhole on the inside corner of the socket.
8. Install the processor by lowering it into the ZIF socket.
9. Push the handle on the ZIF socket back into place to secure the processor.
10. If the processor has a raised center, install thermal pad ❸ number 243226-001 on top of the processor before installing the heatsink.

If the processor has a flat center, install thermal pad ❸ number 184616-002 on top of the processor before installing the heatsink.



CAUTION: Using the wrong thermal pad may cause the processor to overheat or short, resulting in failure.

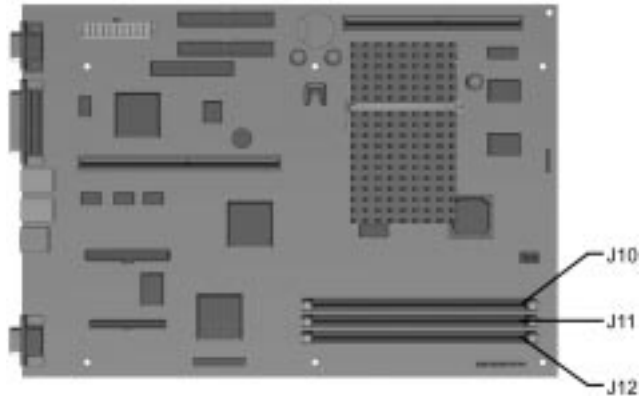
11. Install the heatsink and the heatsink retaining clip.
12. Set SW2 DIP switches to establish the processor speed appropriately. Refer to Appendix E, “System Board Jumpers and Switches,” or to the label inside the computer for detailed setting information.

Adding System Memory

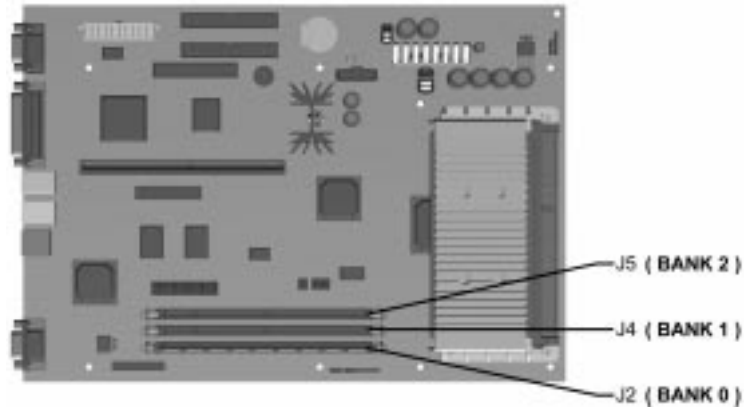
The computer comes with 16 or 32 MB synchronous dynamic random access memory (SDRAM) dual inline memory modules (DIMMs) installed and supports up to 384 MB of memory. The three memory sockets on the system board can be populated with 8-, 16-, 32-, 64-, or 128-MB DIMMs.

For proper system operation, the DIMMs must be industry standard 168-pin, 66-MHz or faster unbuffered SDRAM DIMMs or unbuffered extended data out (EDO) DIMMs. SDRAM DIMMs must support CAS Latency 2 or 3 (CL=2 or CL=3). The DIMMs must also contain the mandatory Joint Electron Device Engineering Council (JEDEC) Serial Presence Detect (SPD) information. Memory configuration must be x8 or x16; x4 configuration is not supported. The system will not start using unsupported DIMMs.

The following illustration shows the memory module sockets located on the system board.



Three Memory Module Sockets on the Pentium System Board



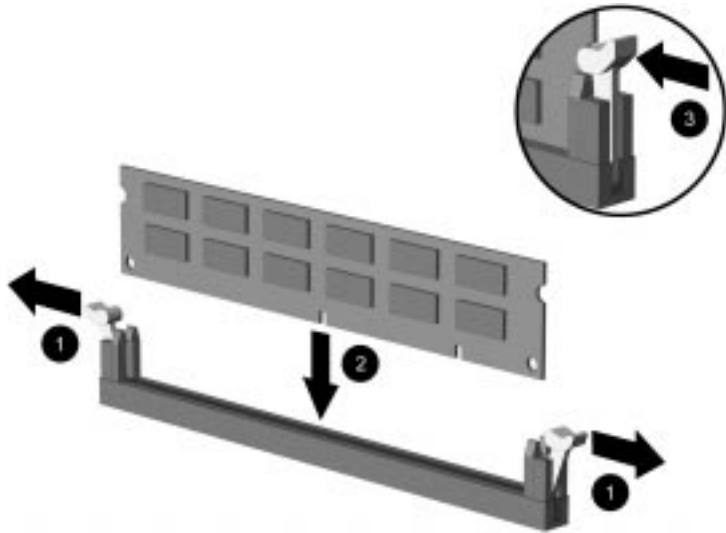
Three Memory Module Sockets on the Pentium II System Board



CAUTION: When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module.

To install a memory module, complete the following steps:

1. Remove any expansion boards that block access to the DIMM sockets.
2. Press outward on both latches **1** of the DIMM socket at the same time and insert the memory module **2** into the socket.
3. A memory module can be installed in only 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 **3**.

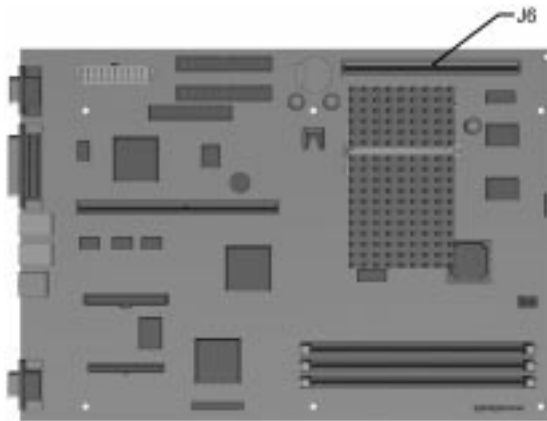


Installing a Memory Module

Installing Optional Cache Memory (Pentium Systems Only)

Cache memory is very fast pipeline burst memory used for temporarily storing data for fast access by the processor. Depending on the model, your computer can be upgraded with an optional 256-kilobyte pipeline burst L2 cache module on the system board, increasing total cache memory to 512 Kbytes. (On Pentium II systems, cache is integrated into the processor module and is therefore not upgradeable.) To install an optional cache module, complete the following steps:

1. Remove the front bezel and any expansion boards that block access to the processor.
2. Remove the two screws from the diskette drive and slide the drive cage back towards the inside of the chassis to release the latches.
3. Lift the assembly up to remove it from the chassis.
4. Install a 256-kilobyte cache module onto the cache connector.



Locating the Cache Connector

Upgrading Graphics Capabilities

Pentium systems feature an embedded S3 Trio64V2/GX enhanced 64-bit graphics controller installed with 1 MB SGRAM, expandable to 2 MB.

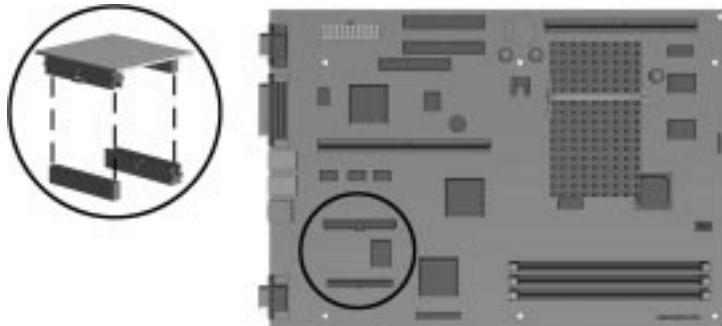
Pentium II systems feature an embedded Matrox MGA-1064 SG Graphics Accelerator installed with 2 MB SGRAM, expandable to 4 MB, depending on the model.

Upgrading the Enhanced 64-bit Graphics Controller

The S3 Trio64V2/GX enhanced 64-bit graphics controller is a PCI graphics solution embedded on the system board. With 1 MB SGRAM standard, it supports resolutions up to 1024 x 768 at 256 colors. With an additional 1 MB SGRAM, the controller supports resolutions up to 1280 x 1024 at 256 colors.

To install an additional 1-MB SGRAM module on the system board, complete the following steps:

1. Remove any expansion boards that block access to the system board.
2. Install the 1-MB SGRAM upgrade module onto the system board.



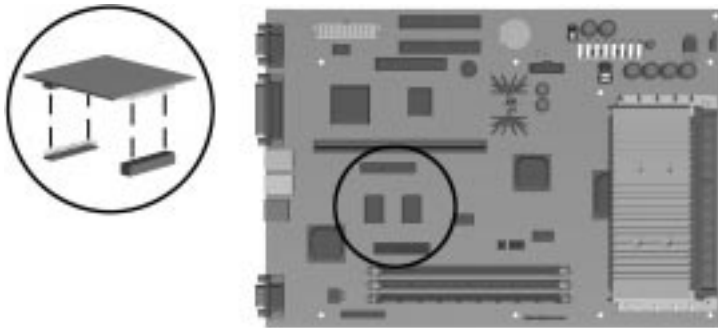
Installing a 1-MB SGRAM Module onto the System Board

Upgrading the Matrox Embedded Performance Graphics Accelerator

The Matrox MGA-1064 SG Graphics Accelerator featured on Pentium II systems comes standard with 2 MB SGRAM and supports resolutions up to 1280 x 1024 at 256 colors. With an additional 2 MB SGRAM, it supports resolutions up to 1600 x 1200 at 65,000 colors.

To install an additional 2-MB SGRAM module on the system board, complete the following steps:

1. Remove any expansion boards that block access to the system board.
2. Install the 2-MB SGRAM upgrade module onto the system board.

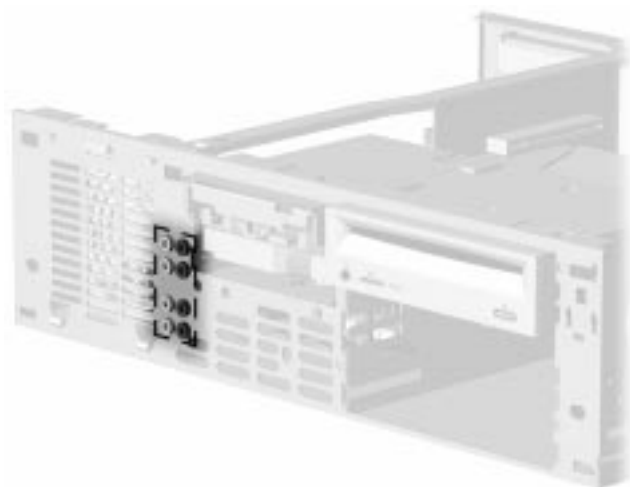


Installing a 2-MB SGRAM Module onto the Pentium II System Board

Installing an Additional Drive

When installing a new drive you should use either the wafer screws provided in the option kit or the extra U.S. and metric screws stored in the front of the computer chassis for this purpose. The same screws that are used as guide screws are used as retainer screws to secure the drive in the drive bay. Select the appropriate screws for the application.

- ✎ Metric screws have a black finish while U.S. screws have a silver finish.



Locating the Mounting Screws

- ✎ Compaq strongly recommends that only an authorized service provider replace your primary hard drive.

You must run Computer Setup after installing an additional diskette drive. Refer to Chapter 3, “Using Compaq Software,” for instructions.

Using the Cable-Select Feature with Ultra ATA Devices

Optional drives are available from Compaq in kits that include a special drive cable. The configuration of the drives employs a cable-select feature that identifies the drives as device 0 (primary drive) or device 1 (secondary drive). The system board determines which drive is device 0 or device 1, based on the way the drives are connected to the special drive cable. The device 0 drive is the drive connected to the short segment of the drive cable (or that connector closest to the system board); the device 1 drive is the drive connected to the long segment of the drive cable. The device 0 and device 1 identities are used by the system to distinguish between the two drives.

The installation requires no jumper setting changes on the existing or optional drives. All Compaq drives have the jumpers preset for cable-select installation.

- ✎ If installing a second device on the primary controller, you must use an 80-conductor Ultra ATA cable for optimal performance. This cable is available as a Compaq option.

Installing a 5.25-Inch Drive into a 5.25-Inch Drive Bay

1. Install one wafer screw on the left side of the front of the drive. This acts as a guide screw to align the drive in the drive bay.

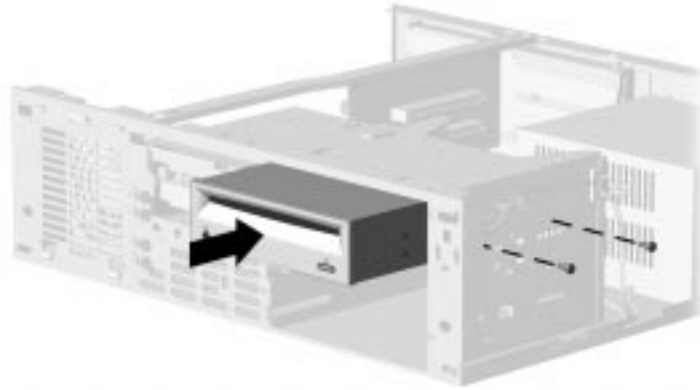


CAUTION: Use only 3/16-inch or 5-mm long screws as guide screws. Longer screws can damage the internal components of the drive.



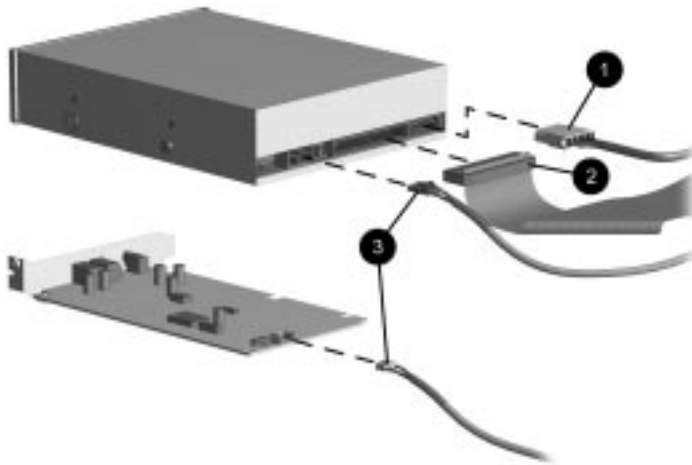
Installing the Wafer Screw into the CD-ROM Drive

2. Slide the drive assembly into the drive bay, and secure it with two screws on the right side of the drive bay.



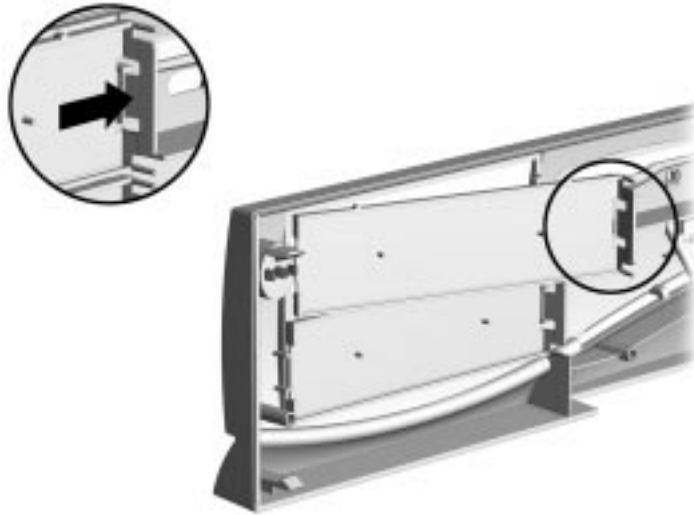
Installing the Drive and Retaining Screws

3. Connect the drive power cable ❶, the signal cable ❷ and, if you are connecting a CD-ROM drive, the audio cable ❸.



Connecting Cables to the CD-ROM Drive and the Audio Board

4. Remove the bezel blank from the front bezel if necessary. To do this, lay the front bezel face down on a protected work surface. Push the tab that is on the right of the bezel blank to the left, then rotate the bezel blank up and out of the front bezel.



Removing the Bezel Blank

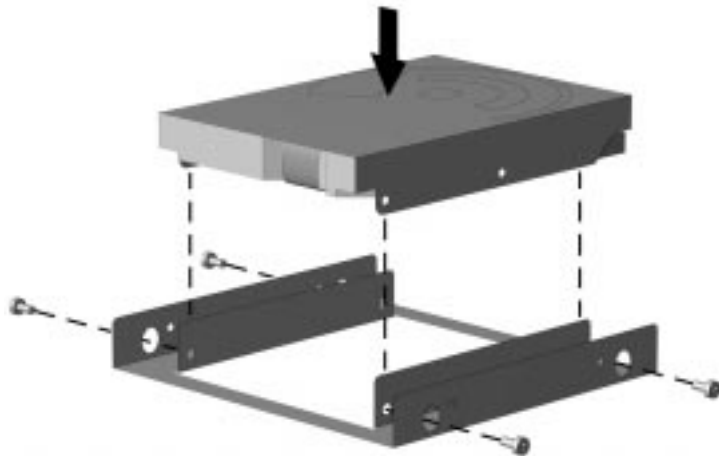
5. Run Computer Setup to configure the new drive, if necessary. Refer to Chapter 3, “Using Compaq Software,” for instructions.

Installing a 3.5-Inch Drive into a 5.25-Inch Drive Bay

If you are installing a 3.5-inch diskette drive in a 5.25-inch drive bay, use bracket spare part number 243230-001 which comes with a preinstalled bezel. This bracket is available from your Compaq dealer.

If you are installing a 3.5-inch hard drive in a 5.25-inch drive bay, use bracket spare part number 243231-001. This bracket is available from your Compaq dealer.

1. Place the 3.5-inch drive into the bracket.
2. Insert two screws into the bracket holes on each side of the bracket to secure the drive.



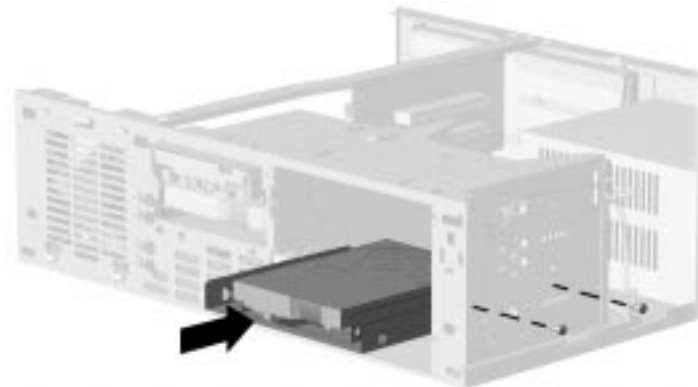
Installing the Hard Drive into the Mounting Bracket

3. Install one wafer screw on the left side of the bracket. This acts as a guide screw to align the bracket in the drive bay.



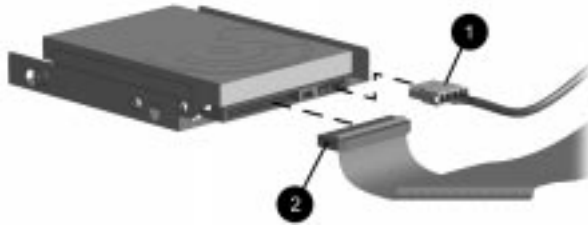
Installing the Wafer Screw into the Bracket

4. Install the drive assembly into the drive bay. Ensure that the guide screws fit into the tabs on either side of the bay.
5. Secure the drive with two wafer screws on the right side of the drive bay.



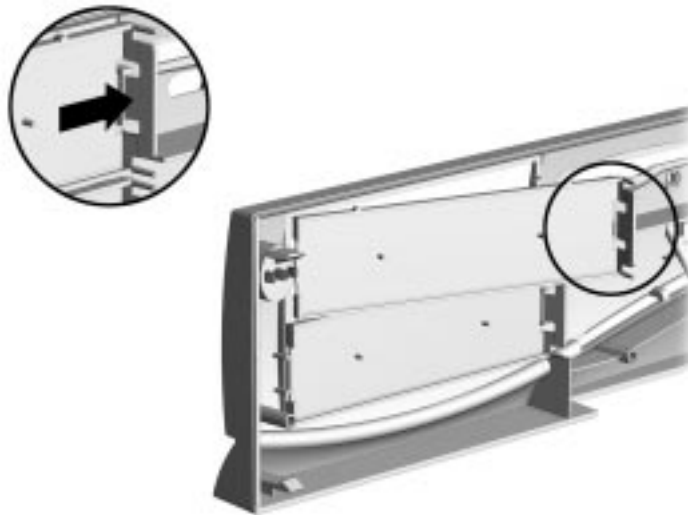
Installing a Hard Drive and Securing It with Two Wafer Screws

6. Connect the drive power cable ❶ and the signal cable ❷.



Connecting Cables to the Hard Drive

7. Remove the bezel blank from the front bezel if necessary. To do this, lay the front bezel face down on a protected work surface. Push the tab that is on the right of the bezel blank to the left, then rotate the bezel blank up and out of the front bezel.



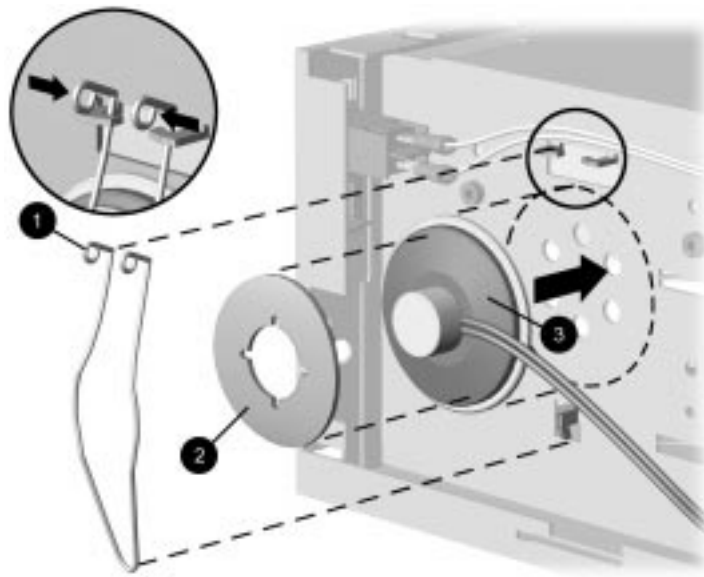
Removing the Bezel Blank

8. Run Computer Setup to configure the new drive, if necessary. Refer to Chapter 3, “Using Compaq Software,” for instructions.

Installing an Internal Speaker

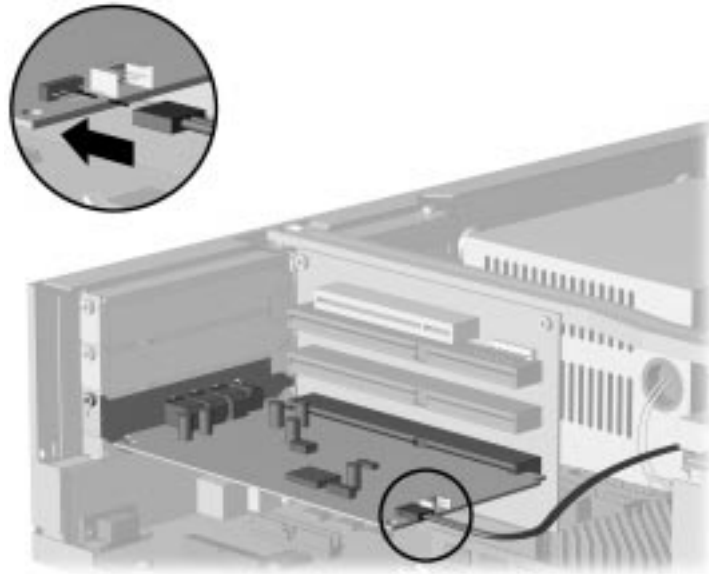
To install an internal speaker, complete the following steps:

1. Place the cardboard insulator ❷ on the speaker ❸.
2. Place the speaker between the guide tabs on the outer side of the drive bay housing.
3. Snap the speaker-retaining clip ❶ into place to secure the speaker.



Installing the Speaker

4. Connect the speaker cable to the audio board.



Connecting the Speaker Cable to the Audio Board

chapter 6

UPGRADING THE MINITOWER COMPUTER

This chapter explains how to remove the computer cover and install the following optional upgrade and replacement equipment or firmware:

- Expansion board
- Processor upgrade
- System memory
- Cache memory
- Graphics memory
- Optional drive

The chapter also includes information about when to reconfigure the computer to ensure that the newly installed equipment is recognized by the computer.

Installation Sequence

To familiarize you with the process, a summary of the installation and configuration sequence begins this chapter. It is very important that you follow the sequence of steps to ensure the proper installation of any optional equipment.

1. If the computer is already on, turn it off and disconnect the power cord from the wall.
2. Disconnect the keyboard, monitor, and any other external equipment connected to the computer.



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



CAUTION: Static electricity can damage the electronic components of the computer or optional equipment. Before beginning these procedures, ensure that you are discharged of static electricity by briefly touching a grounded metal object. Refer to Appendix G for more information.

3. Open the computer by removing its outside cover. Refer to the section "Removing the Computer Cover" in this chapter for instructions.
4. Remove the front bezel if necessary. Refer to the section "Removing the Front Bezel" in this chapter for instructions.
5. Remove the riser brace if necessary. Refer to the section "Removing the Riser Brace" in this chapter for instructions.
6. Install any optional equipment (ISA or PCI expansion board, processor upgrade, memory, drive). Refer to the applicable sections of the documentation that comes with the optional equipment for the instructions.



CAUTION: To avoid damaging memory modules, do not remove or install the system board with memory modules installed. It is not necessary to remove the system board to install or remove memory modules.

7. Replace the riser brace if it was removed.
8. Replace the front bezel if it was removed.
9. Replace the computer cover.
10. Reconnect the keyboard and monitor.
11. Turn on the monitor, computer, and any other external devices such as the printer or modem.
12. You may need to reconfigure the computer when you add or remove hardware. If you install a Plug and Play device, Windows automatically recognizes the device and configures the computer. If you install a non-Plug and Play device, you must reconfigure the computer after completing installation of the new hardware.

In Windows 95, double-click the Add New Hardware icon in the Control Panel and follow the instructions that appear on the screen. In Windows NT, use the Compaq Computer Setup utility. Refer to Chapter 3, “Using Compaq Utilities,” for instructions.

Removing the Computer Cover

To install optional equipment, you must remove the computer cover to gain access to the drive bays or expansion slots you want to use.



CAUTION: Before removing the computer cover, turn off the computer and disconnect the power cord from the electrical outlet.

To remove the computer cover, complete the following steps:

1. Turn off the computer and any external devices.
2. Disconnect the power cord from the power outlet and any external devices from the computer.
3. Remove the thumbscrews on the rear panel of the computer. Use a coin to loosen them if they're too tight to loosen by hand.
4. Slide the panel to the back of the computer and pull out to remove it.



Removing the Minitower Computer Cover

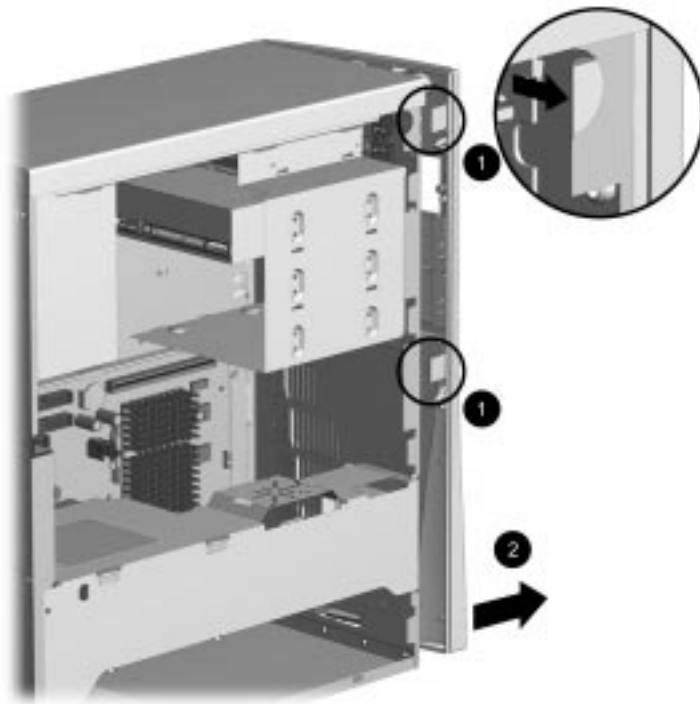


The configuration label located on the bridge plate inside the computer provides information for installing a new battery.

Removing the Front Bezel

The front bezel is attached to the computer chassis with release latches that are integrated into the bezel. To remove the front bezel, complete the following steps:

1. From the inside of the chassis, push in the release latches ❶ and push the side of the bezel out and away from the chassis ❷.
2. Rotate the front bezel out from the chassis, then slide it to the left.
3. Separate the bezel from the chassis.

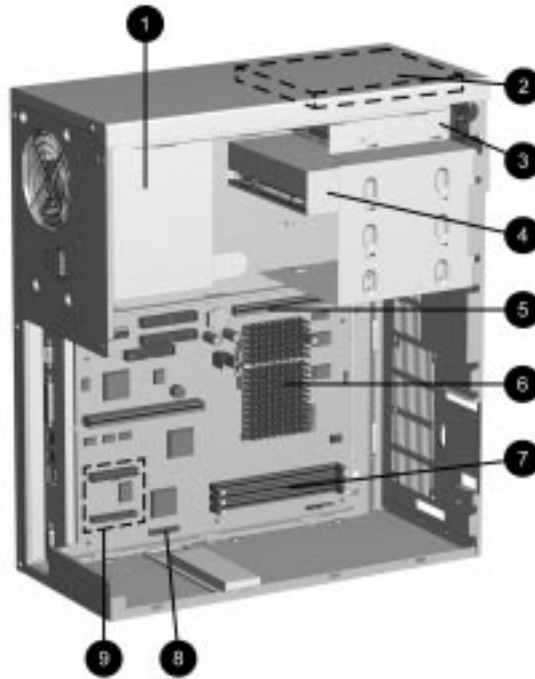


Removing the Front Bezel

To replace the bezel, reverse the above procedure. Ensure that the hinge points at the side of the bezel and the release latches are properly positioned before latching the bezel into place.

An Inside View of the Computer


The following illustration provides an inside view of the main features of the computer.

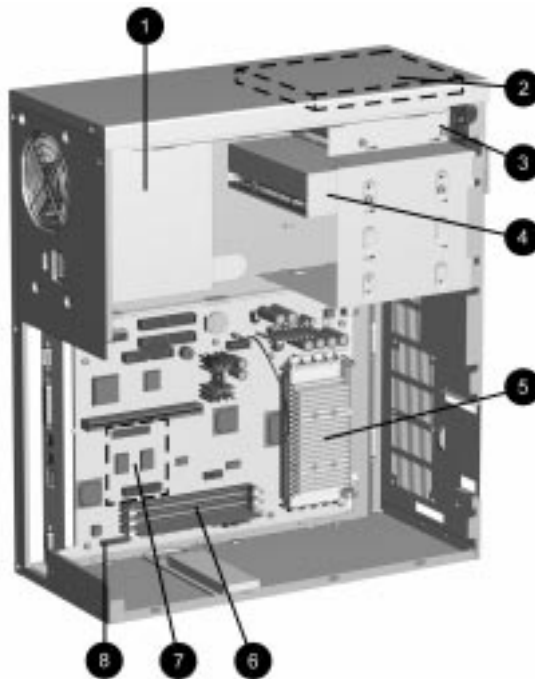


An inside View of the Pentium Computer

Ref	Interior Components
-----	---------------------

①	Power supply
②	Internal hard drive
③	Diskette drive
④	CD-ROM drive
⑤	Cache connector
⑥	Processor
⑦	Memory module sockets
⑧	VESA connector
⑨	Graphics upgrade socket

 To provide a better view of the internal components, the riser brace is not shown in this illustration.



An inside View of the Pentium II Computer

Ref	Interior Components
①	Power supply
②	Internal hard drive
③	Diskette drive
④	CD-ROM drive
⑤	Processor
⑥	Memory module sockets
⑦	Graphics upgrade socket
⑧	VESA connector

✎ To provide a better view of the internal components, the riser brace is not shown in this illustration.

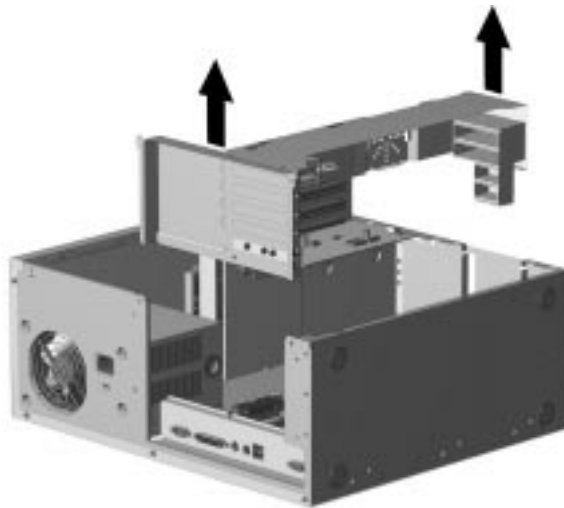
The following sections explain how to install an expansion board, processor upgrade, additional system memory, cache memory, graphics memory, and an optional drive.

Removing the Riser Brace

Before an expansion board can be installed or replaced, you must remove the riser brace that holds the expansion riser board.

To safely remove the riser brace, grasp it at both ends and pull it out of the computer chassis. Use care when guiding the assembly out of the unit to prevent damaging the boards.

- ✎ When reinstalling the riser brace, fully seat the expansion riser board attached to the brace into the system board socket to ensure complete electrical contact.

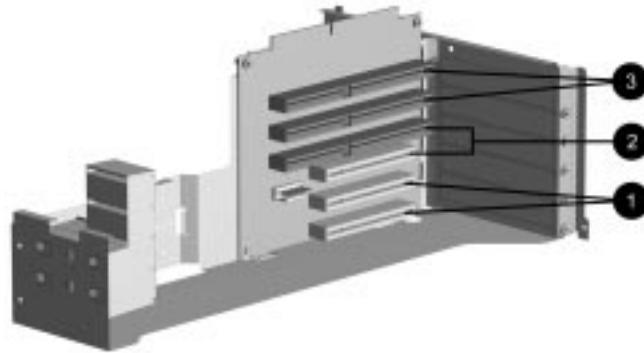


Removing the Riser Brace

Installing an Expansion Board

The computer contains five expansion slots, which are located on the expansion riser board. These consist of:

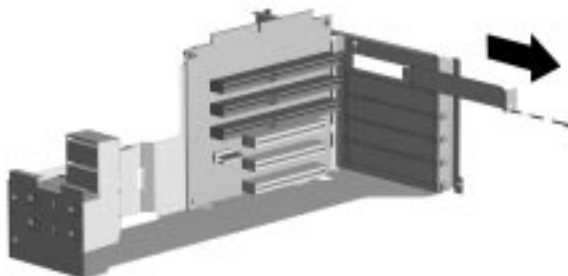
- ❶ Two dedicated PCI expansion slots
- ❷ One PCI/ISA shared expansion slot
- ❸ Two ISA expansion slots



Five Expansion Slots in the Expansion Riser board

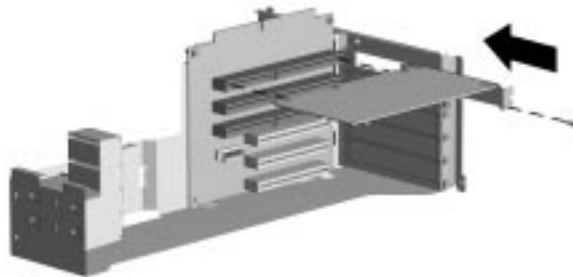
To install a PCI or an ISA expansion board, complete the following steps:

1. Remove the riser brace.
2. Locate the correct vacant slot in the expansion riser board.
3. Remove the screw from the expansion slot cover, then remove the expansion slot cover.



Removing the Screw and Expansion Slot Cover

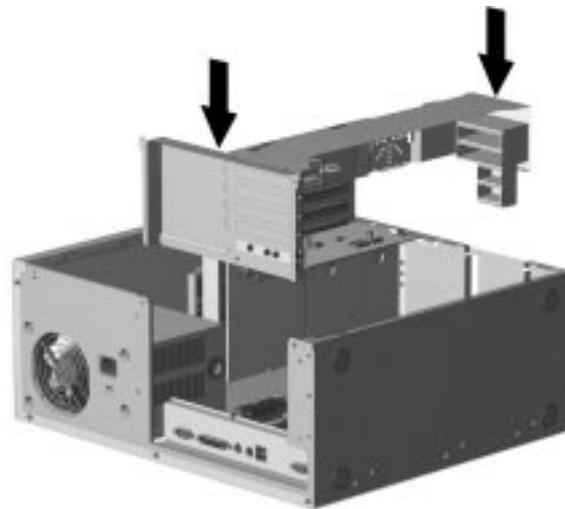
- Slide the expansion board into the expansion slot and press it firmly into place.



Sliding an Expansion Board into Place in the Expansion riser board

- When you install an expansion board, make sure you press firmly on the board so that the whole connector seats properly in the expansion board slot.

- Replace the retaining screw.
- Replace the riser brace into the minitower.



Replacing the Brace into the Minitower

- Replace the computer cover.

Upgrading the Pentium Processor

The 166 MHz Pentium processor can be upgraded to a 200 MHz or 233 MHz processor. The 200 MHz processor can be upgraded to a 233 MHz processor.



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

To replace the installed processor with a processor upgrade, complete the following steps:

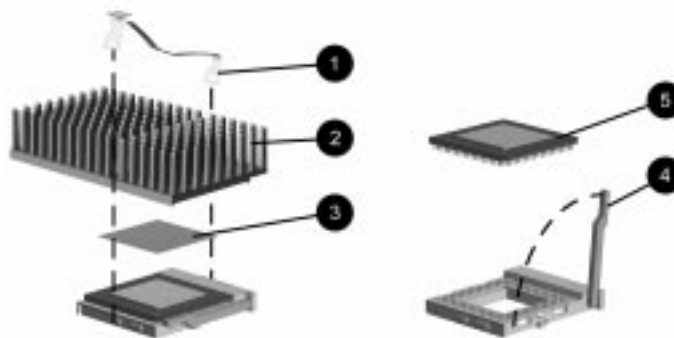


WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching.





CAUTION: When replacing a Pentium processor, you must release the heatsink retaining clip before you pull the ZIF socket handle. This clip engages the processor socket to hold the heatsink in place.


1. Remove the riser brace.
2. Remove the heatsink retaining clip **1** by pressing down on the clip's extended tab until it releases from the safety catch.
3. Lift the heatsink **2** off the processor.
4. Release the original processor from the socket by pulling the handle on the ZIF socket out and upward **4**.
5. Lift the processor **5** out of the socket.



Removing the Pentium Processor

 The handle on the ZIF socket in your computer may not look identical to the handle shown in the drawing. All handle types perform the same function.

6. Align the new processor so that the single pin on the inside corner of the processor aligns with the single pinhole on the inside corner of the socket.
7. Install the processor by lowering it into the ZIF socket.
8. Push the handle on the ZIF socket back into place to secure the processor.
9. If the processor has a raised center, install thermal pad  number 243226-001 on top of the processor before installing the heatsink.

If the processor has a flat center, install thermal pad  number 184616-002 on top of the processor before installing the heatsink.



CAUTION: Using the wrong thermal pad may cause the processor to overheat or short, resulting in failure.

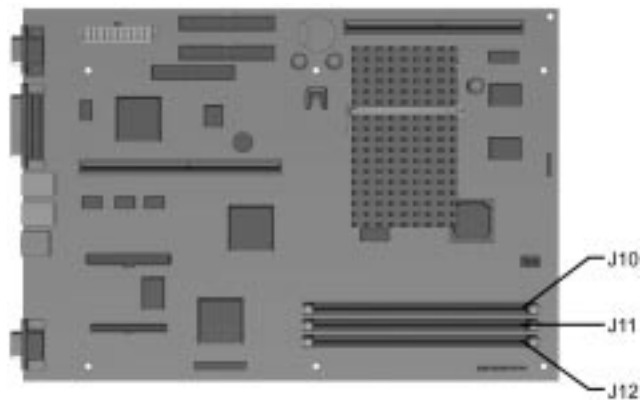
10. Install the heatsink and the heatsink retaining clip.
11. Set SW2 DIP switches to establish the processor speed appropriately. Refer to Appendix E, “System Board Jumpers and Switches,” or to the label inside the computer for detailed setting information.

Adding System Memory

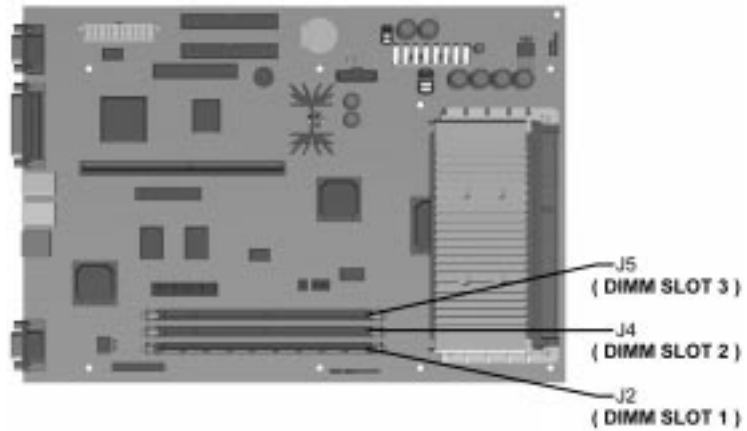
The computer comes with 16 or 32 MB synchronous dynamic random access memory (SDRAM) dual inline memory modules (DIMMs) installed and supports up to 384 MB of memory. The three memory sockets on the system board can be populated with 8-, 16-, 32-, 64-, or 128-MB DIMMs.

For proper system operation, the DIMMs must be industry standard 168-pin, 66-MHz or faster unbuffered SDRAM DIMMs or unbuffered extended data out (EDO) DIMMs. SDRAM DIMMs must support CAS Latency 2 or 3 (CL=2 or CL=3). The DIMMs must also contain the mandatory Joint Electron Device Engineering Council (JEDEC) Serial Presence Detect (SPD) information. Memory configuration must be x8 or x16; x4 configuration is not supported. The system will not start using unsupported DIMMs.

The following illustration shows the memory module sockets located on the system board.



Three Memory Module Sockets on the Pentium System Board



Three Memory Module Sockets on the Pentium II System Board



CAUTION: When handling a memory module, be careful not to touch any of the contacts. Doing so may damage the module

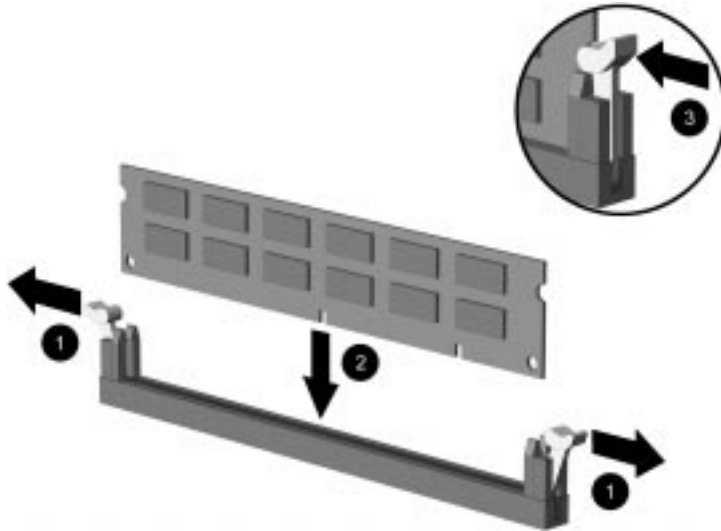
To install a memory module, complete the following steps:

1. Remove any expansion boards that block access to the DIMM sockets.



CAUTION: To avoid damaging memory modules, do not remove or install the system board with memory modules installed. It is not necessary to remove the system board to install or remove memory modules.

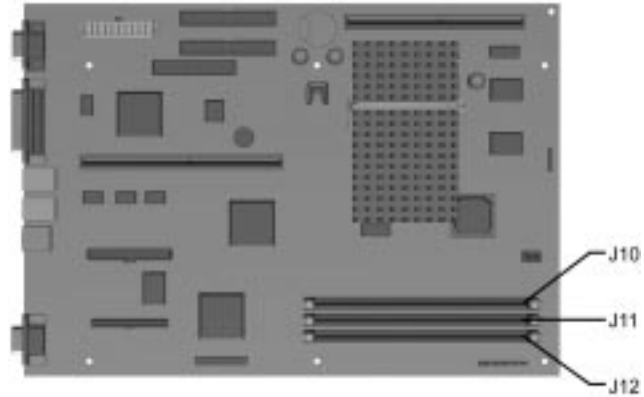
2. Press outward on both latches **1** of the DIMM socket at the same time and insert the memory module **2** into the socket.
3. A memory module can be installed in only one way. Match the notch on the module with the tab on the memory socket. Push the module down into the socket, ensuring that the module is fully inserted and properly seated **3**.



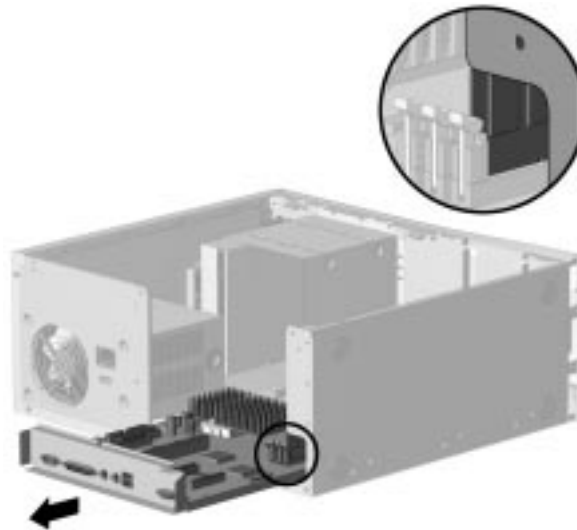
Installing a Memory Module



CAUTION: If your minitower system has been upgraded with a DIMM memory module taller than 1.25 inches in the outermost memory socket (J12 on Pentium systems, as shown below or J2/Slot 1 on Pentium II systems):



Remove the DIMM from socket J12 (J2/Slot 1 on Pentium II systems) prior to removing the system board to avoid damaging the DIMM or the DIMM socket. It is not necessary to remove the system board in order to remove or install DIMM memory modules.

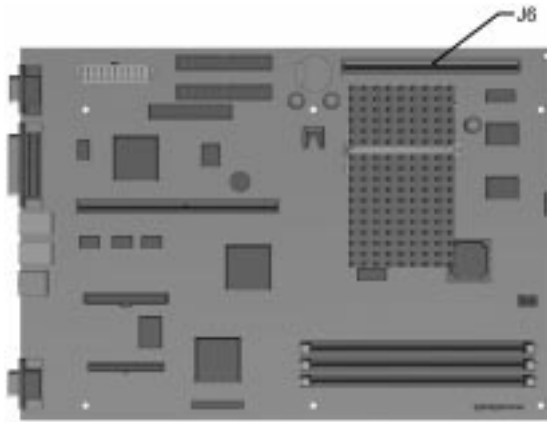


*Remove DIMM Memory Module from Outermost Socket
Before Removing the System Board*

Installing Optional Cache Memory (Pentium Systems Only)

Cache memory is very fast pipeline burst memory used for temporarily storing data for fast access by the processor. Depending on the model, your computer can be upgraded with an optional 256-kilobyte pipeline burst L2 cache module on the system board, increasing total cache memory to 512 Kbytes. (Cache is not upgradable on models featuring the Pentium II processor.) To install an optional cache module, complete the following steps:

1. Remove the riser brace.
2. Install a 256-kilobyte cache module onto the cache connector on the system board.



Locating the Cache Connector

Upgrading Graphics Capabilities

Pentium systems feature an embedded S3 Trio64V2/GX enhanced 64-bit graphics controller installed with 1 MB SGRAM, expandable to 2 MB.

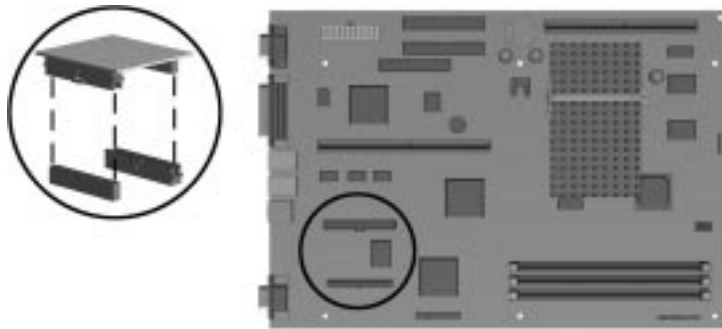
Pentium II systems feature an embedded Matrox MGA-1064 SG Graphics Accelerator installed with 2 MB SGRAM, expandable to 4 MB, depending on the model.

Upgrading the Enhanced 64-Bit Graphics Controller

The S3 Trio64V2/GX enhanced 64-bit graphics controller is a PCI graphics solution embedded on the system board. With 1 MB SGRAM standard, it supports resolutions up to 1024 x 768 at 256 colors. With an additional 1 MB SGRAM, the controller supports resolutions up to 1280 x 1024 at 256 colors.

To install an additional 1-MB SGRAM module on the system board, complete the following steps:

1. Remove any expansion boards that block access to the system board.
2. Install the 1-MB SGRAM upgrade module onto the system board.



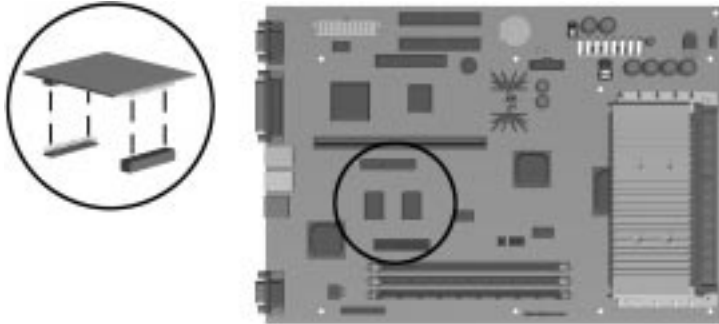
Installing a 1-MB SGRAM Module onto the System Board

Upgrading the Matrox Embedded Performance Graphics Accelerator

The Matrox MGA-1064 SG Graphics Accelerator featured on Pentium II systems comes standard with 2 MB SGRAM and supports resolutions up to 1280 x 1024 at 256 colors. With an additional 2 MB SGRAM, it supports resolutions up to 1600 x 1200 at 65,000 colors.

To install an additional 2-MB SGRAM module on the system board, complete the following steps:

1. Remove any expansion boards that block access to the system board.
2. Install the 2-MB SGRAM upgrade module onto the system board.

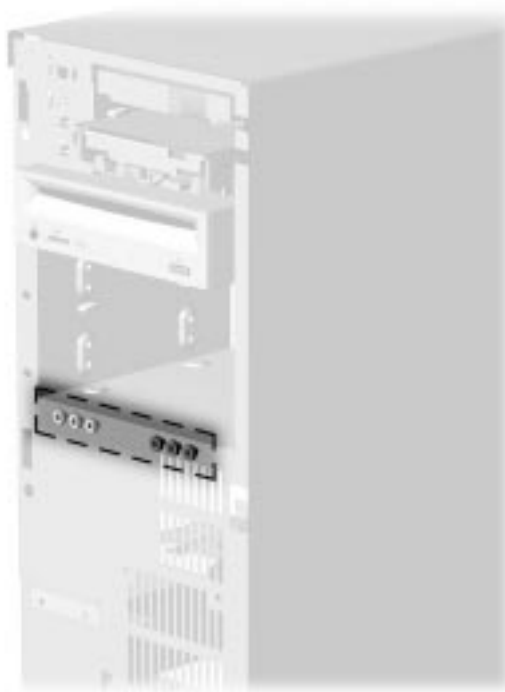


Installing a 2-MB SGRAM Module onto the Pentium II System Board

Installing an Additional Drive

When installing a new drive you should use either the high hat screws provided in the option kit or the extra U.S. and metric screws stored in the front of the computer chassis for this purpose. The same screws that are used as guide screws are used as retainer screws to secure the drive in the drive bay. Select the appropriate screws for the application.

- ✎ Metric screws have a black finish while U.S. screws have a silver finish.



Locating the Mounting Screws

- ✎ Compaq strongly recommends that only an authorized service provider replace your primary hard drive.

You must run Computer Setup after installing an additional diskette drive. Refer to Chapter 3, “Using Compaq Software,” for instructions.

Using the Cable-Select Feature with Ultra ATA Devices

Optional drives are available from Compaq in kits that include a special drive cable. The configuration of the drives employs a cable-select feature that identifies the drives as device 0 (primary drive) or device 1 (secondary drive). The system board determines which drive is device 0 or device 1, based on the way the drives are connected to the special drive cable. The device 0 drive is the drive connected to the short segment of the drive cable (or that connector closest to the system board); the device 1 drive is the drive connected to the long segment of the drive cable. The device 0 and device 1 identities are used by the system to distinguish between the two drives.

The installation requires no jumper setting changes on the existing or optional drives. All Compaq drives have the jumpers preset for cable-select installation.

- ✎ If installing a second device on the primary controller, you must use an 80-conductor Ultra ATA cable for optimal performance. This cable is available as a Compaq option.

Installing a 5.25-Inch Drive into a 5.25-Inch Drive Bay

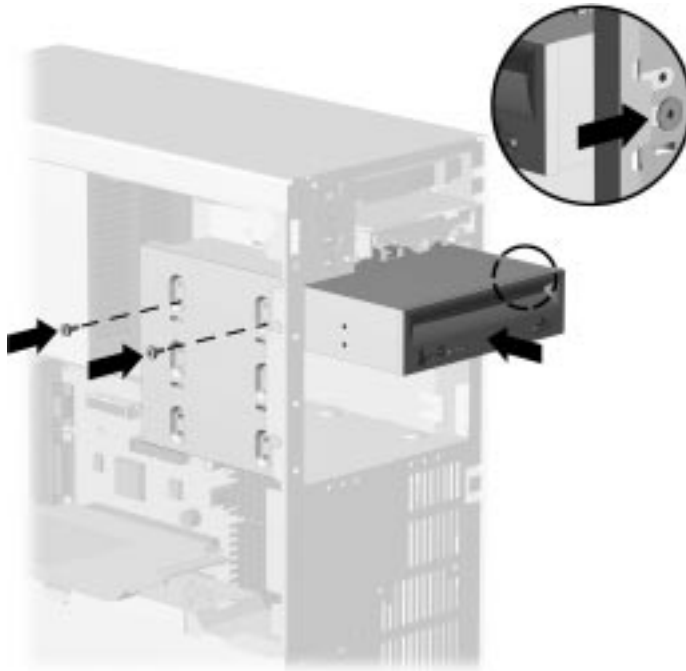
1. Install one high hat screw on the right side of the front of the drive. This acts as a guide screw to align the bracket in the drive bay.



Inserting the High Hat Screw on the Right Side of the Drive

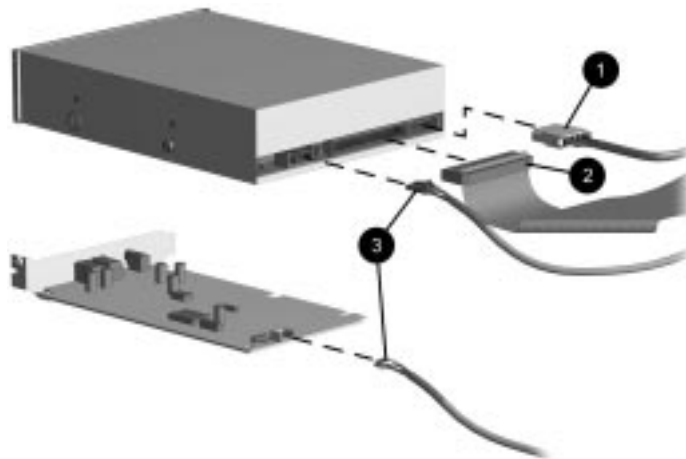
2. Install the drive assembly into the drive bay. Ensure that the guide screw fits into the tab on the side of the bay.

3. Secure the drive with two high hat screws.



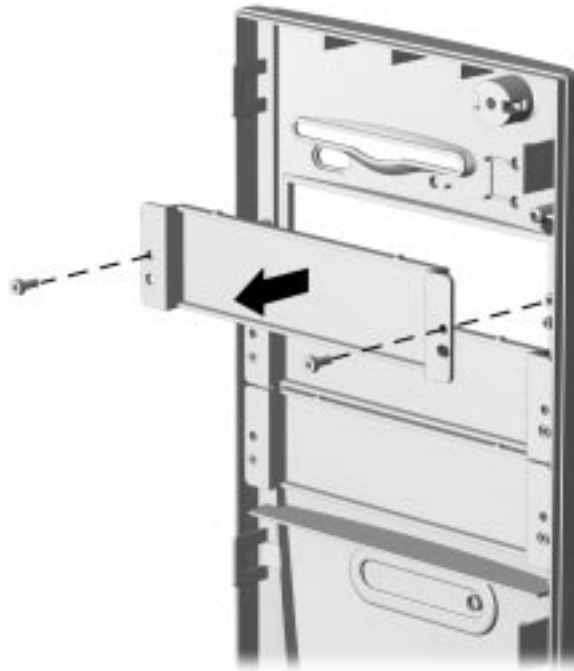
Installing the Drive and Securing It with the High Hat Screws

4. Connect the drive power cable ❶, the signal cable ❷ and, if you are connecting a CD-ROM drive, the audio cable ❸.



Connecting the Cables to the CD-ROM Drive

5. Remove the bezel blank from the front bezel if necessary. To do this, remove the two retaining screws and pull the bezel blank away from the front bezel.



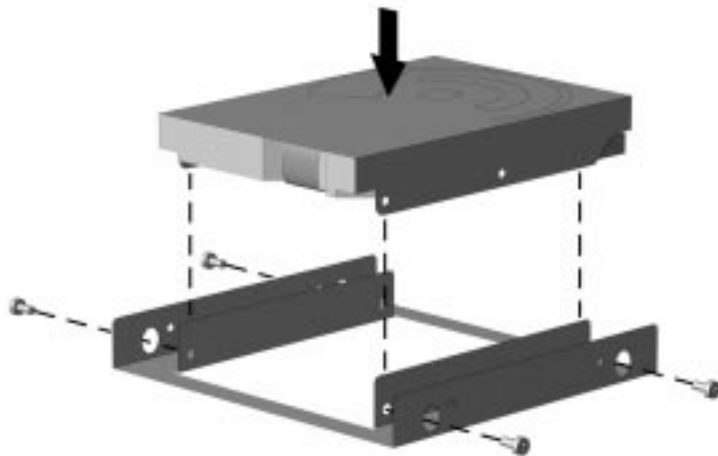
Removing the Bezel Blank

Installing a 3.5-Inch Drive into a 5.25-Inch Drive Bay

If you are installing a 3.5-inch diskette drive in a 5.25-inch drive bay, use bracket spare part number 243230-001 which comes with a preinstalled bezel. This bracket is available from your Compaq dealer.

If you are installing a 3.5-inch hard drive in a 5.25-inch drive bay, use bracket spare part number 243231-001. This bracket is available from your Compaq dealer.

1. Place the 3.5-inch drive into the bracket.
2. Insert two screws into the two bracket holes on each side of the bracket to secure the drive.



Placing the Hard Drive and Inserting the Mounting Bracket Retaining Screws



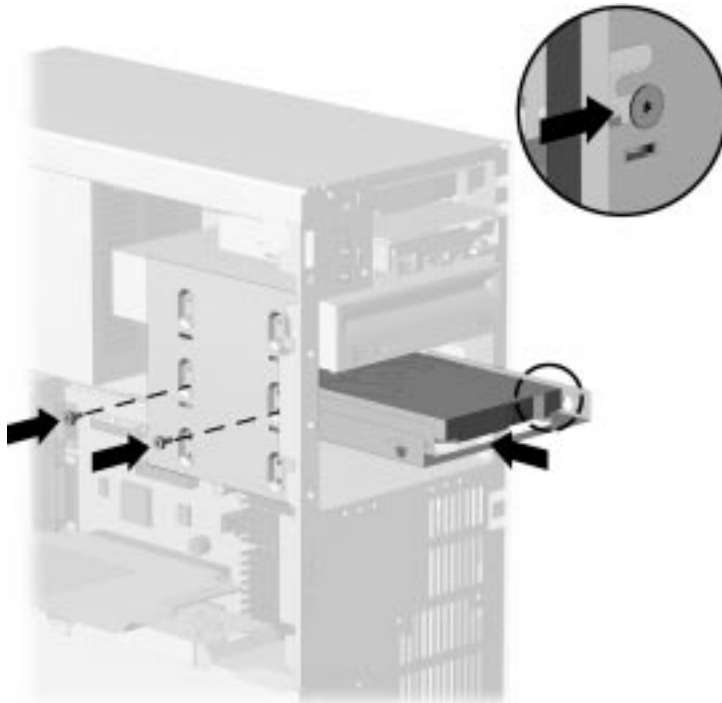
CAUTION: Use only 3/16-inch or 5-mm long screws as guide screws. Longer screws can damage the internal components of the drive.

3. Install one high hat screw on the right side of the bracket towards the front. This acts as a guide screw to align the bracket in the drive bay.



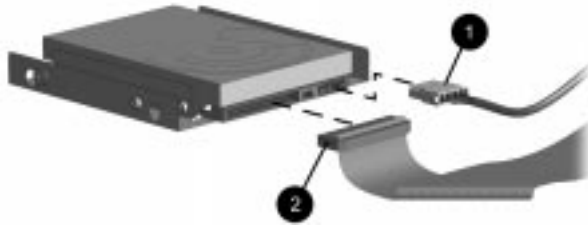
Inserting the High Hat Screw on the Right Side of the Bracket

4. Install the drive assembly into the drive bay. Ensure that the guide screw fits into the tab on the side of the bay.
5. Secure the drive with two high hat screws.



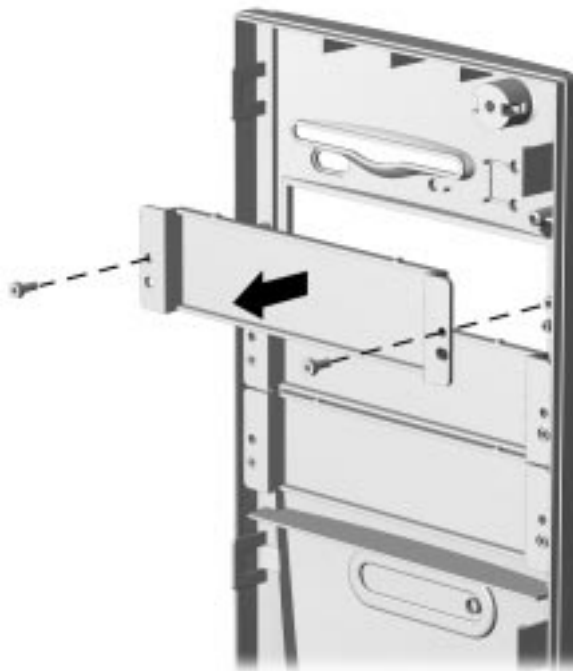
Installing the Drive and Securing It with the High Hat Screws

6. Connect the drive power cable ❶ and the signal cable ❷.



Connecting the Cables to the Drive

7. Remove the bezel blank from the front bezel if necessary. To do this, remove the two retaining screws and pull the bezel blank away from the front bezel.

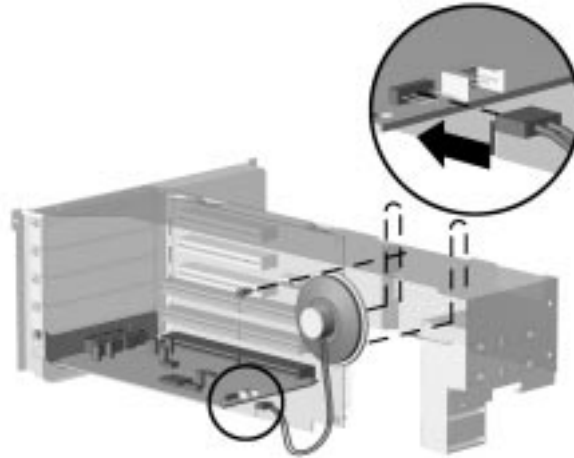


Removing the Bezel Blank

Installing an Internal Speaker

To install an internal speaker, complete the following steps:

1. Remove the riser brace.
2. Slide the speaker into place between the retaining tabs on the riser brace and secure it with the speaker with one retaining screw.



Installing the Speaker and Connecting the Speaker Cable to the Audio Board

3. Connect the speaker to the audio board.
4. Replace the riser brace.

chapter 7

TROUBLESHOOTING

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

Consult Appendix C, "Error Messages," for an explanation of specific messages that may display during the Power-On Self-Test (POST) at startup.

Helpful Hints

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

- Check that the computer and monitor are plugged into a working electrical outlet.
- Check to see that the computer 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 should be operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Run Computer Setup after installing a non-Plug and Play expansion board or other option (such as a diskette drive).
- Check that all jumper settings have been set correctly.

- Be sure that all the needed device drivers have been installed (for example, if you are using a printer, you need a printer driver).
- Be sure that you have made all necessary changes to the *CONFIG.SYS* file.
- Take out all diskettes from the diskette drives when you turn on your system.

Messages on the Screen

Many times a message or prompt is displayed on the screen. This message does not necessarily mean that an error condition exists. It may simply be the system prompt or an information message.

Some examples of information messages follow:

- A number indicating the amount of memory in your system.
- A> or A:—This is a prompt indicating that you are working from the diskette drive (drive A).
- C> or C:—This is a prompt indicating that you are working from the hard drive (drive C).

Solving Minor Problems

You may be able to easily resolve the minor problems described in this section. If a problem persists and you are unable to resolve it yourself, contact your Compaq authorized dealer or reseller.

Solving Power Problems

Problem	Cause	Solution
Computer won't turn on	Computer 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 computer and the external source are plugged in properly.
	A PCI or ISA card that has been installed is defective.	Remove any adapter card that was just installed.
Computer 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 H, "Installing a New Battery," for installation instructions, or contact your Compaq authorized dealer or reseller for RTC battery replacement.

Solving Disk Problems

Common causes and solutions for disk problems are listed in the following table:

- ✍ You must run Computer Setup after installing an additional diskette drive. Refer to Chapter 3, “Using Compaq Software,” for instructions.

Solving Disk Problems		
Problem	Cause	Solution
Diskette drive light stays on	Diskette is damaged.	In Windows 95, run Scan Disk. Click Start → Programs → Accessories → System Tools → ScanDisk. In Windows NT, run Scan Disk. Click Start → Programs → DiskTools → ScanDisk.
	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.
	Drive cable is not properly connected.	Reconnect drive cable.
	Diskette drive cannot write to a diskette	Diskette is not formatted.
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.

Continued

Solving Disk Problems *Continued*

Problem	Cause	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. In Windows 95, run Scan Disk. At the Start menu, highlight Programs, select Accessories, then select System Tools.
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 nonsystem diskette.	Remove the diskette from the drive.

Solving Display Problems

If you encounter display problems, refer to the documentation that came with your monitor and to the common causes and solutions listed in the following table:

Solving Display Problems

Problem	Cause	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 computer and to the electrical outlet.
	The energy saver feature has been enabled.	Press any key or click the mouse button and, if it is set, type your password.
	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.
	System ROM is bad; system is running in Failsafe Boot Block mode (indicated by one long beep and three short beeps).	Reflash the ROM using a ROMPaq diskette. Refer to the Failsafe Boot Block ROM section of Chapter 3, "Using Compaq Software," for more information.

Continued

Solving Display Problems *Continued*

Problem	Cause	Solution
	You are using a fixed-sync monitor and it won't sync at the resolution chosen.	Be sure that the monitor can accept the same sweep rate as the resolution chosen.
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.
Garbled characters on the screen mixed with text	The <i>ANSI.SYS</i> driver is not in the <i>CONFIG.SYS</i> file.	You may need to add the <i>ANSI.SYS</i> driver to the <i>CONFIG.SYS</i> file. Add the following line to the file: DEVICE=C:\ANSI.SYS
Video colors are wrong	This indicates that either the cabling or monitor impedance is incorrect.	<ol style="list-style-type: none">1. If you are using BNC cables, be sure 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.
Dim characters	The brightness and contrast controls are not set properly.	Adjust the monitor brightness and contrast controls.
	Cables are not properly connected.	Check that the video cable is securely connected to the video card and the monitor.
	The RGB switch on the back of the monitor is incorrectly set.	Set the RGB switch (and sync options, if this option is available) to 75 ohms, with the sync set to "external." Refer to the documentation included with the monitor.
Blurry display or requested resolution cannot be set	If the graphics controller was upgraded, the correct display drivers may not be loaded.	Install the display drivers on the diskette included in the upgrade kit.

Continued

Solving Display Problems *Continued*

Problem	Cause	Solution
Screen goes blank	You may have a screen blanking utility installed or energy saver features are enabled.	Press any key or type password.
The picture is broken up, or it rolls, jitters, or blinks	The monitor connections may be incomplete or the monitor may be incorrectly adjusted.	<ol style="list-style-type: none">1. Be sure the monitor cable is securely connected to the computer.2. In a 2-monitor system or if another monitor is in close proximity, be sure the monitors are not interfering with each other's electromagnetic field by moving them apart.
Monitor overheats	There is not enough ventilation space for proper airflow.	Leave at least 3 inches (7.6 cm) of ventilation space. Be sure there is nothing sitting on top of the monitor obstructing the air flow.
Cursor will not move using the arrow keys on the keypad	The Num Lock key may be on.	Press the Num Lock key. The light should not be on if you want to use the arrow keys.

Solving Printer Problems

If you encounter printer problems, refer to the documentation that came with your printer and to the common causes and solutions listed in the following table:


Solving Printer Problems		
Problem	Cause	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 off line	The printer may be out of paper.	Check the paper tray and refill it if it is empty. Select online.

Solving Hardware Installation Problems

You may need to reconfigure the computer when you add or remove hardware. If you install a Plug and Play device, Windows automatically recognizes the device and configures the computer. If you install a non-Plug and Play device, you must reconfigure the computer after completing installation of the new hardware.

In Windows 95, double-click the Add New Hardware icon in the Control Panel and follow the instructions that appear on the screen. In Windows NT, use the Compaq Computer Setup utility. Refer to Chapter 3, "Using Compaq Utilities," for instructions.

Solving Hardware Installation Problems

Problem	Cause	Solution
A new device is not recognized as part of the computer system	The Computer Setup utility has not been run to configure the new device.	Run the Computer Setup utility.
	 You must run Computer Setup after installing an additional diskette drive. Refer to Chapter 3, "Using Compaq Software," for instructions.	
	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 computer, turn on the external device, then turn on the computer to integrate the device with the computer system.

Solving Memory Problems

If you encounter memory problems, some common causes and solutions are listed in the following table:

Solving Memory Problems		
Problem	Cause	Solution
System won't boot or does not function properly after installing additional memory modules.	Memory module is not the correct type or speed grade for the system.	Replace module with an industry-standard 168-pin synchronous DRAM DIMM that meets the following criteria: <ul style="list-style-type: none">■ Rated for 66MHz or faster operation.■ Has an access time (CLK to Q) of 9nS or less.■ Supports CAS latency 2 or 3 operation.
	Out of Memory error	Memory configuration may not be set up correctly.
	You have run out of memory to run the application.	Check the application documentation to determine the memory 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 that only synchronous dynamic random access memory (SDRAM) DIMM modules are used..
Insufficient memory error during operation	Too many Terminate and Stay Resident programs (TSRs) are installed.	Delete any TSRs that you do not need.
	You have run out of memory for your application.	Check the memory requirements for the application or add more memory to the computer.

Solving CD-ROM Problems

Solving CD-ROM Problems		
Problem	Cause	Solution
System will not boot from CD-ROM drive	The CD-ROM boot is not enabled through the Computer Setup utility.	Run the Computer Setup utility and set the drive priorities.
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 that came with the CD-ROM.

Solving Software Problems

Most software problems occur as a result of the following:

- The application was not installed correctly.
- Memory was not allocated correctly.
- There is a conflict between applications.

Troubleshooting Using Compaq Intelligent Manageability Features

The Local Alert Pop-Up Dialog notifies you of an impending or actual hardware failure. If the computer is connected to a network and the Compaq Insight Management Desktop Agents are installed and configured, an SNMP trap (message) is sent to the specified SNMP-compliant management application.

The Local Alert Pop-Up Dialog also tells you the steps you need to take prior to a hardware failure to avoid loss of data and damage to the computer. The system administrator can create a customized action message that might include contact telephone or pager numbers.

To close the Local Alert Pop-Up Dialog, click the Close button. To retrieve fault information after closing the dialog, run Compaq Insight Personal Edition.

For more detailed information, refer to the online *Intelligent Manageability Guide*.

Contacting Compaq Customer Support

For help and service outside of the U.S. and Canada, contact your Compaq authorized reseller or dealer. For a list of phone numbers, see the “Worldwide Telephone Numbers” table.

- ✎ If you take your computer to a Compaq authorized reseller, dealer, or service provider for service, remember to provide the setup and power-on passwords, if they are set.

Worldwide Telephone Numbers

Locate your geographical area from the following table and use one of the telephone numbers for Compaq assistance.

General Information Numbers—Product information, technical assistance, and the location of your nearest Compaq authorized dealer, reseller, or service provider.

Technical Support Numbers—Hardware technical support in analyzing system configuration and diagnostic problems or troubleshooting.

Customer Support Numbers—Information on service and support programs including warranty, product catalogs, and white papers.

PaqFax Numbers—Automatic facsimile response system for technical and product specific information that is transmitted to any fax machine. PaqFax is available 24 hours a day.

- ✎ Telephone numbers are subject to change without notice.

Worldwide Telephone Numbers

Location	Country Code	Telephone Number
Argentina		
General Information	+54	-1-796-1616
Technical Support	+54	-1-796-1717
Australia		
General Information		61-2-9911-1999
Technical Support		61-2-9911-1955
PaqFax		61-2-9911-1982
Austria		
General Information*		0222/8 78-16 16
Technical Support*		0222/8 78-16-16
Ordering Backup Software	+31	-55-38-43-39
Belgium/Luxemburg		
General Information*	Bel	0903/99.036(45BF/min)
	Lux	089/89.232 (12.5LF/min)
Compaq Care Center*	Bel	0903/99.036(45BF/min)
	Lux	089/89.232 (12.5LF/min)
Compaq Care Center Fax	+32	-2-725-22-13
General Fax	+32	-2-725-22-13
FaxPaq	+32	-2-716-96-96
BBS	+32	-2-716-95-92
Ordering Backup Software	+32	-2-716-96-78
Ordering Backup Software Fax	+32	-2-716-96-79
Brazil		
General Information	+55	-11-246-7866
* Toll-free, domestic telephone number		

continued

Worldwide Telephone Numbers *continued*

Location	Country Code	Telephone Number
Canada		
General Information		905-707-1715
Technical Support		1-800-OKCOMPAQ (1-800-652-6672)
Customer Support		1-800-263-5868
Ordering Backup Software		1-800-952-7689
Battery Pack Recycling		1-800-263-5868
Caribbean		
General Information		1-281-514-4220
Technical Support		1-281-518-2200
Chile		
General Information	+56	-2-274-1911
Technical Support	+56	-2-274-3007
China		
General Information		(86) 10 68313399
Technical support		(86) 10 68346721
BBS		(86) 10 68346709
PaqFax		(86) 10 68346724
Compaq Verification Center		(86) 10 68346739
Compaq Management Service Center		(86) 10 68313399-5873
Colombia		
General Information	+57	-1-312-0201
Technical Support	+57	-1-345-0266
Czech Republic		
General Information	+420	-2-232-8772
Technical Support	+420	-2-232-8772
Denmark		
General Information	+45	-45-90-45-90
Technical Support	+45	-45-90-45-45

continued

Worldwide Telephone Numbers *continued*

Location	Country Code	Telephone Number
Finland		
General Information	+358	-0-615-599
Technical Support*		9800-206-720
QuickLine (BBS)	+358	-0-6155 9870
France		
General Information	+33	-1-41-33-41-33
Technical Support	+33	-1-41-33-44-55
Germany		
General Information*		0180/3 22 12 21
General Information Fax*		0180/3 22 12 20
All Products Fax*		0180/5 21 21 17
Menu Selection*		0190/88 80 80 (0,12 DM/2 sec. or 3,60 DM/min.)
Presario Hotline*		0190/88 80 81 (0,12 DM/2 sec. or 3,60 DM/min.)
Notebook Hotline*		0190/88 80 82 (0,12 DM/2 sec. or 3,60 DM/min.)
Desktop Hotline*		0190/88 80 83 (0,12 DM/2 sec. or 3,60 DM/min.)
Server Hotline*		0190/88 80 84 (0,12 DM/2 sec. or 3,60 DM/min.)
QuickLine*		0180/5 21 21 18 (0,48 DM/min.)
FaxPaq*		0180/5 21 21 19 (0,48 DM/min.)
Hong Kong		
General Information		852-28681382
Technical Support		852-90116633
PaqFax		852-28671648
Hungary		
General Information	+36	-1-457-3600
Technical Support	+36	-1-457-3682
* Toll-free, domestic telephone number		

continued

Worldwide Telephone Numbers *continued*

Location	Country Code	Telephone Number
India		
General Information		91-80-559-6023
PaqFax		91-80-559-8989
BBS		91-80-559-8900
Israel		
General Information	+972	-3-636-3444
Fax	+972	-3-639-6601
Technical Support	+49	-89-9933-2891
Italy		
General Information	+39	-2-57-59-03-00
Technical Support	+39	-2-57-59-03-00
BBS	+39	-2-89-200-222
Ordering Backup Software	+39	-1-67-859-030
Japan		
General Information*		0120-101-589
Technical Support*		0120-101-589
Presario*		0120-099-589
Windows 95 Support*		0120-505-589
Ordering Backup Software*		0120-250-589
FaxStation		81-3-5402-0991
Korea		
General Information		82-2-3470-07001
Technical Support		82-2-523-3575 82-082-902-77774
Malaysia		
General Information		603-717-1188
Technical Support		603-718-1636
* Toll-free, domestic telephone number		

continued

Worldwide Telephone Numbers *continued*

Location	Country Code	Telephone Number
Mexico		
General Information	+52	-5-229-7900
Technical Support	+52	-5-229-7910
PaqFax	+52	-5-229-7920
Netherlands		
General Information		0182-565805
Presario Customer Support*		06-32023091 (Dfl. 0.75/min)
Presario Fax*		06-8212391 (Dfl. 0.40/min)
Customer Support for all other products*		06-91681616 (Dfl. 0.75/min)
Fax for all other products*		06-8991116 (Dfl. 0.40/min)
QuickLine Bulletin Board		0182-572366
New Zealand		
General Information		64-9-307-3969
Norway		
General Information	+47	-22-07-20-20
Technical Support	+47	-22-07-20-20
Poland		
General Information	+48	-22-630-3535
Technical Support	+48	-22-630-3535
Portugal		
General Information	+351	-1-412-8400
Technical Support	+351	-1-412-8460
Russia		
General Information	+7	-095-967-1700
Technical Support	+7	-095-967-1700

* Toll-free, domestic telephone number

continued

Worldwide Telephone Numbers *continued*

Location	Country Code	Telephone Number
Singapore		
General Information		65-753-6688
Customer Support Center		65-750-3030
PaqFax		65-750-4514
South Africa		
General Information		27-11-728-6999
Technical Support		27-11-728-6999
Spain		
General Information	+34	-902-10-14-14
Technical Support	+34	-1-640-1302
Sweden		
General Information	+46	-8-703 5200
Sales Information	+46	-8-703 52 40 Tone 1
Technical support, key accounts	+46	-8-703 52 40 Tone 2
Technical support, charged calls*		0729-36 20 00
FaqPax (hämtfax)	+46	-8-703 52 25
QuickLine (BBS)	+46	-8-703 52 20
Switzerland		
InfoLine		0844 844 111
Presario Hotline*		157 64 00 (SFr. 3.13/min.)
Equipment Hotline (Desktop and Notebooks)		01/838 22 22 (German) 01/838 22 23 (French)
Systems Hotline (Server and Internetworking Products)		01/838 22 22 (German) 01/838 22 23 (French)
QuickLine Bulletin Board		01/8 38 24 21
Ordering Backup Software		0800 556 206

* Toll-free, domestic telephone number

continued

Worldwide Telephone Numbers *continued*

Location	Country Code	Telephone Number
Taiwan		
General Information		886-2-7351000
Technical Support		886-2-3761170
Email Address		taiwan@netgate.compaq.com
Thailand		
General Information		62-2-679-6222
United Arab Emirates (Dubai)		
General Information	+97	14 -818100
United Kingdom		
General Information		0990-134456
FaxPaq		0181-332-3550
QuickLine Bulletin Board		0181-332-9499
United States		
General Information		1-281-514-1518
Technical Support		1-800-OKCOMPAQ (1-800-652-6672)
PaqFax		1-800-345-1518
Download Facility (modem access only)		1-281-518-1418
Ordering Backup Software		1-800-952-7689
Battery Pack Recycling		1-800-524-9859
Venezuela		
General Information	+58	-2-953-8844

appendix **A**

AGENCY REGULATORY NOTICES

Federal Communications Commission Notice

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment 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.

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 to maintain compliance with FCC Rules and Regulations.

Mouse

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.

Declaration of Conformity—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.

Canadian Notice

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

Avis Canadien

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

German Ergonomics Notice

The Compaq Deskpro 2000 Series of Personal Computers, when combined with Compaq brand keyboards and monitors that bear the "GS" approval mark, meet the requirements of ZH 1/618 (German Safety Regulations for Display Work Places in the Office Sector). The installation guides included with the monitors provide configuration information.

EPA Energy Star Compliance

Compaq Deskpro 2000 Series of Personal Computers marked with the Energy Star Logo are compliant with the U.S. Environmental Protection Agency (EPA)'s Energy Star Computers Program 2.0. The EPA Energy Star Logo does not imply endorsement by the EPA. As an Energy Star Partner, Compaq Computer Corporation has determined that the products marked with the Energy Star Logo meet the Energy Star guidelines for energy efficiency.

The Energy Star Computers Program was created by the EPA to promote energy efficiency and reduce air pollution through more energy-efficient equipment in homes, offices, and factories. Compaq products achieve this by reducing the power consumption when not being used. Instructions for using the energy saving features of your computer are located in the power management section of this guide.

The power management feature of your computer is supported when used with the following operating systems: DOS, Windows, Windows NT, and Windows 95.

The power management feature of your computer is compatible with network environments. This means, the user will not be disconnected from the network during the low-power operating state. The following network environments are supported: NetWare, Windows 95, Windows NT, Banyan.

The power management feature, when used in conjunction with an external Energy Star compliant monitor, will support the power down features of the monitor. The power management feature allows an external monitor to go into low-power mode when the screen save timeout occurs. To take advantage of this energy savings, the monitor power management feature has been preset to power down the monitor after 15 minutes of system inactivity. Refer to the Power Management or Energy Saver section of this guide for instructions on modifying or disabling this feature.



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

European 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:

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

U.S. REGULATIONS CLASS 1 LASER PRODUCT

Laser Safety

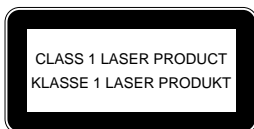
All Compaq systems equipped with CD-ROM drives comply with appropriate safety standard including IEC 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. It does not emit hazardous light; the beam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

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.



WARNING: Use of controls, adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.



This system is classified as a CLASS 1 LASER PRODUCT. This label is located on the outside of your system. A similar label also appears on the internal CD-ROM installed in your system.

LASER INFO

Laser Type:	Semiconductor GaAIAs
Wave Length:	780 +/- 35 nm
Divergence Angle:	53.5 Degree +/- 1.5 Degree
Output Power:	Less than 0.2mW or 10,869 $W \cdot m^{-2} sr^{-1}$
Polarization:	Circular
Numerical Aperture:	0.45 +/- 0.04

Only authorized technicians trained by Compaq should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.

Japanese Notice

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。

Battery Replacement Notice



WARNING: Your computer is provided with a 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. Do not attempt to recharge the battery, disassemble it, immerse it in water, or dispose of it in fire. Refer to Appendix H for replacement procedures.

For more information about real-time clock battery replacement or proper disposal, contact your Compaq authorized reseller or service provider.

Power Cord Set Requirements

The voltage select switch feature on the computer permits it to operate from any line voltage between 100 to 120 volts AC or between 200 to 240 volts AC.

The power cord set (flexible cord or wall plug) received with the computer meets the requirements for use in the country where you purchased the equipment.

Power cord sets must meet the requirements of the country where you use the computer. For more information on power cord set requirements, contact your Compaq authorized reseller or service provider.

General Requirements

The requirements listed below are applicable to all countries:

1. The length of the power cord set must be at least 5.00 feet (1.5 m) and a maximum of 9.75 feet (3.0 m).
2. All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord set will be used.
3. The power cord set must have a minimum current capacity of 10A and a nominal voltage rating of 125 or 250 volts AC, as required by each country's power system.
4. The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector, for mating with appliance inlet on the rear of the unit.

Country-Specific Requirements

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

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	FIMKO	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. The flexible cord must be <HAR> Type HO5VV-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. The flexible cord must be Type SJT or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A 250V) configuration.

3. The appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 0.75mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (15A, 125V) configuration.

U.S. and Foreign Patents

Models of this product operating at 100 MHz or less are covered by the following U.S. Patents:

4,574,279	5,125,088
5,381,530	5,101,497
5,538,947	

Models operating at greater than 100 Megahertz are covered by the following U.S. Patents:

4,574,279	5,125,088
5,101,497	5,538,947

Other U.S. and foreign patents may apply.

appendix **B**

SPECIFICATIONS

This appendix provides physical and performance specifications for the computer, keyboard, and mass storage devices.


Desktop System Specifications		
	U. S.	Metric
Dimensions		
Height	5.00 in	12.70 cm
Width	17.71 in	44.98 cm
Length	16.72 in	42.47 cm
Weight	23.7 lb	10.74 kg
Power Supply		
Operating Voltage Range	90-132 VAC	180-264 VAC
Rated Voltage Range	100-120 VAC	200-240 VAC
Rated Line Frequency	50- 60 Hz	50-60 Hz
Rated Input Current (maximum)	5.5 A	3 A
Power Output	145 W	145 W
Environmental Requirements		
Temperature		
Operating	50° to 95°F	10° to 35°C
Shipping	-4° to 140°F	-20° to 60°C
Humidity (noncondensing)		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum Altitude (unpressurized)		
Operating	10,000 ft	3048 m
Nonoperating	30,000 ft	9144 m
Heat Dissipation (nominal)	770 Btu/hr	3.23 kg-cal/min

Minitower System Specifications		
	U. S.	Metric
Dimensions		
Height	18.49 in	46.96 cm
Width	7.31 in	18.57 cm
Depth	16.89 in	42.90 cm
Weight	34.0 lb	15.40 kg
Power Supply		
Operating Voltage Range	90- 132 VAC	180 -264 VAC
Rated Voltage Range	100-120 VAC	200-240 VAC
Rated Line Frequency	50- 60 Hz	50 - 60 Hz
Rated Input Current (maximum)	5.5 A	3 A
Power Output	185 W	185 W
Environmental Requirements		
Temperature		
Operating	50° to 95°F	10° to 35°C
Shipping	-4° to 140°F	-20° to 60°C
Humidity (noncondensing)		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum Altitude (unpressurized)		
Operating	10,000 ft	3048 m
Nonoperating	30,000 ft	9144 m
Heat Dissipation (nominal)	1060 Btu/hr	4.45 kg-cal/min

Diskette Drive	
	1.44 MB
Size and Capacity	
Size (in)	3.5
High Density (MB)	1.44
Low Density (KB)	720
Light	Green
Height	1 Inch
Bytes per Sector	512
Sectors per Track	
High Density	18
Low Density	9
Tracks per Side	
High Density	80
Low Density	80
Read/Write Heads	2
Average Seek Time (Mb/s)	
Track-to-Track (high/low)	3/6
Average (high/low)	94/173
Latency Average (ms)	100

EIDE and Ultra ATA Hard Drives		
	2.1-GB	3.2-GB
Formatted Capacity		
Physical (MB)	2111.86	3209.0
Logical (MB)	2111.86	3209.0
Drive Type		
	65	65
Transfer Rate		
Interface (MBytes/sec)	16.7 *	16.67 *
Typical Seek Time (including settling)		
Single Track (ms)	2	2
Average (ms)	12	12
Full Stroke (ms)	22	22
Disk Rotational Speed (rpm)		
	4500	4500
Cylinders		
Logical	4092	6218
Data Heads		
Logical	16	16
Sectors per Track		
Logical	63	63
Buffer Size (KB)		
	128	128

* Up to 33 Mbytes/second on Ultra ATA drives.

 Because the Compaq Utilities are installed on a hidden partition on the hard drive, hard drive capacity will appear reduced when displayed by the computer.

16X Max CD-ROM Drive

Applicable Disc

CD-ROM mode 1, mode 2
Mixed mode (audio and data combined)
CD-DA
Photo CD (single and multi-session)
CDi ready
CD-XA ready

Disc Diameter

12 cm, 8 cm

Capacity

550 MB (Mode 1, 12 cm)
640 MB (Mode 2, 12 cm)
180 MB (8 cm)

Center Hole

15 mm diameter

Disc Thickness

1.2 mm

Track Pitch

1.6 μ m

Laser Beam Divergence

53.5 degrees +/- 1.5 degrees

Output Power

0.14 mW

Type

Semiconductor laser GaAIAs

Wave Length

790 nm +/- 25 nm

Access Time

Random

100 ms

Full Stroke

200 ms

Audio Output Level

0.7V (RMS) (typical)

Cache Buffer

128 KB

Data Transfer Rate

Sustained

3000 KB/sec

Burst

4.0 MB/sec

24X Max CD-ROM Drive

Applicable Disc

CD-ROM mode 1, mode 2
Mixed mode (audio and data combined)
CD-DA
Photo CD (single and multi-session)
CDi ready
CD-XA ready

Disc Diameter

12 cm, 8 cm

Capacity

550 MB (Mode 1, 12 cm)
640 MB (Mode 2, 12 cm)
180 MB (8 cm)

Center Hole

15 mm diameter

Disc Thickness

1.2 mm

Track Pitch

1.6 μ m

Laser Beam Divergence

53.5 degrees +/- 1.5 degrees

Output Power

0.14 mW

Type

Semiconductor laser GaAIAs

Wave Length

790 nm +/- 25 nm

Access Time

Random

85 ms

Full Stroke

150 ms

Audio Output Level

0.7V (RMS) (typical)

Cache Buffer

128 KB

Data Transfer Rate

Sustained

1200 to 2400 KB/sec

Burst

4.0 MB/sec

Audio System

Sampling rate 4 KHz to 44.1 KHz (adjustable)

Maximum Voltage (rms)

Microphone-in 0.030
Line-in 0.7
Line-out 0.7

Output Power

Headphone-out 60 mW
Internal Speaker 1 Watt

Impedance (nominal)

Microphone-in 30-K ohm
Headphone-out 16 ohms (min.)
Line-in 20-K ohms
Line-out 20-K ohms
Internal speaker 8 ohms

Speaker

Frequency response 450 Hz to 4000 Hz

Data Types

alaw 8-/16-bit
μlaw 8-/16-bit
mono/stereo 16-bit

Compaq Enhanced Keyboard

U.S.

Metric

Dimensions

Height 1.3 in 3.3 cm
Width 18.3 in 46.5 cm
Depth 6.35 in 16.1 cm

Weight

3.0 lb 1.4 kg

2-Button Mouse

	U.S.	Metric
Dimensions		
Height	1.34 in	3.4 cm
Length	4.45 in	11.3 cm
Width	2.36 in	6.0 cm
Weight		
	4.59 oz	130 g
Base Resolution		
	400 dpi	400 dpi
Tracking Speed (maximum)		
	10 in/sec	25 cm/sec
Temperature		
Operating	32°F to 104°F	0°C to 40°C
Storage	-4°F to 140°F	-20°C to 60°C
Lifetime		
Mechanical	Exceeds 300 miles	Exceeds 483 km
Switch	Exceeds 1 million operations	Exceeds 1 million operations
Relative Humidity		
	10% to 90%, noncondensing	10% to 90%, noncondensing
ESD		
	No soft errors through 10 kV; No hard errors through 15 kV; specific performance depends on host system	

Supported Graphics Resolutions

S3 Trio64V2/GX Enhanced 64-bit Graphics Controller

Resolution	1-MB SGRAM Colors Supported	2-MB SGRAM Colors Supported
1280 x 1024	NA	256
1024 x 768	256	65K
800 x 600	65K	16.7M
640 x 480	16.7M	16.7M

Matrox MGA-1064 SG Graphics Accelerator

Resolution	2-MB SGRAM Colors Supported	4-MB SGRAM Colors Supported
1600 x 1200	256	65K
1280 x 1024	256	16.7M
1152 x 864	65K	16.7M
1024 x 768	65K	16.7M
800 x 600	16.7M	16.7M

appendix C

ERROR MESSAGES

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

Power-On Self-Test Messages			
Message	Beeps*	Probable Cause	Recommended Action
101-ROM Error	1L, 1S	System ROM checksum.	<ol style="list-style-type: none">1. Inspect the ROM placement.2. Verify the correct ROM.3. Replace the ROM.
101-Option ROM Checksum Error	1L, 1S	Option ROM checksum.	<ol style="list-style-type: none">1. Inspect the ROM placement.2. Verify the correct ROM.3. Replace the ROM.
102-System Board Failure	None	DMA, timers, etc.	Replace the system board.
162-System Options Not Set	2S	Configuration incorrect.	Run Computer Setup or Windows NT or Windows 95 utilities.
163-Time & Date Not Set	2S	Invalid time or date in configuration memory	Set the date and time under Control Panel.
164-Memory Size Error	2S	Memory configuration incorrect.	Run Computer Setup or Windows NT or Windows 95 utilities.
201-Memory Error	None	RAM failure.	<ol style="list-style-type: none">1. Run Computer Setup or Windows NT or Windows 95 utilities.2. Replace the memory module(s) (if any).3. Replace system board.

* L = Long, S = Short *continued*

Power-On Self-Test Messages *Continued*

Message	Beeps*	Probable Cause	Recommended Action
203-Memory Address Error	None	RAM failure.	<ol style="list-style-type: none">1. Run Computer Setup or Windows NT or Windows 95 utilities.2. Replace the memory module(s) (if any).3. Replace system board.
205-Memory Error	None	Cache memory error (processor cache).	Run the Configuration and Diagnostics utilities.
206-Secondary cache controller failure	None	Cache memory controller or RAM failure.	Run the Configuration and Diagnostics utilities.
207-ECC corrected single bit error	2S	Single Bit ECC error	Replace DIMM if error persists.
213-Incompatible DIMM Module in DIMM Socket(s) X, X, ...	2S	A DIMM module in DIMM socket identified in the error message is missing critical SPD information, or is incompatible with the chipset	Replace the DIMM with a module conforming to the SPD standard. See Adding System Memory in Chapters 5, "Upgrading the Desktop Computer" and Chapter 6, "Upgrading the Minitower Computer."
301-Keyboard Error	None	Keyboard failure.	Reconnect keyboard with computer turned off.
301-Keyboard Error or Test Fixture Installed	None	Keyboard failure.	Replace the keyboard.
303-Keyboard Controller Error	None	I/O board keyboard controller.	<ol style="list-style-type: none">1. Reconnect keyboard with computer turned off.2. Replace the system board.
304-Keyboard or System Unit Error	None	Keyboard failure.	<ol style="list-style-type: none">1. Replace the keyboard.2. Replace the system board.
402-Monochrome Adapter Failure	1L, 2S	Monochrome display controller.	Replace the monochrome display controller.

* L = Long, S = Short

continued

Power-On Self-Test Messages *Continued*

Message	Beeps*	Probable Cause	Recommended Action
404-Parallel Port Address Conflict Detected	2S	Both external and internal ports are assigned to parallel port X.	Run Computer Setup or Windows NT or Windows 95 utilities.
501-Display Adapter Failure	1L, 2S	Video display controller.	Replace the graphics board.
601-Diskette Controller Error	None	Diskette controller circuitry or floppy drive circuitry incorrect.	<ol style="list-style-type: none">1. Run Setup.2. Check and/or replace cables.3. Replace diskette drive.4. Replace the system board.
602-Diskette Boot Record Error	None	Diskette in drive A not bootable.	Replace the diskette.
605-Diskette Drive Type Error	2S	Mismatch in drive type.	Run Computer Setup or Windows NT or Windows 95 utilities.
610-External Storage Drive Failure	None	External tape drive not connected.	Reinstall tape drive or press F1 and allow system to reconfigure without the drive.
611-Primary Floppy Port Address Assignment Conflict	2S	Configuration error.	Run Computer Setup or Windows NT or Windows 95 utilities.
612-Secondary Floppy Port Address Assignment Conflict	2S	Configuration error.	Run Computer Setup or Windows NT or Windows 95 utilities.
912-The Computer Cover Has Been Removed Since Last System Start Up	None		
1151-System Board Comm Port 1 Address Assignment Conflict	2S	Both external and internal serial ports are assigned to COM1.	Run Computer Setup or Windows NT or Windows 95 utilities.
1720-SMART Hard Drive detects imminent failure	None	Hard drive is about to fail.	Backup contents and replace hard drive.

* L = Long, S = Short

continued

Power-On Self-Test Messages *Continued*

Message	Beeps*	Probable Cause	Recommended Action
1152-System Board Comm Port 2 Address Assignment Conflict	2S	Both external and internal serial ports are assigned to COM2.	Run Computer Setup or Windows NT or Windows 95 utilities.
1721-SMART SCSI Hard Drive detects imminent failure	None	Hard drive is about to fail.	Backup contents and replace hard drive.
1771-Primary Disk Port Address Assignment Conflict	2S	Internal and external hard drive controllers are both assigned to the primary address.	Run Computer Setup or Windows NT or Windows 95 utilities.
1772-Secondary Disk Port Address Assignment Conflict	2S	Internal and external hard drive controllers are both assigned to the secondary address.	Run Computer Setup or Windows NT or Windows 95 utilities.
1780-Disk 0 Failure	None	Hard drive/format error.	Run the Configuration and Diagnostics utilities.
1781-Disk 1 Failure	None	Hard drive/format error.	Run the Configuration and Diagnostics utilities.
1782-Disk Controller Failure	None	Hard drive circuitry error.	Run the Configuration and Diagnostics utilities.
1790-Disk 0 Failure	None	Hard drive error or wrong drive type.	Run the Configuration and Diagnostics utilities.
1791-Disk 1 Failure	None	Hard drive error or wrong drive type.	Run the Configuration and Diagnostics utilities.
1792-Secondary Disk Controller Failure	None	Hard drive circuitry error.	Run the Configuration and Diagnostics utilities.
1793-Secondary Controller or Disk Failure	None	Hard drive circuitry error.	Run the Configuration and Diagnostics utilities.

* L = Long, S = Short

continued

Power-On Self-Test Messages *Continued*


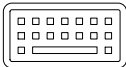
Message	Beeps*	Probable Cause	Recommended Action
1800-Temperature Alert	None	Internal temperature exceeds specification.	Check that computer air vents are not blocked and cooling fan is running.
Invalid Electronic Serial Number	None	Electronic serial number has become corrupted.	Run Computer Setup.
Audible	2S	Power-on successful.	None.
Failsafe Boot Block ROM	1L, 3S	System ROM is bad; system is running in Failsafe Boot Block mode	Reflash the ROM using a ROMPaq diskette. Refer to the Failsafe Boot Block ROM section of Chapter 3, "Using Compaq Software," for more information.

* L = Long, S = Short


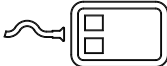
appendix **D**

CONNECTOR PIN ASSIGNMENTS

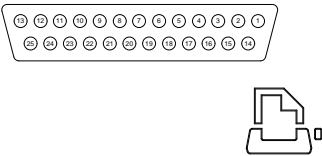
Keyboard Interface

Connector and Icon	Pin	Signal
 	1	Data
	2	Unused
	3	Ground
	4	+5V
	5	Clock
	6	Unused



Pointing Device Interface

Connector and Icon	Pin	Signal
 	1	Data
	2	Unused
	3	Ground
	4	+5V
	5	Clock
	6	Unused

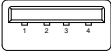

Parallel Interface

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 Line Feed
	15	Error
	16	Initialize Printer
	17	Select In
	18	Signal Ground
	19	Signal Ground
	20	Signal Ground
	21	Signal Ground
	22	Signal Ground
	23	Signal Ground
	24	Signal Ground
	25	Signal Ground



Serial Interface

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

Universal Serial Bus (USB) Connector

Connector and Icon	Pin	Signal
 	1	VCC (Cable power)
	2	- Data
	3	+ Data
	4	Ground (Cable ground)


Monitor Interface

Connector and Icon		Pin	Signal
		1	Red
		2	Green
		3	Blue
		4	Monitor ID Bit 2
		5	Ground
		6	Red Return
		7	Green Return
		8	Blue Return
		9	Reserved
		10	Ground
		11	Monitor ID Bit 0
		12	DDC Data
		13	Horiz. Sync
		14	Vert. Sync
		15	DDC Clock

appendix **E**

SYSTEM BOARD JUMPERS AND SWITCHES

This section provides information for setting DIP switches after upgrading the processor and for setting jumpers to enable/disable passwords or clear the configuration memory (CMOS).

-  To change the system board jumpers, you must remove the computer cover. For procedures on removing the computer cover, refer to Chapter 5, "Upgrading Your Desktop Computer," or Chapter 6, "Upgrading Your Minitower Computer."



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



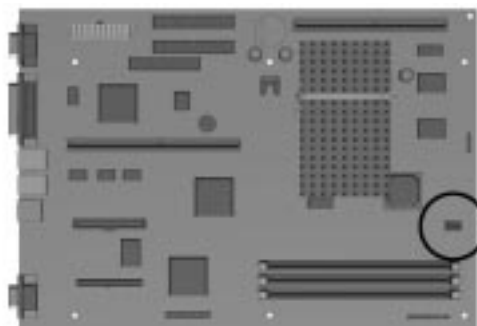
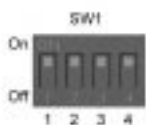
CAUTION: Be sure to turn off the computer before changing a jumper setting or damage to the system board can result.

Setting Processor Speed

After upgrading the processor, you will need to set DIP switches to establish the processor speed appropriately.

The following table shows the SW1 DIP switch settings used for the 166 MHz Pentium processor and the settings needed when upgrading to a 200 MHz or 233 MHz processor:

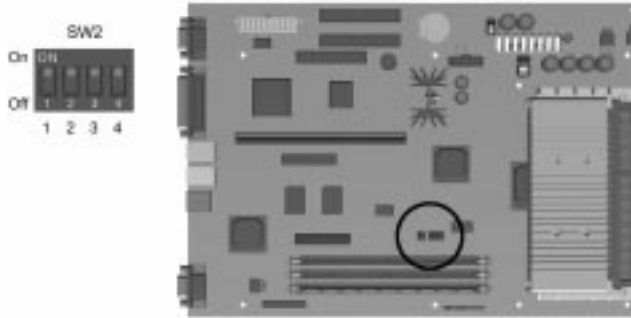
Setting Processor Speed (Switch SW1)				
Processor Speed	S1	S2	S3	S4
66/166	OFF	ON	ON	ON
66/200	OFF	ON	OFF	ON
66/233	OFF	ON	OFF	OFF



Location of the SW1 DIP Switches on the Pentium System Board

The following table shows the SW2 DIP switch settings used for the 233 MHz Pentium II processor and the settings needed when replacing the standard processor with a Pentium II processor running at 266 MHz or 300 MHz:

Setting Processor Speed (Switch SW2)				
Processor Speed	S1	S2	S3	S4
66/233	ON	ON	OFF	OFF
66/266	ON	OFF	ON	ON
66/300	ON	OFF	ON	OFF



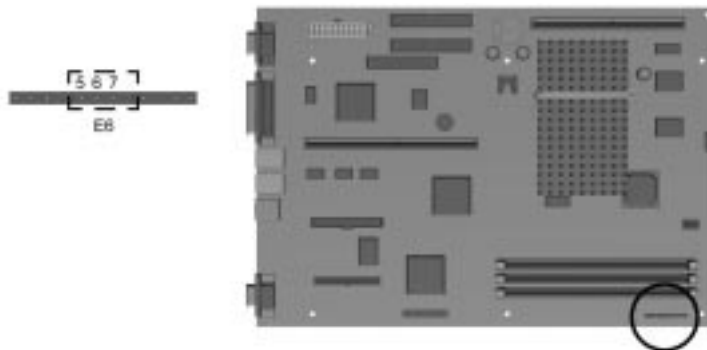
Location of the SW2 DIP Switches on the Pentium II System Board

Refer to the label inside the computer for more detailed setting information.

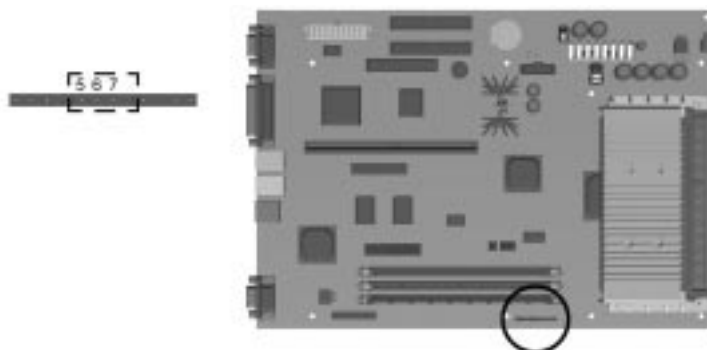
Setting Power-On Password Jumpers

If you forget your Power-On Password, you will need to disable it by setting the appropriate jumper on the system board.

1. Locate the appropriate jumper. For Pentium systems, this jumper is labeled E6. For Pentium II systems, it is labeled P2. By default, the Power-On Password is enabled, meaning there is a plug on pins 5 and 6.



Locating the E6 Jumper on the Pentium System Board



Locating the P2 Jumper (Pins 5-7) on the Pentium II System Board

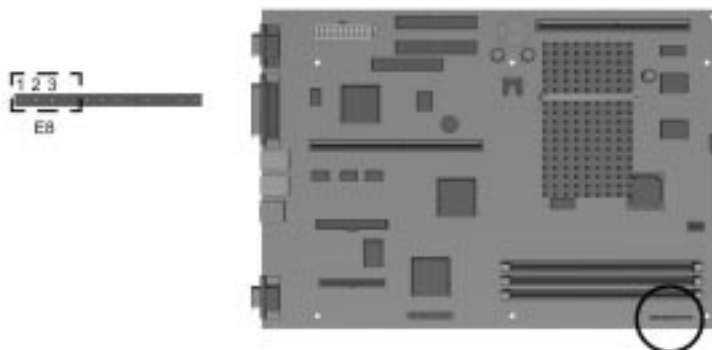
2. To disable the Power-On Password, move the plug from pins 5 and 6 to pins 6 and 7.
3. To set a new Power-On Password, put the plug from pins 6 and 7 to pins 5 and 6, then reestablish the password using the Security Management feature in Computer Setup.

Clearing Configuration Memory

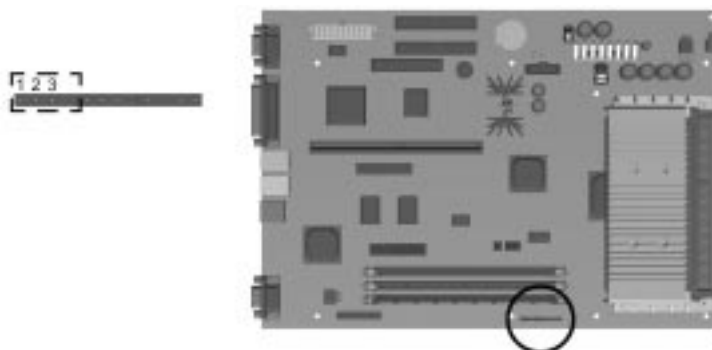
The computer's configuration memory (CMOS) may occasionally be corrupted by static electricity. This happens very rarely. When it does occur, it is usually due to software or hardware that is not executing accurately or by adding or removing expansion boards to or from the computer. If the computer's configuration memory becomes corrupted, it is necessary to clear the configuration memory.

To clear and reset the configuration memory:

- ✎ Be sure your computer is powered off before beginning this procedure.
1. Locate the appropriate jumper. For Pentium systems, this jumper is labeled E8. For Pentium II systems, it is labeled P2.
 2. Remove the plug from pins 1 and 2, place it on pins 2 and 3, then return it to pins 1 and 2.



Locating the E8 Jumper on the Pentium System Board



Locating the P2 Jumper (Pins 1-3) on the Pentium II System Board

3. Replace the cover and tighten the thumbscrews on the rear panel.
 4. Turn the computer on.
 5. Run the Computer Setup utility to reconfigure the system. Refer to Chapter 3, "Using Compaq Utilities." If the system configuration is incorrect, your computer may not work properly and you may receive error messages on the screen.
- ✎ When the CMOS jumper is removed, your password will become invalid because the password is stored in the configuration memory. You will need to reset your password.

appendix *F*

SHIPPING YOUR COMPUTER

To prepare the computer for shipping, follow these guidelines:

1. Back up the hard drive files onto diskettes (or onto an external hard drive or other external storage device, if available). To prevent data loss, do not expose your backup diskettes to electrical or magnetic impulses.
 2. Remove all diskettes from the the diskette drives; remove the CD from the CD-ROM drive, if any.
 3. Turn off the computer and external devices.
 4. Disconnect the power cord from the electrical outlet, then from the computer.
 5. Disconnect your printer and any other external devices from their power sources, then from the computer.
- ✎ Make sure all boards are seated properly in the expansion slots with their retaining screws in place before shipping the computer.
6. Pack the computer in its original packing box or in similar packaging with sufficient packing material to protect it.
- ✎ For environmental nonoperating temperature ranges, refer to Appendix B, "Specifications."

appendix **G**

ELECTROSTATIC DISCHARGE

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

Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following precautions:

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

Grounding Methods

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

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

- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

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

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

appendix *H*

INSTALLING A NEW BATTERY

When your computer 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 to ten years under normal use. Use Compaq replacement battery 160274-001 or a comparable 600-milliamp alkaline, 4.5-volt battery.

✎ It is important to make a set of backup diagnostics diskettes before you install a new battery.

✎ If you are using a non-Compaq hard drive, it is important to take the following steps *before* installing the battery.

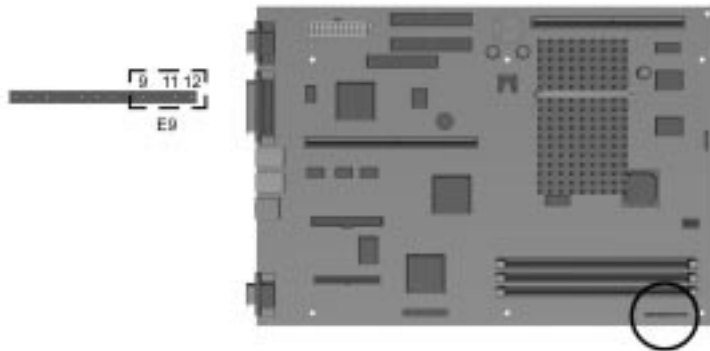
1. Run the Computer Setup utility and observe the drive type that is displayed in the System Configuration summary.
2. If the drive type number is 65 or 66, make a note of the drive parameters (cylinders, heads, sectors per track). You can view these parameters using Computer Setup (Built-In Devices, Storage) or Compaq Enhanced Insight Personal Edition (Diagnostics for Windows). Refer to Chapter 3, "Using Compaq Software, for more information on using these utilities. It is important to record these parameters on paper before continuing.
3. When you have completed the battery installation, you may need to run Computer Setup and use the drive parameters noted earlier to reconfigure your system.

To install the new battery, complete the following steps:

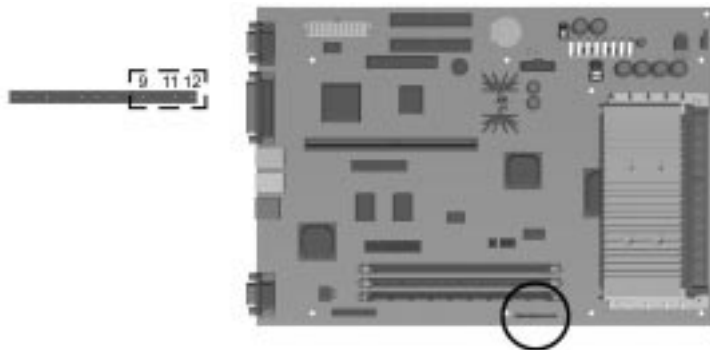
✎ Do not attempt to remove your old battery as it is permanently installed.

1. If your computer is on, turn it off.
2. Unplug the computer and disconnect any external devices.


3. Remove the computer cover. See the instructions in Chapter 5, "Upgrading the Desktop Computer," or Chapter 6, "Upgrading the Minitower Computer," for information on removing the cover.
4. The following illustration identifies the jumper pin location for the battery connection. For Pentium systems, this jumper is labeled E9. For Pentium II systems, it is labeled P2.



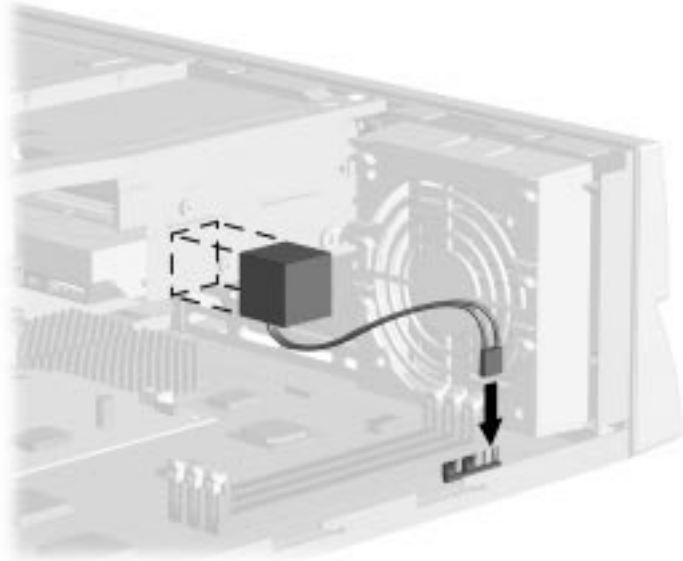
Battery Connection Location on the Pentium System Board



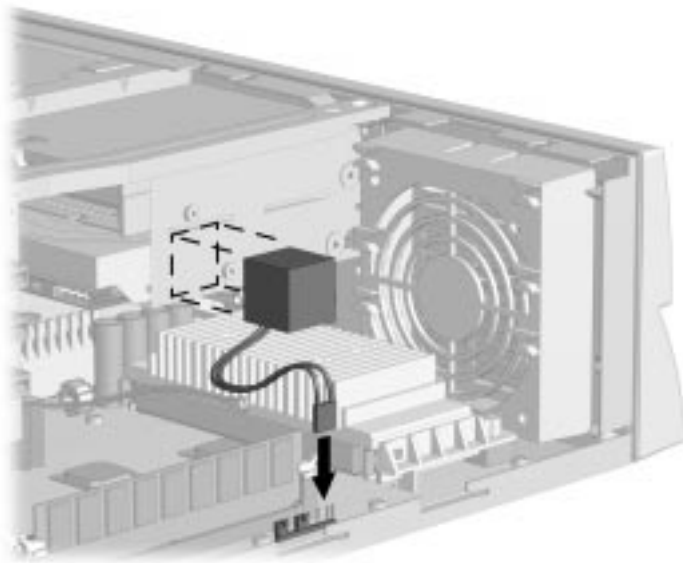
Battery Connection Location on the Pentium II System Board

5. Connect the new battery to pins 9 through 12 on the jumper.
-  Connecting the replacement battery to the pins automatically disconnects the internal, or "old" battery.

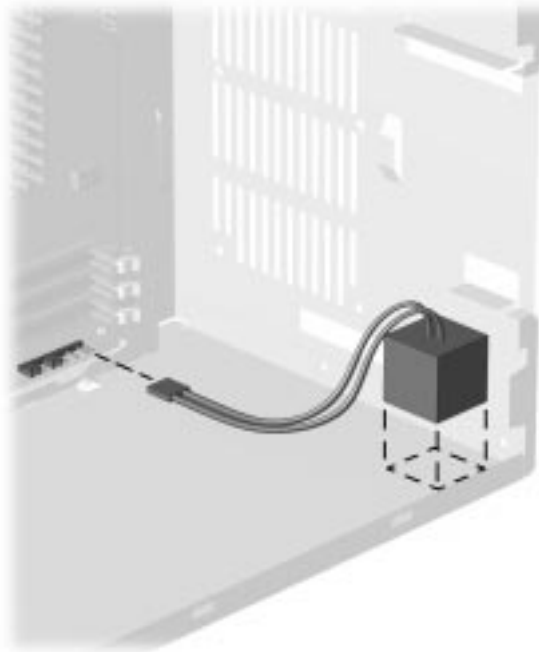
6. Remove the backing from the adhesive on the hook-and-loop fastener strip, and place the battery and the hook-and-loop fastener strip as shown in the following illustration.



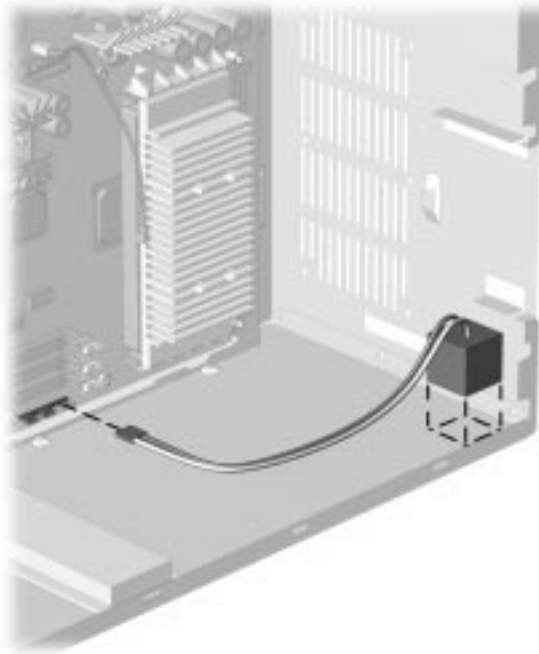
Installing the Battery on the Desktop (Pentium Models)



Installing the Battery on the Desktop (Pentium II Models)



Installing the Battery on the Minitower (Pentium Models)



Installing the Battery on the Minitower (Pentium II Models)

7. Replace the computer cover.
8. Place the sticker included with your battery kit on the back of your computer above the power connector.
9. Plug in the computer and reconnect any external devices.



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

10. Turn on the computer.
11. Run the Computer Setup utility to reconfigure the system. Refer to Chapter 3, "Using Compaq Utilities."

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