

**HP****Vectra VL600****Corporate PCs**

User's Guide

www.hp.com/go/vectrasupport
www.hp.com/desktops/pccafe

Notice

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

Hewlett-Packard makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

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

Matrox[®] is a registered trademark of Matrox Electronic Systems Ltd.

Adobe[™] and Acrobat[™] are trademarks of Adobe Systems Incorporated.

Microsoft[®], MS[®], MS-DOS[®], Windows and Windows NT[®] are U.S. registered trademarks of Microsoft Corporation.

Hewlett-Packard France
Business Desktop Division
38053 Grenoble Cedex 9
France

© 1999 Hewlett-Packard Company

User's Guide

This manual is for anyone who wants to

- Set up the PC for the first time
- Troubleshoot problems on the PC
- Replace system components
- Find out where to get more information and support.

Product Information and Help

Information On Your PC

Information about your PC is preloaded on your PC's hard disk drive. This information includes:

- *HP Vectra Online Help and Information*—where to get information about your PC, including links to useful HP web site pages.

For Microsoft Windows users, you can access this page by clicking the **Start** button and then clicking **Programs** ⇨ **HP Info** ⇨ **HP Vectra VL**.

- *Working in Comfort*—guidance on ergonomic issues.

For Microsoft Windows users, you can access this page by clicking the **Start** button and then clicking **Programs** ⇨ **HP Info** ⇨ **Working Comfortably**.

It is strongly recommended that you read the ergonomic information before using your PC.

Information On HP's Support Web Site

The HP web site contains a wide range of information, including downloadable documentation, service and support options, and the latest versions of drivers and utilities.

Manuals for Your PC

In the "Manuals" section of the HP Vectra Support site (www.hp.com/go/vectrasupport), you can download a wide range of documentation for your PC. Documents provided are in Adobe Acrobat (PDF) format. If you do not have Adobe Acrobat Reader installed on your PC, you can download it from www.adobe.com.

The available documents include:

- *Troubleshooting and Upgrade Guide*—describes in detail how to troubleshoot your PC and install accessories. It also contains information on the technical and security features of your PC.
- *Service Handbook Chapters*—information on upgrade and replacement parts, including HP part numbers.
- *Technical Reference Manual*—technical information on system components, such as system board, chipset and BIOS.

You can check this web site regularly to download any new documents as they become available for your PC.

To download these documents, connect to the HP Vectra Support site at www.hp.com/go/vectrasupport, look in the "Manuals" section, and then select your PC.

Important Safety Information

WARNING

For your safety, never remove the PC's cover without first removing the power cord and any connection to a telecommunication network. If a power protection device is fitted to your PC, you must remove the power cord then wait for a complete shutdown of your system before removing the cover. Remove the power protection device cables before any servicing operation. Always replace the cover before switching the PC on again.

There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn the old battery. Replace only with the same or equivalent type recommended by the manufacturer. The battery in this PC is a lithium battery that does not contain heavy metals. Nevertheless, in order to protect the environment, do not dispose of batteries in household waste. Please return used batteries to the shop from which you bought them, to the dealer from whom you purchased your PC, or to HP so they can either be recycled or disposed of in a sound way. Returned used batteries will be accepted free of charge.

If you have a modem:

Do not attempt to connect this product to the phone line during a lightning storm. Never install telephone jacks in wet locations unless the telephone line has been disconnected at the network interface. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Use caution when installing or modifying telephone lines. Avoid using a telephone (other than a cordless type) during an lightning storm. There may be a risk from lightning.

Do not use the telephone to report a gas leak in the vicinity of the leak. Never touch or remove the communications board without first removing the connection to the telephone network.

Contents

1 Setting Up and Using Your PC

Unpacking Your PC	12
Connecting Devices	13
Desktop model	13
Minitower model	14
Connecting an External SCSI Accessory (Some Models Only)	15
Connecting to a Network (Some Models Only)	17
Connecting Multimedia Accessories	18
Connecting the Power Cord	20
Starting Your PC for the First Time	21
Initializing Your Software	21
Partitioning Your Hard Disk Drive	21
Stopping Your PC	22
Power Management	23
HP Setup Program	23
Operating System Power Management	23
ENERGY STAR Compliancy	23
Manageability, Stability and Security	24

2 If You Have a Problem

If Your PC Does Not Start Properly	26
--	----

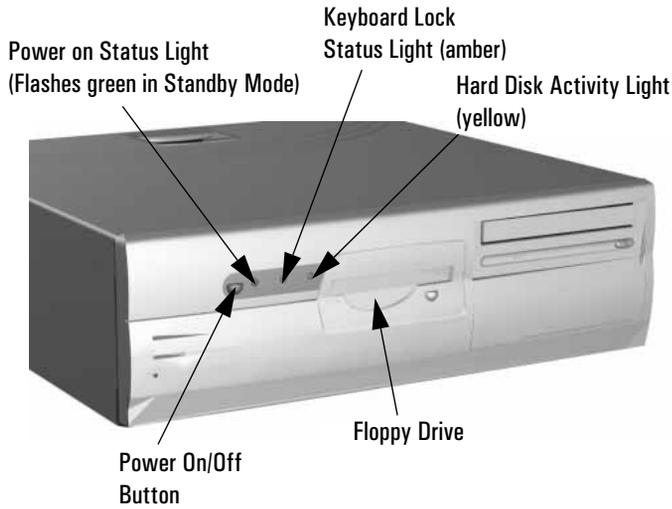
If Your PC Has a Hardware Problem	26
HP DiagTools Hardware Diagnostics Utility	29
Where Can I Get DiagTools?	29
Starting DiagTools from Your Hard Disk Drive's Partition	29
Starting DiagTools from the HP Image Creation & Recovery CD-ROM	30
Frequently Asked Questions	31
Need More Help?	33
Hewlett-Packard Support and Information Services	34
Collecting Information on Your PC Before Contacting Support	34

3 Replacing and Upgrading PC Components

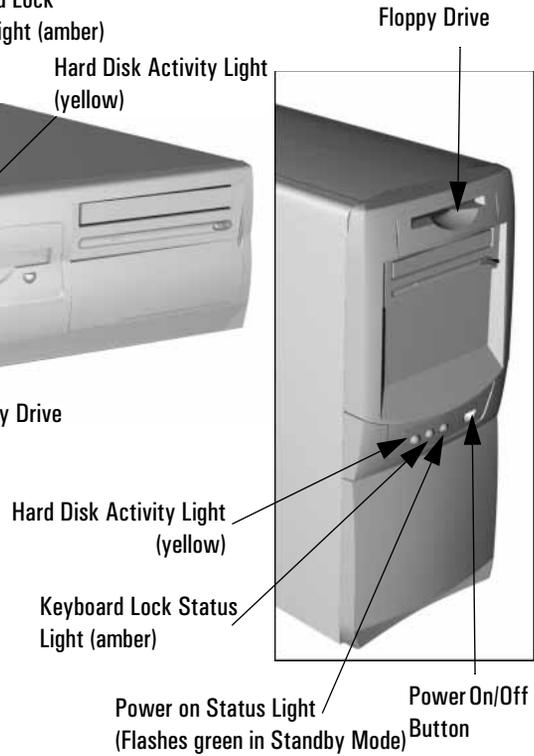
Before Starting	36
Removing and Replacing the Cover	37
Removing the Cover	37
Replacing the Cover	39
Replacing or Installing a Memory Module	41
Replacing an Accessory Board	43
Which Drive Connectors To Use	45
Replacing the Hard Disk Drive	48
In the Desktop	48
In the Minitower	49

Replacing the CD-ROM, DVD-ROM or CD-RW Drive	51
In the Desktop	51
In the Minitower.	52
Replacing the Floppy Drive	54
In the Desktop	54
In the Minitower.	55
Replacing the Processor	57
Replacing the System Board	59
Replacing the Power Supply	60
Installing a Master Pass Key Lock.	63
Recycling Your PC	70
Index	71

Desktop model



Minitower model



Setting Up and Using Your PC

This chapter provides information about setting up and using your PC.

1 Setting Up and Using Your PC

Unpacking Your PC

WARNING

If you have any doubt that you can lift the PC or monitor safely, do not try to move it without help.

You can place the minitower unit either on the desk or on the floor near to easily accessible power outlets.

Monitor (not included in the box with the PC)

Place the desktop PC at least 1 cm away from any wall or other obstruction.



Image Creation
& Recovery
CD-ROM



Mouse



Keyboard



Monitor Cable



Power Cords
(one for the PC, one
for the monitor)



User's Guide

How to lift and carry your PC



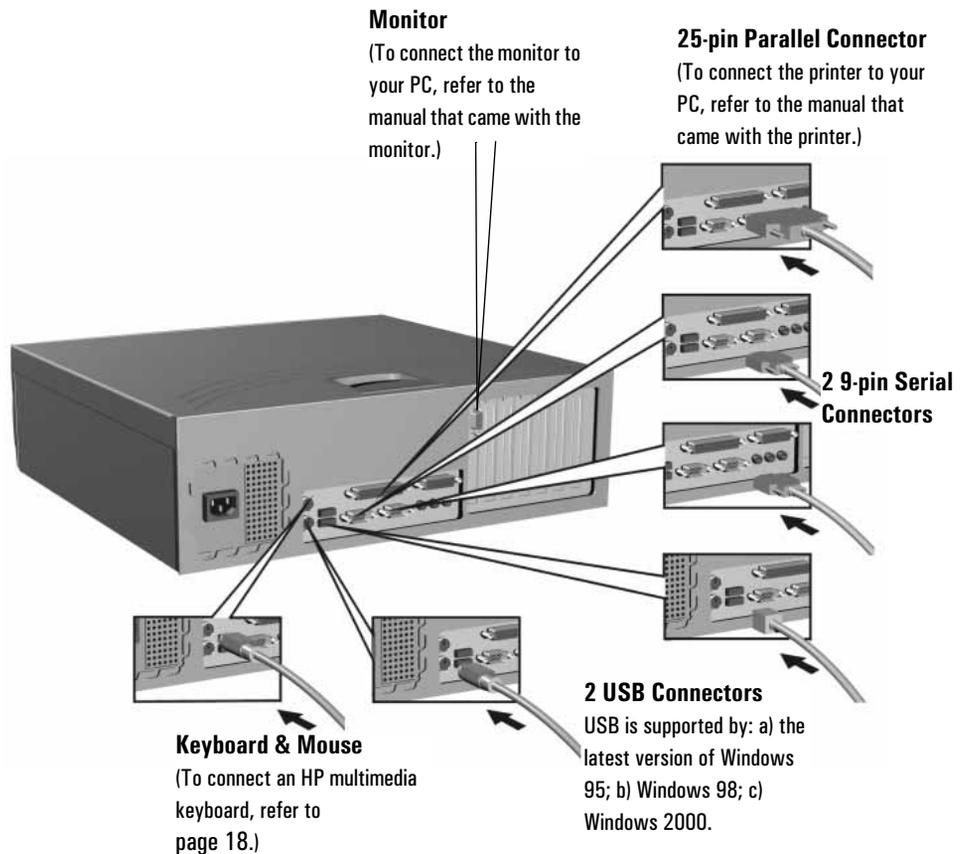
CAUTION

Never lift your PC using the latch. The latch is intended only for opening the PC.

Connecting Devices

The connectors are color-coded for easy matching. Match the colors. Note, however, that some monitor connectors may not be color-coded. *The connectors are shaped to go in one way only.*

Desktop model



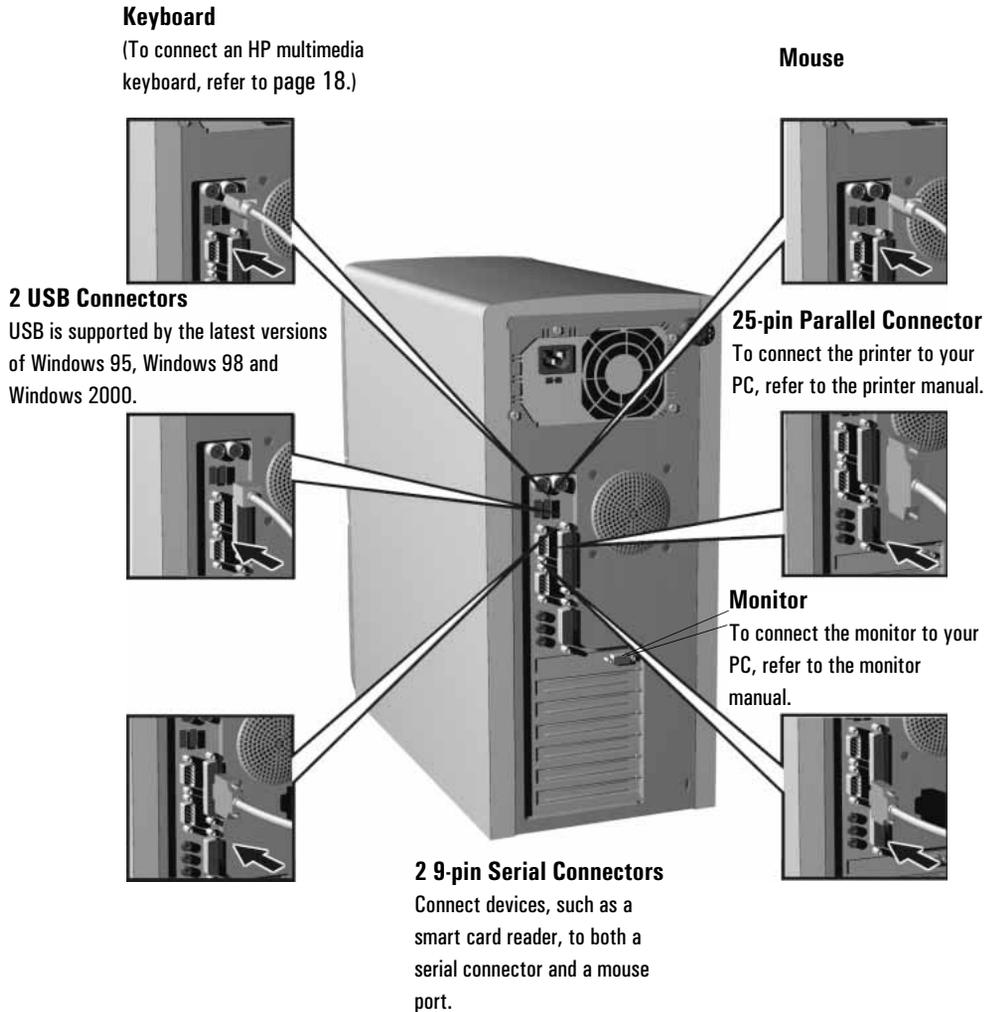
NOTE

Connect devices such as a smart card reader to both a serial connector and a mouse port (not a keyboard port, which does not provide enough power.)

1 Setting Up and Using Your PC

Connecting Devices

Minitower model



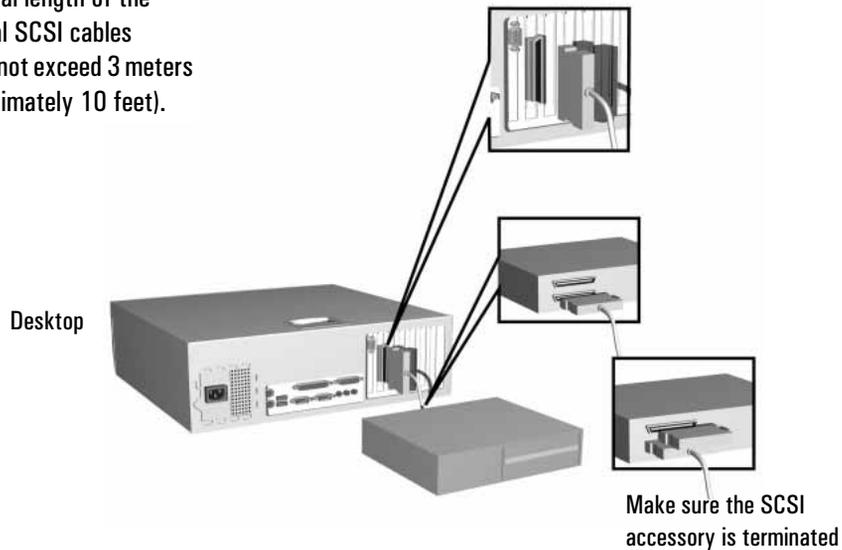
Connecting an External SCSI Accessory (Some Models Only)

Your PC may be equipped with an Ultra2 LVD/SE 16-bit SCSI connector for external SCSI devices.

An external SCSI device is connected as follows:

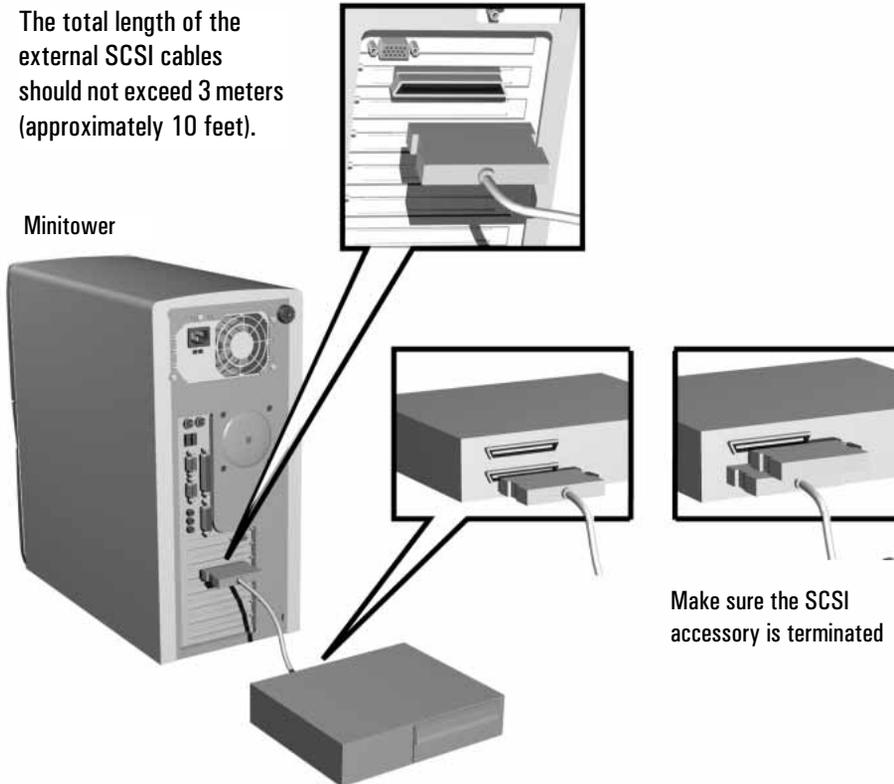
- 1 Set an unused SCSI address to the external device.
Refer to the manual provided with the SCSI accessory for instructions on selecting a SCSI address.
- 2 Make sure the SCSI device is terminated correctly (refer to the manual provided with the SCSI accessory).

The total length of the external SCSI cables should not exceed 3 meters (approximately 10 feet).



1 Setting Up and Using Your PC

Connecting an External SCSI Accessory (Some Models Only)



- 3 Connect the SCSI accessory to your PC's external 16-bit SCSI connector with a shielded SCSI cable.
- 4 Refer to the manual provided with the SCSI accessory to learn how to install any software that may be necessary to use it.

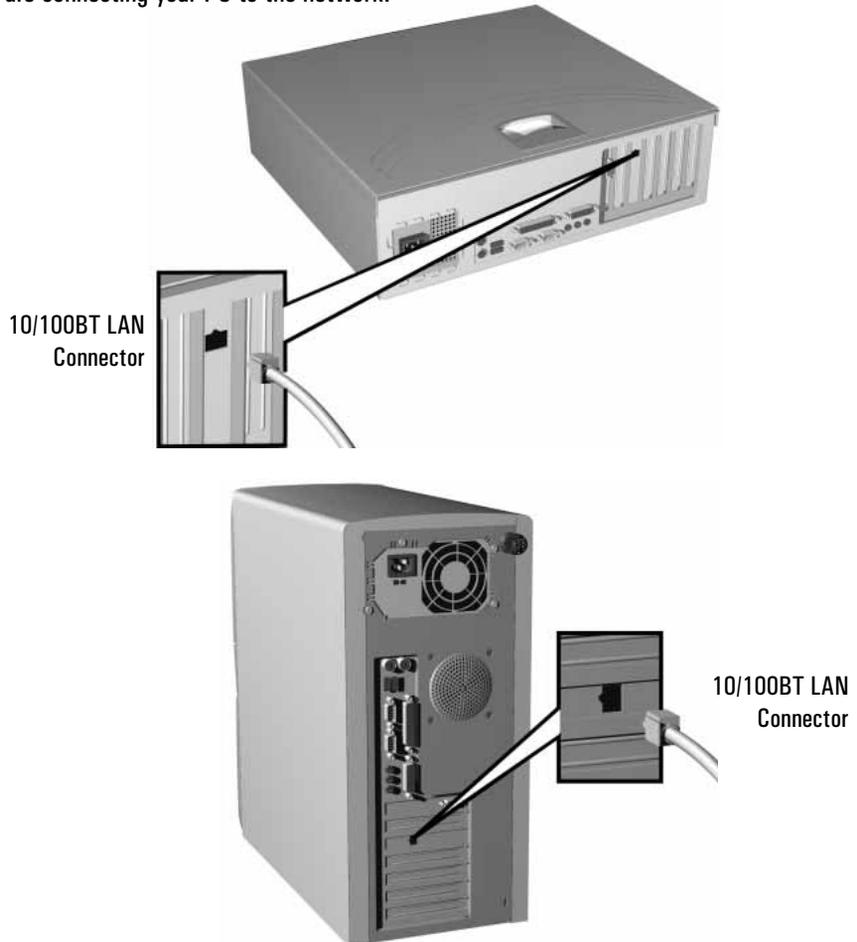
SCSI Mode Setting For External Devices (Symbios cards only)

It is strongly recommended that you switch to 8 bit asynchronous mode when connecting an external SCSI device. To do this, enter the *Symbios Configuration Utility* during PC startup by pressing **F6**, select **SYM53C895**, then select **Device Selection** and **SYM53C895**. Set the **Sync Rate** to **OFF** and the **Width** to **8 bits**.

Connecting to a Network (Some Models Only)

Connect the network cable to the LAN connector.

Let your Network Administrator know you are connecting your PC to the network.



If you decide to install a non-HP network card, installation and configuration information may be provided on HP's Support web site (most common cards are documented). Go to the **LAN Card Ready** section at www.hp.com/go/vectrasupport.

Connecting Multimedia Accessories

WARNING

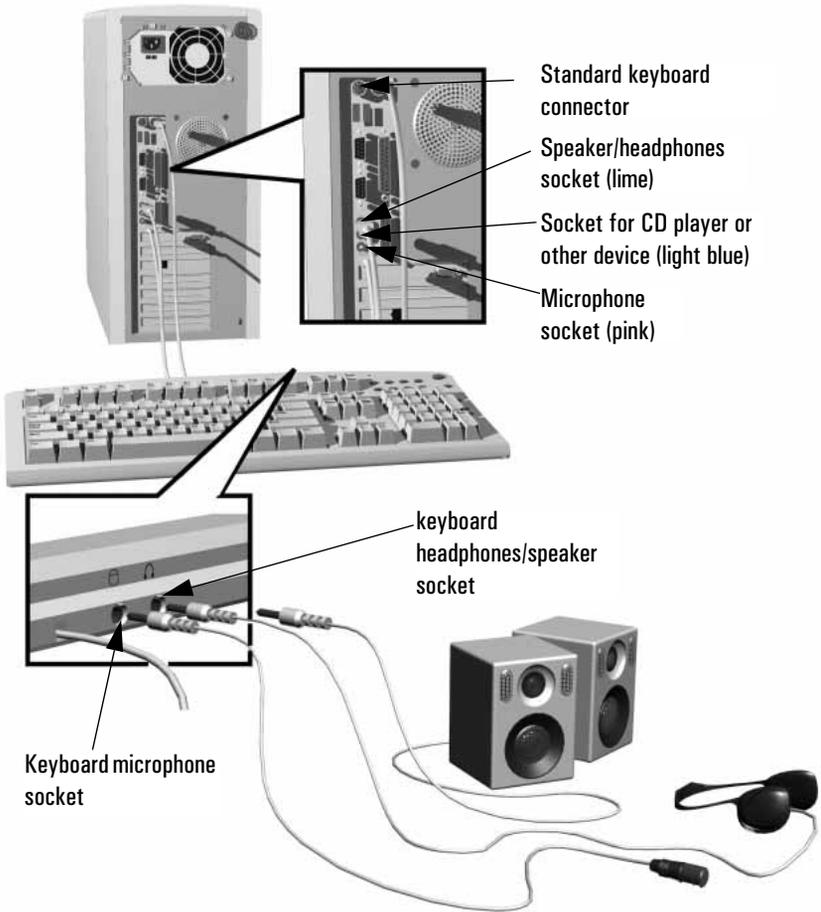
Always turn the volume down before connecting the headphones or speakers. This avoids discomfort from unexpected noise or static. Listening to loud sounds for prolonged periods of time may permanently damage your hearing. Before putting on headphones, place them around your neck and turn the volume down. When you put the headphones on, slowly increase the volume until you find a comfortable listening level. When you are able to hear comfortably and clearly, without distortion, leave the volume in that position.

NOTE

Some models have a DVD drive with a headphones socket and a volume control. However, you should connect the keyboard sockets as shown below to ensure that you can use all your PC's multimedia features.

If you install a sound board, you will need to disable your PC's integrated audio function in the **Advanced** ⇨ **Integrated Audio Interface** section of the *Setup* program. To enter the HP *Setup* program, restart your PC and press **F2** during start-up.

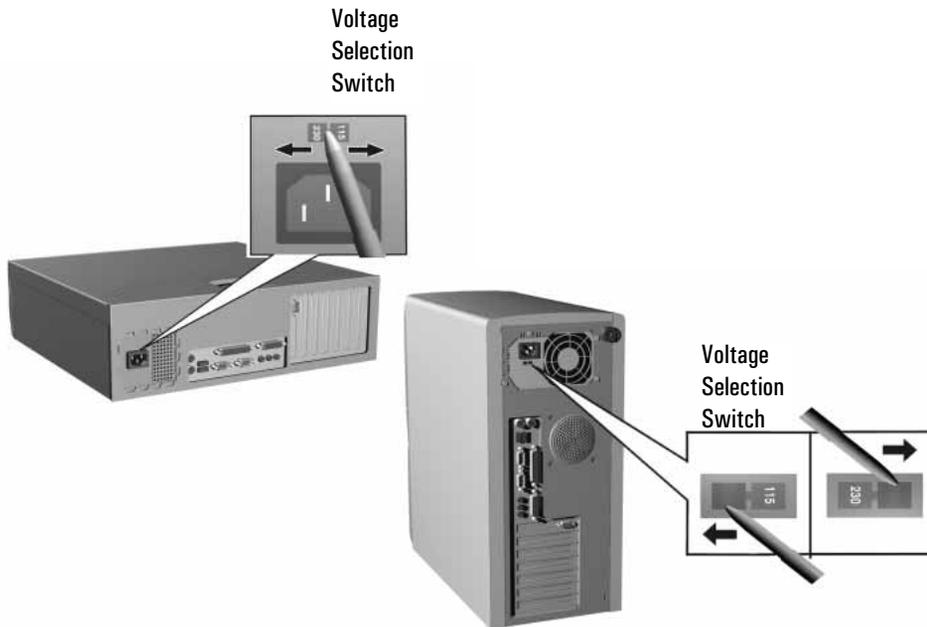
- 1 Connect the HP multimedia keyboard to the PC. *The connectors are color-coded for easy matching.*
- 2 Connect the microphone and headphones (or amplified speakers) to the keyboard.
- 3 At the rear of the PC, you can connect another audio accessory, such as a CD player, into the remaining audio (light blue input) connector.



Connecting the Power Cord

WARNING

For your safety always connect equipment to a grounded wall outlet. Always use a power cord with a properly grounded plug, such as the one provided with the equipment, or one in compliance with your national safety standards. This equipment can be disconnected from the power by removing the power cord from the power outlet. This means the equipment must be located close to an easily accessible power outlet.



- 1 Remove the warning label covering the PC's power connector, and *ensure that the voltage setting is correct for your country.* (The voltage is set during manufacture and should already be correct.)
- 2 Connect the power cords to the rear of the monitor and the computer. *(The connectors are shaped to go in one way only.)*
- 3 Connect the monitor's power cord and the computer's power cord to a grounded outlet.

Starting Your PC for the First Time

If your PC has preinstalled software, it is initialized the first time you start the PC. This process sets up the software in your language and sets up your software to use the hardware installed in your computer (you can change the settings after the software has been initialized).

Initializing Your Software

NOTE

Do NOT switch OFF the PC while the software is being initialized—this could cause unexpected results.

- 1 Turn on the monitor first, and then the PC.
When the PC is switched on, the Vectra Logo is displayed. The PC performs a Power-On-Self-Test (POST). Press **Esc** if you want to view the POST details in the HP Summary Screen.
- 2 The software initialization routine starts. During this time, you will be asked to carry out various tasks including entering the Windows product ID #, selecting the regional settings to be used on your computer and creating a startup diskette.
- 3 After the initialization routine has finished, click on OK and the PC will restart.

Partitioning Your Hard Disk Drive

Your hard disk drive is supplied with a single 2GB FAT16 partition. To use the remaining space on your hard drive, follow the instructions below:

Using the FDISK Utility (Windows 95 and Windows 98)

NOTE

The *FDISK* utility should only be used by experienced personnel.

- 1 Insert the startup diskette created during the software initialization routine and restart your PC.
- 2 At **A:**, type **FDISK**.

1 Setting Up and Using Your PC

Starting Your PC for the First Time

Use the *FDISK* utility to partition the hard disk drive into the size of partition you require.

For more information on *FDISK*, refer to your operating system's documentation.

Using the Disk Administrator Utility (Windows NT4)

Use the *Disk Administrator* utility to partition the hard disk drive into the size and type of partition (either standard or secure) you require.

To start *Disk Administrator*, select **Start** ⇨ **Programs** ⇨ **Administrative Tools** ⇨ **Disk Administrator**.

For more information on *Disk Administrator*, refer to your operating system's documentation.

Stopping Your PC

To stop the PC, first make sure that you have exited all applications and then use your operating system's shut down command in the **Start** menu.

Power Management

Power management enables you to reduce the PC's overall power consumption by slowing down the PC's activity when it is idle.

HP *Setup* Program

You can configure power management in the HP *Setup* program. Refer to the "Power" menu in the HP *Setup* program. (To enter the HP *Setup* program, restart your PC and press **F2** during start-up.)

Operating System Power Management

Operating systems such as Windows NT 4.0 and Windows 95 differ in their power management capabilities. Refer to your operating system documentation for more information.

ENERGY STAR Compliancy

As an ENERGY STAR partner, HP has determined that this product meets the ENERGY STAR guidelines for energy efficiency (standard base models).

Manageability, Stability and Security

Your PC is highly manageable. It comes preloaded with HP TopTools, a hardware management tool. For more information about TopTools, connect to HP's web site at:

www.hp.com/toptools

HP is committed to reducing the cost of PC ownership by providing greater product stability that enables you to standardize your PC environment. For more information on HP's *Stability for Life* commitment, refer to HP's web site at:

www.hp.com/desktop/vectra/stability

HP ProtectTools is designed to provide you with a comprehensive security solution that addresses your key security concerns, such as unauthorized PC access and theft. For more information, refer to HP's security web site at:

www.hp.com/desktop/vectra/security

If You Have a Problem

This chapter provides help solving problems with your PC. It includes information on:

- Dealing with common PC and hardware problems
- Using HP's hardware diagnostics program, DiagTools
- Frequently Asked Questions
- What to do if you need more help
- Hewlett-Packard's Support and Information Services

For more detailed information, refer to the *Troubleshooting and Upgrade Guide*, available on HP's Web site at

www.hp.com/go/vectrasupport.

2 If You Have a Problem

If Your PC Does Not Start Properly

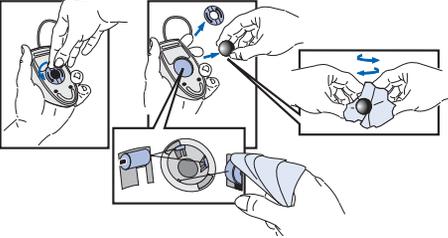
If Your PC Does Not Start Properly

The PC Doesn't Power On	
Have you checked that...	How
The PC's power cord is correctly connected.	Connect the power cord to a working grounded power outlet and the PC.
The Power-On Self Test Results In an Error	
An on-screen error message or a beep code when the PC starts up means there is a configuration problem with your PC.	
Have you checked...	How
The part of your configuration for which the Power-On Self Test has detected an error.	Refer to the <i>Troubleshooting and Upgrade Guide</i> available from HP's Web site at: www.hp.com/go/vectrasupport

If Your PC Has a Hardware Problem

The Monitor Doesn't Work...	
The PC's power indicator light works but the monitor remains blank.	
Have you checked that...	How
The monitor is switched ON (LED is on).	Refer to the monitor manual for an explanation of the LED signals (green, orange, or blinking).
The monitor's power cord is correctly connected.	Connect the power cord – ensure it is plugged into a working grounded power outlet and into the monitor.
The monitor (video) cable is correctly connected.	Connect the monitor (video) cable – ensure it is properly connected to both the PC and the monitor.
The monitor's brightness and contrast settings are correctly set.	Check the settings using the monitor's OSD (on-screen display) or using controls on the front of the monitor.
You see an image during boot but then the screen goes blank	
Have you checked that...	How
The monitor settings in your PC are compatible with your monitor.	<ul style="list-style-type: none">• Windows NT: Enter VGA mode when prompted during start-up.• Windows 95, Windows 98 and Windows 2000: Restart the PC. The Vectra screen is displayed. For Windows 95 and Windows 98, when you hear a beep, press F8 and then start the PC in safe mode. For Windows 2000, press F8 and then start the PC in VGA mode. Double-click on the Display icon in your PC's Control Panel, then click on the Settings button. Use the sliding control to reset the resolution.• For other operating systems, refer to your operating system's documentation.

The Keyboard Doesn't Work...	
Have you checked that...	How
The keyboard cable is correctly connected.	Plug the cable into the correct connector on the back of the PC. Color coding is used for easy matching.
The keyboard is clean and no keys are stuck down.	Check all keys are at the same height, and none are stuck.
The keyboard itself is not defective.	Either replace the keyboard by a known working unit or try the keyboard with another PC.
You are using the correct driver. If you are using HP's multimedia keyboard, ensure that the correct driver is installed. This driver is provided with all Windows NT 4.0 and Windows 95 preloaded systems. For other operating systems, refer to your operating system's documentation.	Download the latest driver from HP's Web at: www.hp.com/go/vectrasupport
If the PC starts but you still have a problem...	Run DiagTools. See page 29.

The Mouse Doesn't Work...	
Have you checked that...	How
The mouse cable is correctly connected.	<ol style="list-style-type: none"> 1 Switch off the PC (not necessary with a USB mouse). 2 Plug the cable into the correct connector on the back of the PC. Color coding is used for easy matching.
You are using the correct driver. If you are using HP's enhanced mouse, ensure that the correct driver is installed. This driver is provided with all Windows NT 4.0 and Windows 95 preloaded systems.	Download the latest driver from HP's Web at: www.hp.com/go/vectrasupport
The mouse is clean.	Clean the mouse ball as shown below.
	
The mouse itself is not defective.	Replace the mouse by a known working unit or try the mouse with another PC.
If the PC starts but you still have a problem...	Run DiagTools. See page 29.

2 If You Have a Problem

If Your PC Has a Hardware Problem

The Power-On Self Test Displays an Error	
Have you checked...	How
Your <i>Setup</i> program settings.	Turn on or restart your PC. When the message F2 Setup appears, press the F2 key. ¹
Your PC's Summary Screen	Turn on or restart your PC. When the message F2 Setup appears, press Esc . Then, press Pause to keep the Summary Screen displayed. Press any key to continue.

1. For more information on the *Setup* program, refer to the *Troubleshooting and Upgrade Guide*, available on the HP Web at www.hp.com/go/vectrasupport.

HP DiagTools Hardware Diagnostics Utility

DiagTools, the Vectra Hardware Diagnostics utility, helps you diagnose hardware-related problems on HP Vectra PCs and PC Workstations. It is a series of tools designed to help you:

- Check the configuration of your system and verify that it is functioning correctly.
- Diagnose hardware-related problems.
- Provide precise information to HP-dedicated Support Agents so that they can solve any problems quickly and effectively.

NOTE

Run DiagTools before contacting HP for warranty service. This is to obtain information that will be requested by a support agent.

For more information about this utility, refer to the *DiagTools User's Guide*, available on the HP web site in PDF (Adobe Acrobat) format.

Where Can I Get DiagTools?

There are three ways to access DiagTools:

- From the Diagnostics Partition (hidden) on your hard disk drive
- From the *HP Image Creation and Recovery CD-ROM* that came with your PC
- By ordering the *HP DiagTools CD* from HP's Support web site:
www.hp.com/go/vectrasupport.

Starting DiagTools from Your Hard Disk Drive's Partition

- 1 Restart your PC and press **F2**, when prompted, to enter HP's *Setup* program.
- 2 Ensure that the **P n P OS** setting in the **Main** menu of your PC's *Setup* program is set to **NO**.
- 3 Restart your PC.
- 4 When the message "Press F10 to start hardware diagnostics" appears after the logo splash screen, press **F10**.

NOTE

This method will only work if you have left the Diagnostics partition on your hard disk drive intact.

Starting DiagTools from the *HP Image Creation & Recovery CD-ROM*

To start DiagTools from the CD-ROM:

- 1 Restart your PC and press **F2**, when prompted, to enter HP's *Setup* program.
- 2 Ensure that your PC's boot order is set so that it will start on the CD-ROM, DVD-ROM CD-RW drive (either in the PC's *Setup* program or by pressing **F8** during startup).
- 3 Insert the *HP Image Creation & Recovery CD-ROM* into the CD-ROM drive.
- 4 Restart the PC.
- 5 The PC will start (boot) from the CD-ROM and display a menu.
- 6 In the menu, select "Run the diagnostics on your PC" and follow the instructions on-screen to carry out the diagnostic tests.

Frequently Asked Questions

Q: How can I get help with installing non-HP LAN cards in my PC?

A: Refer to the LAN Card Ready section accessible from the support Web site at: www.hp.com/go/vectrasupport. This provides information on commonly installed LAN cards and installation information for LAN card drivers.

Q: Where can I get more information on installing accessories in my PC?

A: The Troubleshooting and Upgrade Guide has detailed information on installing accessories and is available on HP's support Web site at: www.hp.com/go/vectrasupport.

Q: How can I reinstall my PC's operating system?

A: Use the software Image Creation & Recovery CD-ROM provided with your PC.

Q: Why is my PC running slowly/producing strange messages?

A: Your PC may have been infected by a virus. Use an antivirus utility to erase any viruses.

Or, update your PC's BIOS. You can download the BIOS and updating instructions from www.hp.com/go/vectrasupport.

Q: I've been experiencing problems with my PC ever since I installed some new software. What can I do?

A: Uninstall the software to see whether this solves the problem. If the problem continues, contact the software manufacturer for help or information on known compatibility problems.

Q: How do I disable the integrated sound features on my PC if I install an accessory sound card?

*A: Enter the PC's Setup program by pressing **F2** during startup, then disable the **Integrated Audio Interface** in the **Main** menu.*

Q: Can I use USB hardware devices with all the operating systems preloaded on my PC?

A: USB is supported by Windows 95 release 2.x, as well as Windows 98 and Windows 2000.

2 If You Have a Problem

Frequently Asked Questions

Q: Is my PC year 2000-compliant?

A: All new Vectra PCs are designed to handle the transition to year 2000. For more information, refer to HP's Year 2000 Web site:

www.hp.com/year2000.

Q: How can I find out what hardware and BIOS version are used in my PC?

*A: Restart the PC and press **ESC** during the power on self test. The BIOS version will be displayed at the top of the screen. You may also use HP TopTools (refer to page 24.)*

Q: Why can't I hear sound from my application?

A: Make sure your multimedia accessories are correctly installed (refer to chapter 1). If you have a multimedia keyboard, use the keyboard's volume buttons to adjust the volume.

Make sure your application is correctly configured.

*Select **Start** ⇨ **Programs** ⇨ **Accessories** ⇨ **Multimedia** ⇨ **Volume Control**. Make sure **Mute** is not selected. Adjust the volume until you hear sound.*

Q: Where can I get information about the latest HP drivers?

A: www.hp.com/go/vectrasupport.

Need More Help?

Refer to the *Troubleshooting and Upgrade Guide* for more detailed help. This manual is available on the *HP Information CD-ROM* (order form in your *Quick User's Guide*) or from HP's web site at:

www.hp.com/go/vectrasupport.

Some troubleshooting tips:

- Restart your PC and see if the problem recurs.
- If you have a software problem, refer to the software documentation or help facility. If the problem persists, contact the software provider's support.
- Run HP DiagTools. You can create a hardware profile of your PC (Support Ticket) that can be faxed or mailed to support. See page 29 for information on using DiagTools.
- Visit the HP support Web site (**www.hp.com/go/vectrasupport**) to see whether this is a known problem.
- Update your PC's BIOS (Basic Input/Output System). The latest BIOS for your PC and instructions on updating the BIOS are available from HP's support Web site at: **www.hp.com/go/vectrasupport**.
- Record the details of the problem so that you can describe it accurately. See page 34.
- Think of anything you may have changed recently on your PC.
- If possible, have your system up and running and close by when you call.
- Contact your HP dealer, or contact HP support outside of peak times (mid-morning and early evening). This should ensure your problem is dealt with as quickly as possible. See page 34 for more information.

2 If You Have a Problem

Hewlett-Packard Support and Information Services

Hewlett-Packard Support and Information Services

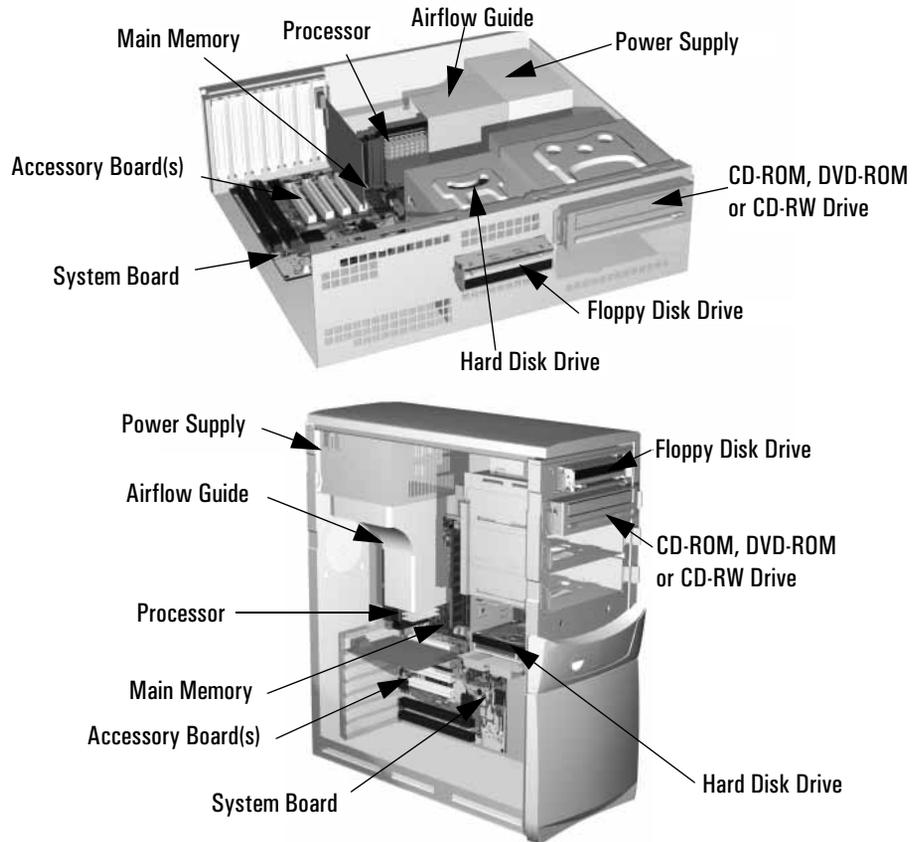
You can learn more about HP service and support from the support Web site:

www.hp.com/go/vectrasupport.

Collecting Information on Your PC Before Contacting Support

Take a piece of paper and note down some of the information mentioned below. This will help HP support deal with your problem quickly and efficiently:

PC Description	
Model number	See label on the right side of your PC.
Serial number	See label on the right side of your PC.
RAM <ul style="list-style-type: none">Number of megabytes installedHP RAM or RAM from another manufacturer	<ul style="list-style-type: none">The amount of RAM is displayed on the Summary Screen, accessed by pressing Esc during start-up.There may be some compatibility problems with non-HP RAM.
Question or Problem	
Write down a brief description of the problem	
Frequency	How often has the problem occurred?
Run OK?	How long has the PC been running normally?
Recent changes to the PC	Have there been any recent changes made to the PC?
Hardware Configuration	
Which BIOS version is used?	The BIOS version is displayed on the Summary Screen, accessed by pressing Esc during start-up.
Any BIOS parameter changes?	Did the problem occur after changes were made to the BIOS using the Setup program?
Make a list of slots and interrupts used by additional cards (for example, LAN, sound and SCSI)	This is to check for interrupt conflicts. You can find IRQs by running DiagTools (see page 29) and slot numbers by looking at the Summary Screen, accessed by pressing Esc during start-up.
Operating System	
Are you using the original operating system software that came preloaded on your PC?	What is the operating system version?
If no, what is the operating system version?	Select Settings ⇨ Control Panel from the Start menu, then click on the System icon. The operating system version is displayed under System .
Any operating system-generated error messages	Please note down exact text of error message.
Any errors during boot (Power-On Self Test). This test checks all installed components.	Any POST errors will be displayed on your monitor screen or signalled by beep codes.



Replacing and Upgrading PC Components

This chapter provides information about replacing hardware components. For information about upgrading your PC and installing accessories, refer to the *Troubleshooting and Upgrade Guide*, available on HP's web site www.hp.com/go/vectrasupport.

Before Starting

Read this section before replacing any components.

This chapter explains how to install hardware accessories for your PC. If you want to install accessories, refer to HP's web site at www.hp.com/go/pcaccessories for a list of supported accessories. This chapter also explains how to replace defective hardware.

If you need further information about upgrading your PC and installing accessories, refer to the *Troubleshooting and Upgrade Guide*, available on HP's web site www.hp.com/go/vectrasupport.

WARNING

For your safety, never remove the PC's cover without first removing the power cord from the power outlet and any connection to a telecommunications network. If a power protection device is fitted to your PC, you must remove the power cord then wait for a few minutes before removing the cover. Remove the power protection device cables before any servicing operation. Always replace the cover before switching the PC on again.

CAUTION

Static electricity can damage electronic components. Turn all equipment OFF. Don't let your clothes touch the accessory. To equalize the static electricity, rest the accessory bag on top of the PC while you are removing the accessory from the bag. Handle the accessory as little as possible and with care.

Removing and Replacing the Cover

Removing the Cover

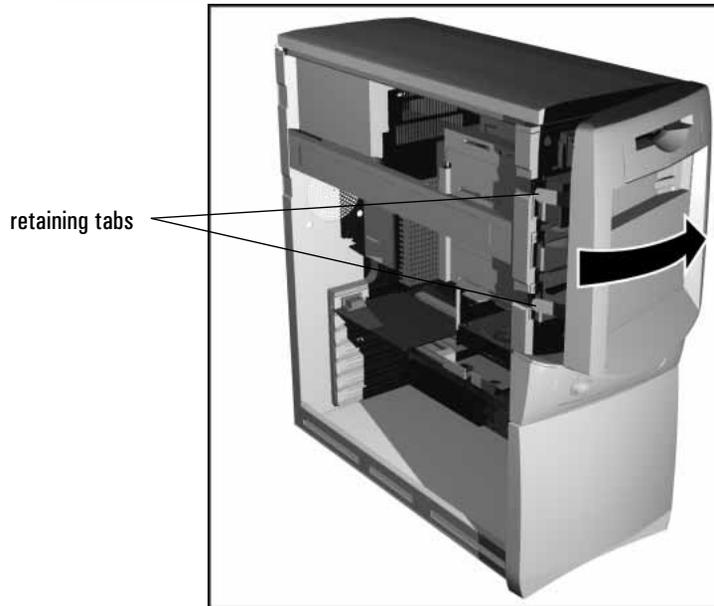
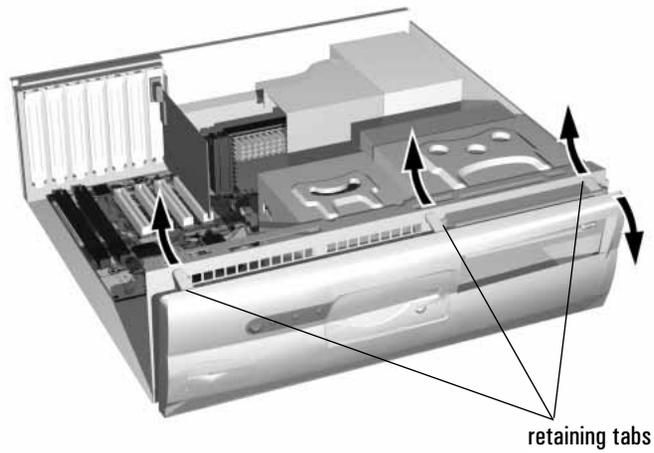
- 1 Switch off the monitor and PC, disconnect all power cords and any telecommunication cables.
- 2 Unlock the cover (with the key) at the rear of the PC if a lock is installed.
- 3 **Desktop:** Open the latch and remove the cover.
Minitower: Open the latch and remove the side panel.



3 Replacing and Upgrading PC Components

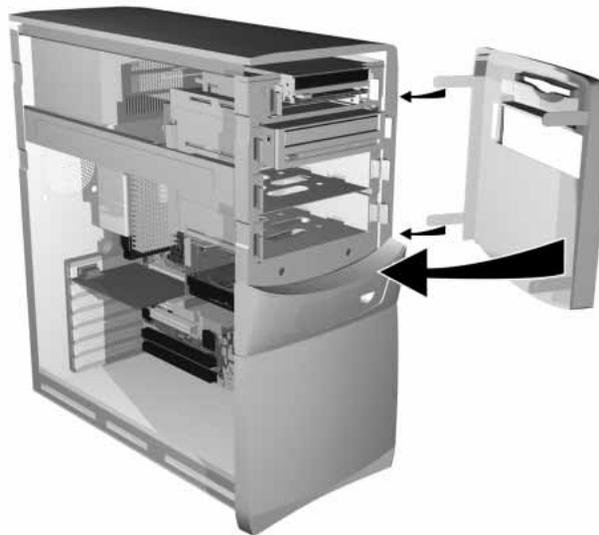
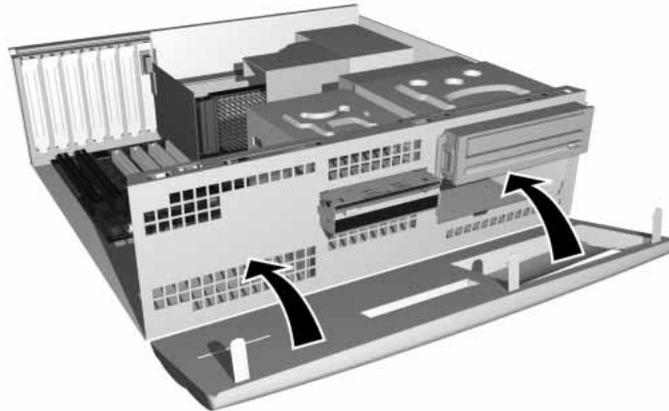
Removing and Replacing the Cover

- 4 Remove the front panel by freeing the plastic retaining tabs and lifting the panel off.



Replacing the Cover

- 1 Ensure that all internal cables are properly connected and safely routed (not trapped or snagging on anything.)
- 2 Replace the front panel.

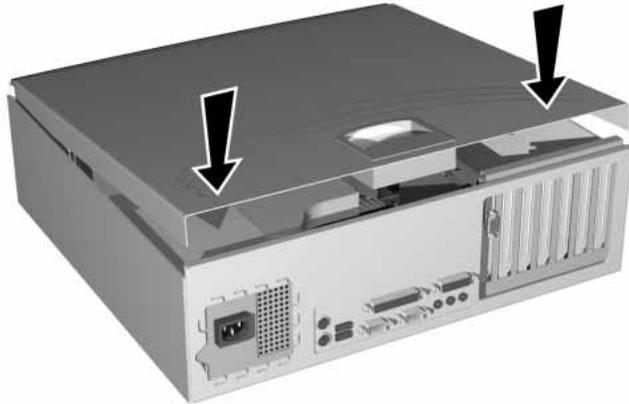


3 Replacing and Upgrading PC Components

Removing and Replacing the Cover

3 **Desktop:** Replace the cover, making sure you align the hinges properly.

Minitower: Replace the side panel, making sure you align the hinges properly.



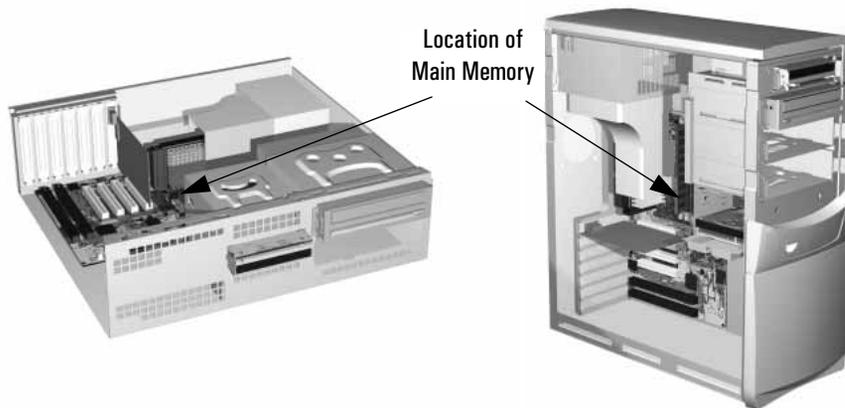
Replacing or Installing a Memory Module

NOTE

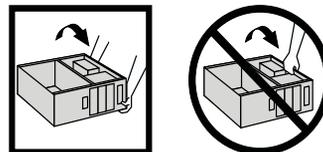
Use only HP memory modules provided for your PC model. The use of other memory modules is not supported. For information about supported HP accessories, connect to the web site www.hp.com/go/pcaccessories.

A continuity module should be installed in any memory slot that does not contain a memory module. Continuity modules are flat on both sides (they have no soldered components) and lower than memory modules.

If you are installing only one memory module, it must be installed in the slot nearest the processor.



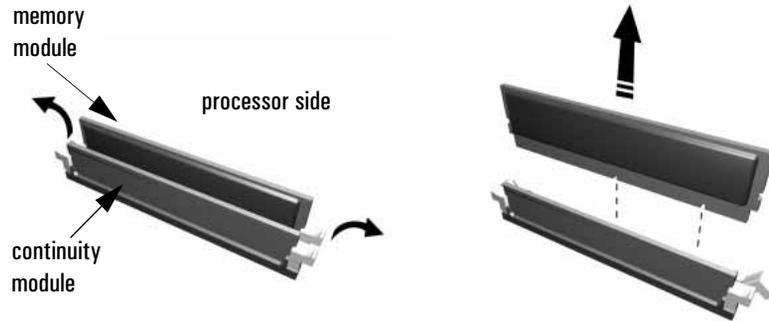
- 1 Remove the PC's cover (described in this chapter).
- 2 If you have a minitower, lay it on its side.



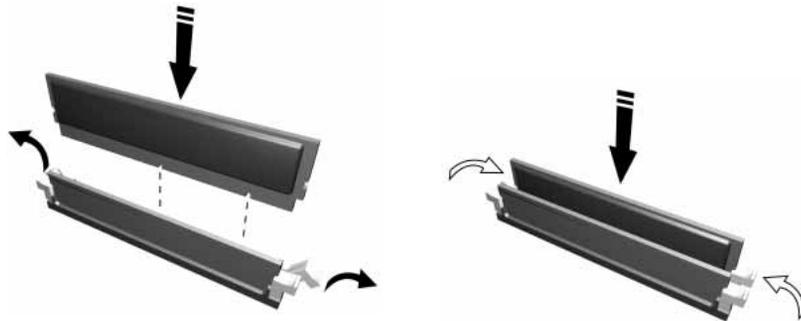
3 Replacing and Upgrading PC Components

Replacing or Installing a Memory Module

- 3 Open the two tabs and remove the old memory or continuity module.



- 4 Line up the two side notches correctly and insert the new memory module, pressing down firmly on the top.



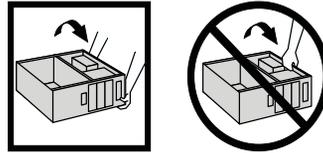
- 5 Replace the cover (described in this chapter).

NOTE

Keep spare continuity modules in a safe place in case you need to use them at a later date.

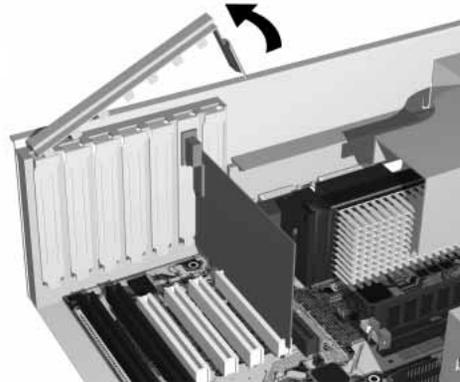
Replacing an Accessory Board

- 1 Remove the computer's cover (described in this chapter).
- 2 If you have a minitower, lay it on its side.

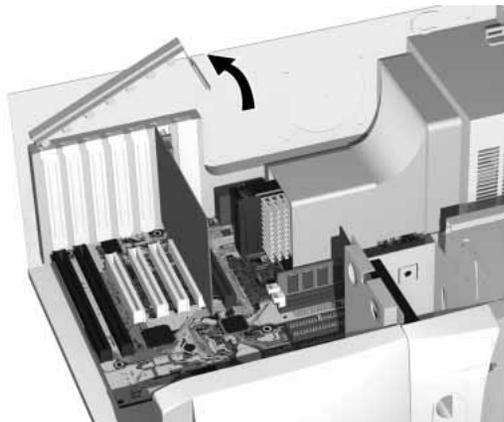


- 3 Remove the retaining bracket.

Desktop



Minitower

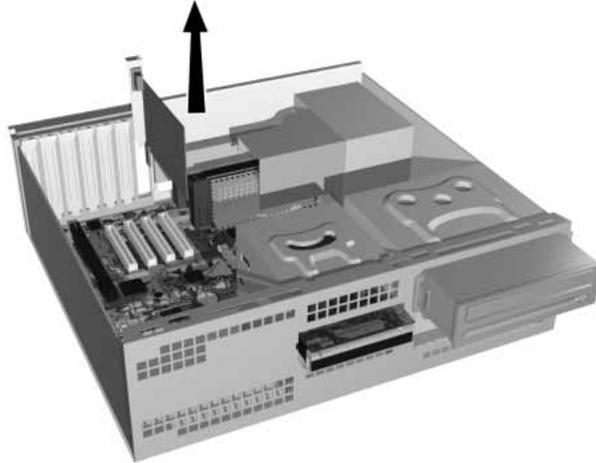


3 Replacing and Upgrading PC Components

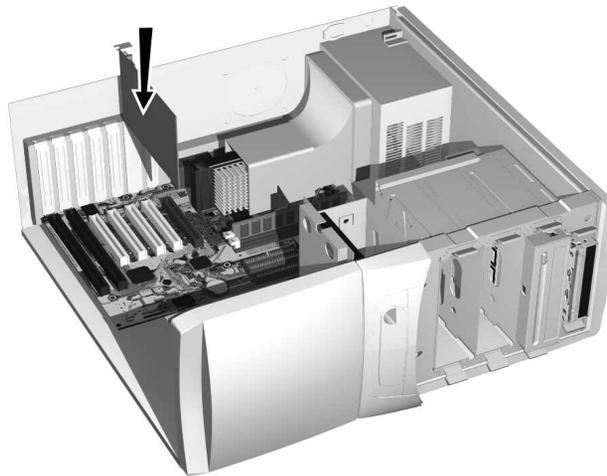
Replacing an Accessory Board

- 4 Hold the old accessory board firmly and carefully pull it out.

Desktop



Minitower



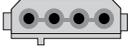
- 5 Aligning the new board carefully, slide it into position and press it firmly into the slot.
- 6 Replace the retaining bracket.
- 7 Replace the cover (described in this chapter).

Which Drive Connectors To Use

When replacing hard disk drives, CD-ROM, DVD-ROM or CD-RW drives, ensure you use the correct data and power connectors.

IDE hard disk drives should always be connected to the primary IDE controller. CD-ROM and CD-RW drives should always be connected to the secondary IDE controller. **PRIMARY** and **SECONDARY** are printed on the system board to help you locate the connectors.

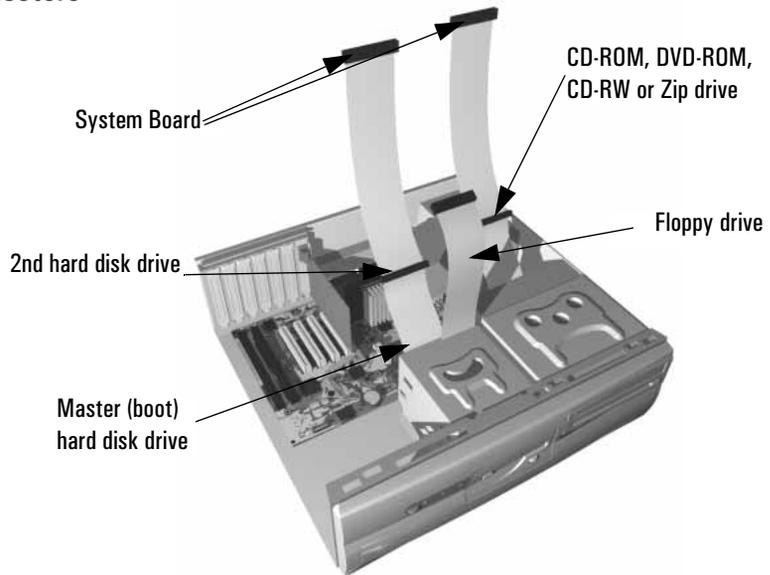
For models that have a SCSI adapter, you can install extra internal SCSI mass storage devices, such as a supplementary SCSI hard disk drive. Up to two hard disk drives can be installed in your PC.

Power Connectors	Number in Desktop	Number in Minitower	Use for
	4	5	Hard disk drives, CD-ROM, DVD-ROM or CD-RW drives, Zip drives
	1	1	Floppy disk drive

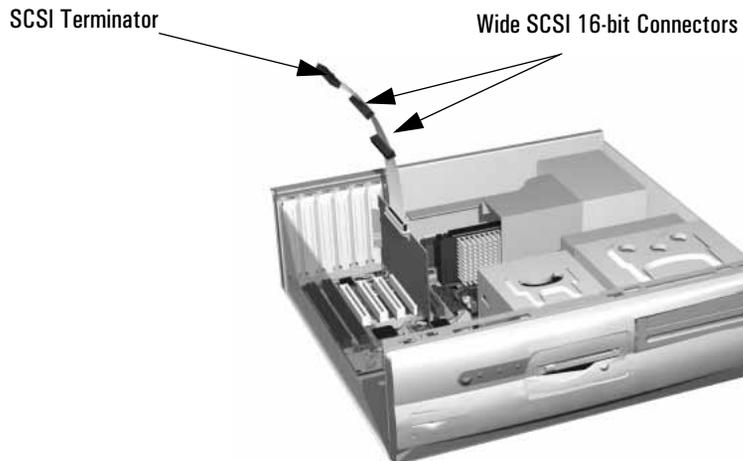
3 Replacing and Upgrading PC Components

Which Drive Connectors To Use

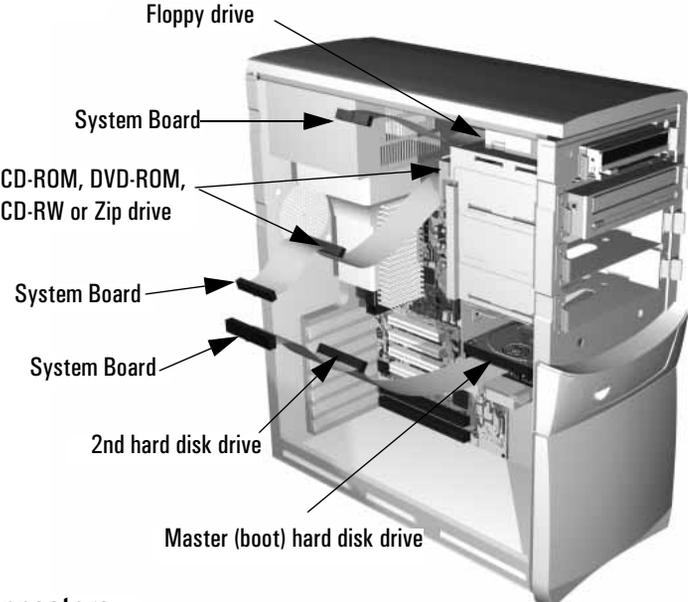
IDE Connectors



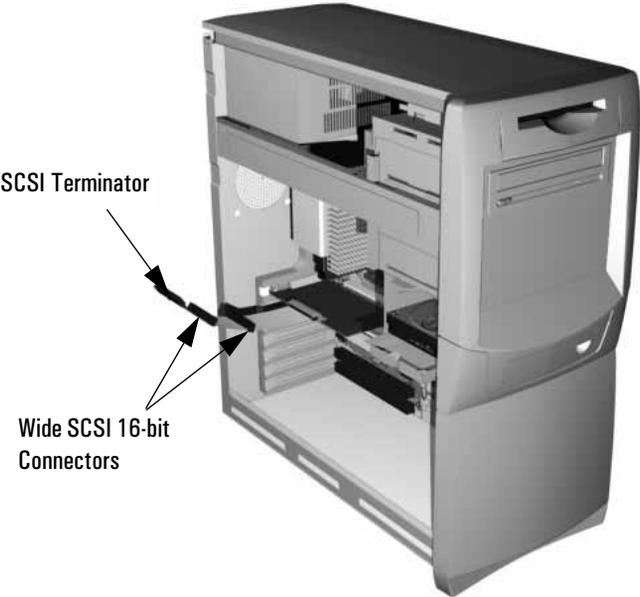
SCSI Connectors



IDE Connectors



SCSI Connectors

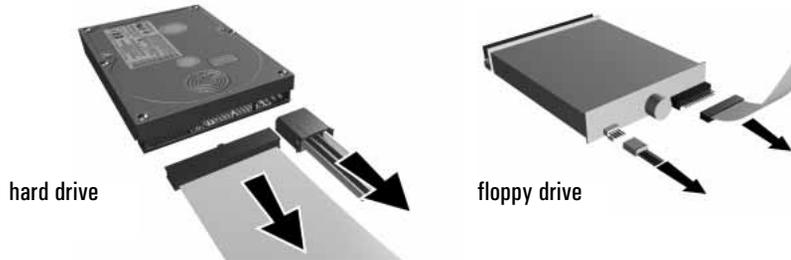


Replacing the Hard Disk Drive

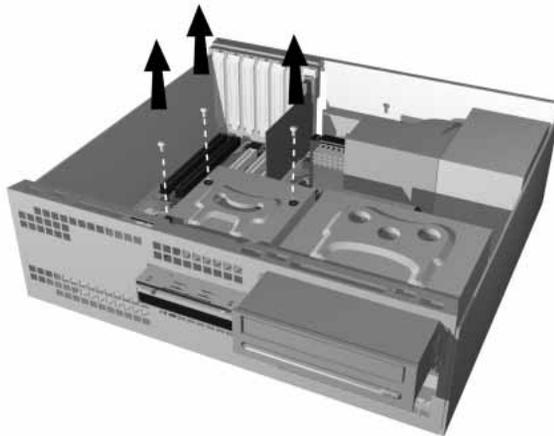
For information about recovering the disk drive contents, refer to the *Troubleshooting and Upgrade Guide*, available on HP's web site www.hp.com/go/vectrasupport.

In the Desktop

- 1 Remove the computer's cover (described in this chapter).
- 2 Remove the connectors from both the hard drive and the floppy drive.



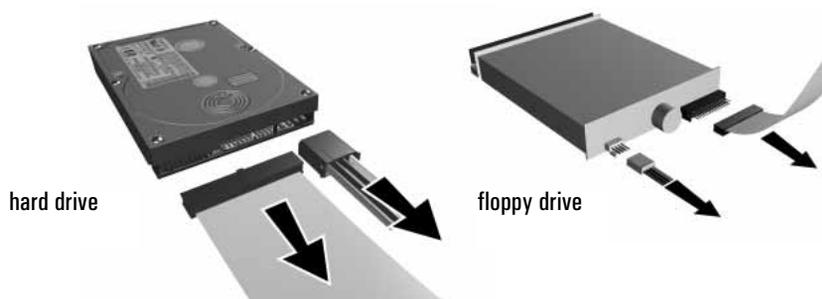
- 3 Loosen the hard drive screws from the top of the drive tray and slide out the old hard drive.



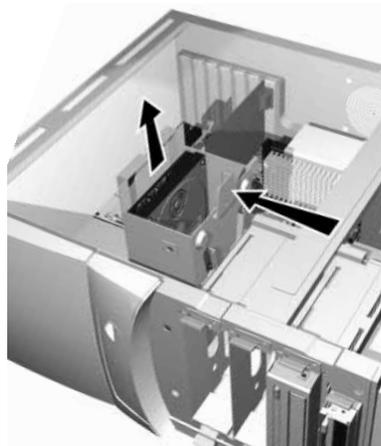
- 4 Align the new hard drive in the tray (with the correct orientation) and tighten the screws.
- 5 Attach the data and power connectors.
- 6 Replace the cover (described in this chapter).

In the Minitower

- 1 Remove the computer's cover (described in this chapter).
- 2 Lay the minitower on its side.
- 3 Remove the connectors from both the hard drive and the floppy drive.



- 4 Press the retaining clip on top of the drive tray and slide the drive tray out.



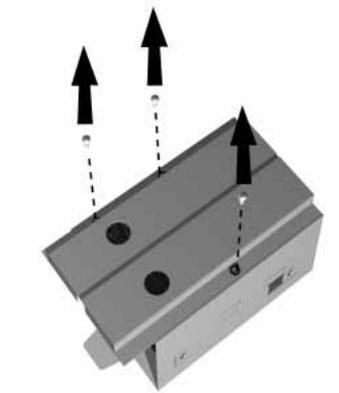
CAUTION

Hold tray firmly while removing it.

3 Replacing and Upgrading PC Components

Replacing the Hard Disk Drive

- 5 Turn the drive tray over, remove all the screws from the base of the tray, then slide out the old hard drive.



- 6 Align the new hard drive in the tray (with the correct orientation) and tighten the screws.
- 7 Replace the drive tray in the PC.
- 8 Attach the data and power connectors.
- 9 Replace the cover (described in this chapter).

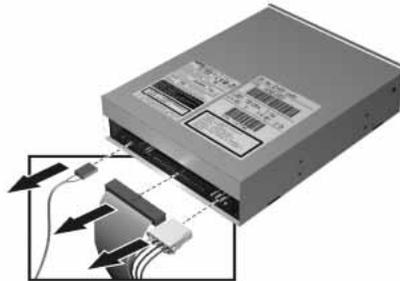
Replacing the CD-ROM, DVD-ROM or CD-RW Drive

WARNING

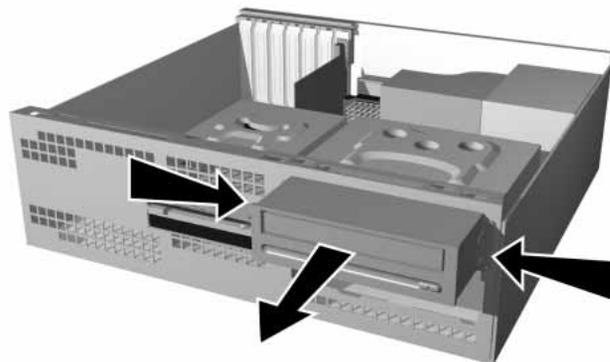
To avoid electrical shock and harm to your eyes by laser light, do not open the laser module. The laser module should only be serviced by service personnel. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM for power requirements and wavelength. This product is a class I laser product.

In the Desktop

- 1 Remove the computer's cover and front panel (described in this chapter).
- 2 Remove the drive's connectors.



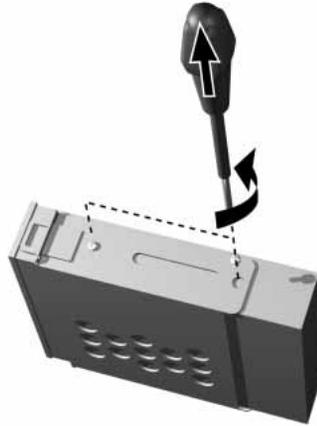
- 3 Press the two latches inward and slide out the drive tray.



3 Replacing and Upgrading PC Components

Replacing the CD-ROM, DVD-ROM or CD-RW Drive

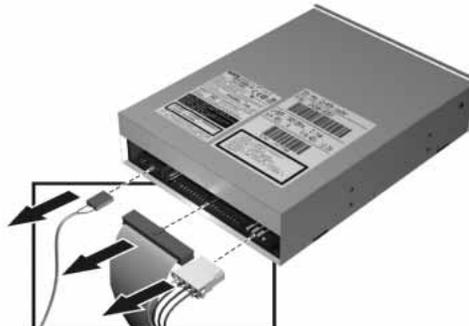
- 4 Loosen the tray's four screws (two on each side) and remove the old CD-ROM drive.



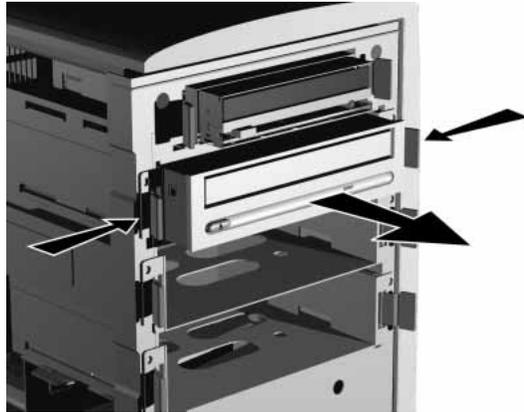
- 5 Align the new CD-ROM drive in the tray (with the correct orientation) and replace the screws.
- 6 Slide the drive tray back into the PC until it clips into position.
- 7 Attach all data and power connectors.
- 8 Replace the cover (described in this chapter).

In the Minitower

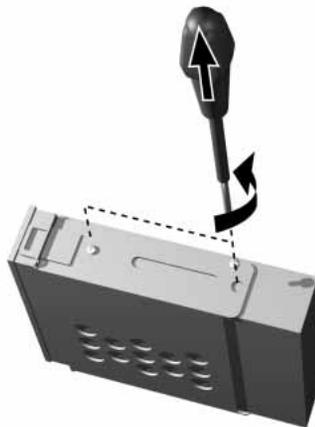
- 1 Remove the computer's cover and front panel (described in this chapter).
- 2 Remove the drive's connectors.



- 3 Press the two latches inward and slide out the drive tray.



- 4 Loosen the tray's four screws (two on each side) and remove the old CD-ROM drive.

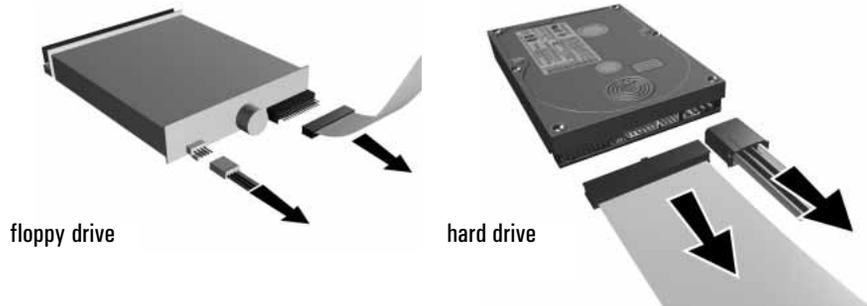


- 5 Align the new CD-ROM drive in the tray (with the correct orientation) and replace the screws.
- 6 Slide the drive tray back into the PC.
- 7 Attach the data and power connectors.
- 8 Replace the cover (described in this chapter).

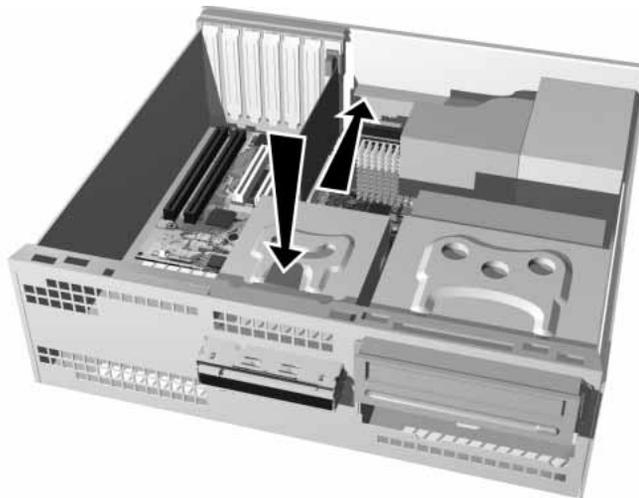
Replacing the Floppy Drive

In the Desktop

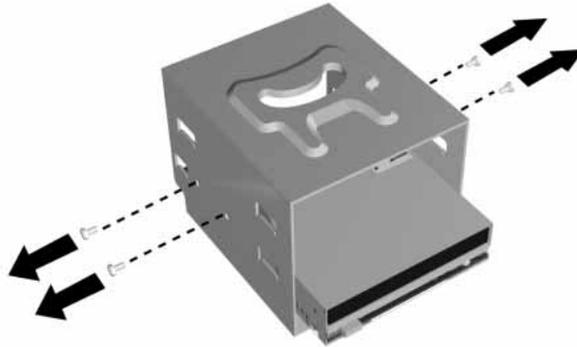
- 1 Remove the computer's cover (described in this chapter).
- 2 Remove the connectors from both the floppy drive and the hard drive.



- 3 Press the retaining clip on top of the drive tray and slide it backwards to remove it.



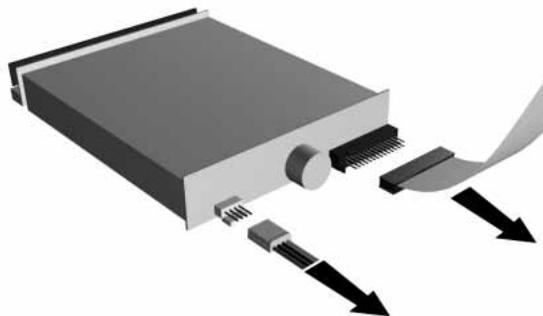
- 4 Remove the four screws that fix the floppy drive to the tray and remove the old floppy drive.



- 5 Align the new floppy drive in the tray (with the correct orientation) and replace the screws.
- 6 Replace the drive tray in the PC.
- 7 Attach the data and power connectors.
- 8 Replace the cover (described in this chapter).

In the Minitower

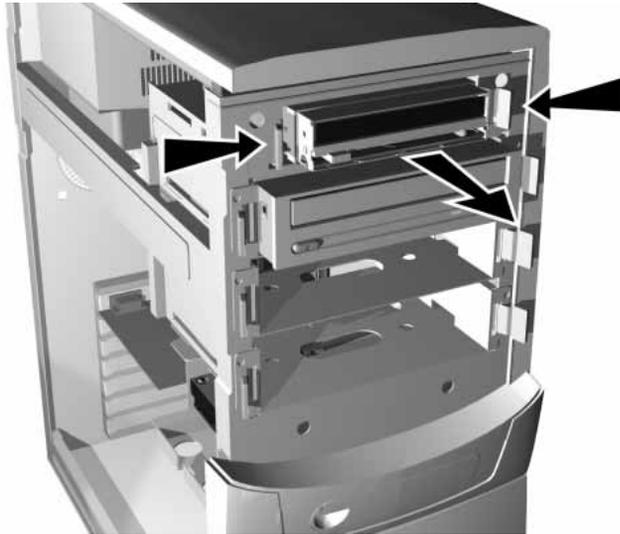
- 1 Remove the computer's cover and front panel (described in this chapter).
- 2 Remove the drive's connectors.



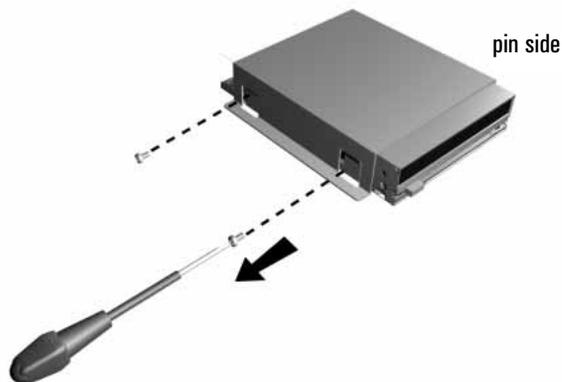
3 Replacing and Upgrading PC Components

Replacing the Floppy Drive

- 3 Press the two latches inward and slide out the floppy drive tray.



- 4 Loosen the tray's 2 side screws and remove the old floppy drive.

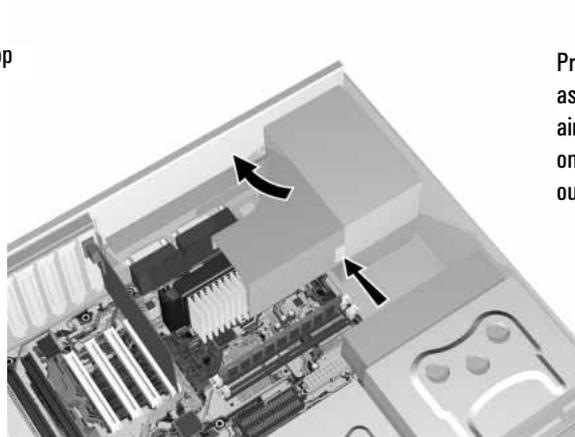


- 5 Insert the new floppy drive (pin side first) then replace the two side screws.
- 6 Slide the floppy drive tray back into the PC.
- 7 Attach the data and power connectors.
- 8 Replace the cover (described in this chapter).

Replacing the Processor

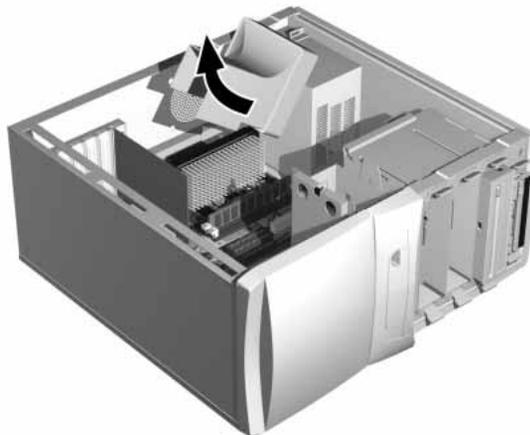
- 1 Remove the computer's cover (described in this chapter).
- 2 If you have a minitower, lay it on its side.
- 3 Remove the airflow guide.

Desktop



Press firmly on the side as shown until the airflow guide comes free on one side, then lift it out.

Minitower



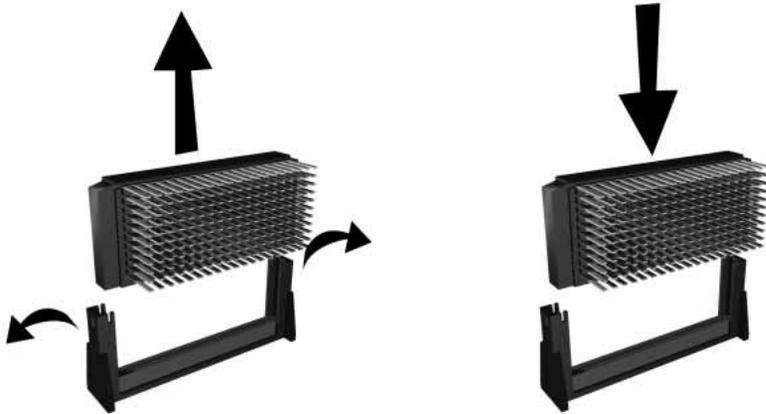
Squeeze firmly on both sides and lift the airflow guide out.

- 4 Remove the old processor.

3 Replacing and Upgrading PC Components

Replacing the Processor

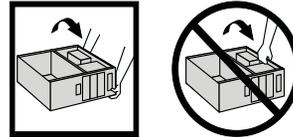
- 5 Install the new processor and clip it into place.



- 6 Replace the airflow guide aligning the clips with the holes on the power supply.
 - **Desktop:** insert the bottom clip in the hole first, then squeezing the airflow guide on both sides, insert the side clips.
 - **Minitower:** insert the clips on one side first, and once these are engaged, insert the clips on the other side.
- 7 Replace the cover (described in this chapter).
- 8 Ensure that the latest version of BIOS is installed on your PC. To learn which version of BIOS is currently installed on your PC, press **ESC** during startup. To get the latest BIOS version for your PC, connect to the web site www.hp.com/go/vectrasupport.

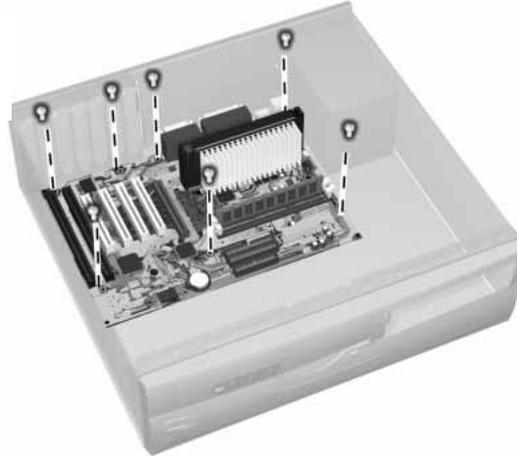
Replacing the System Board

- 1 Remove the computer's cover (described in this chapter).
- 2 If you have a minitower, lay it on its side.



- 3 Remove the airflow guide (refer to page 57.)
- 4 Remove all the components from the old system board (described in this chapter).
- 5 Remove all data and power cables from the old system board.
- 6 Remove the old system board by unfastening the screws that secure the board in position and lifting it out of the PC.

The desktop model has
7 screws and the
minitower has 6.



- 7 Insert the new system board into the PC and fasten the screws to secure the board in place.
- 8 Replace all components and any data and power cables in the new system board (described in this chapter).
- 9 Replace the cover (described in this chapter).

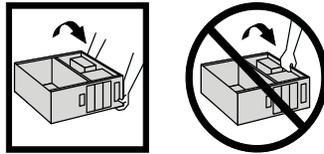
Replacing the Power Supply

WARNING

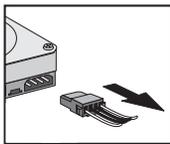
Hewlett Packard does not support power supply upgrades. This information is provided to help you replace a defective power supply unit. For your safety, only replace with a power supply provided by HP support services.

To avoid electrical shock, do not open the power supply. There are no user-serviceable parts inside.

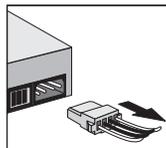
- 1 Remove the computer's cover (described in this chapter).
- 2 If you have a minitower, lay it on its side.



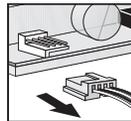
- 3 Remove *all* internal power supply connectors.



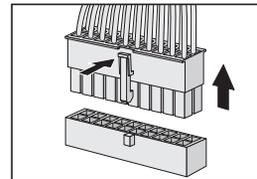
Hard drive(s)



DVD/CD-ROM
drive(s)



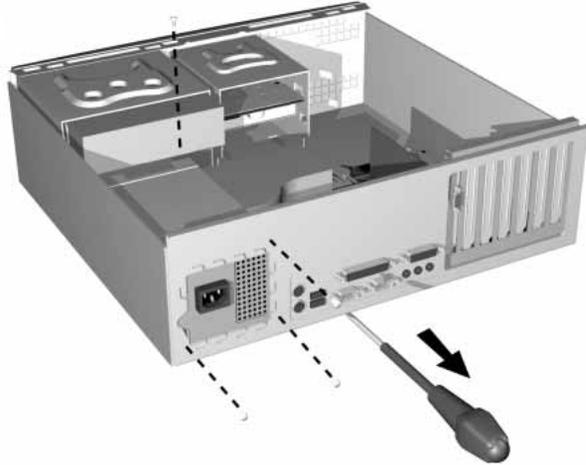
Floppy drive



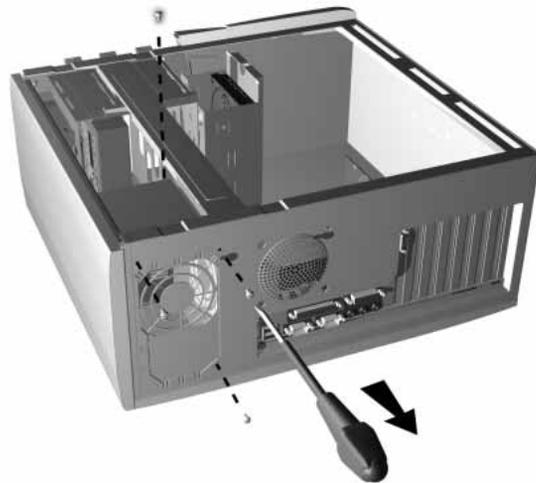
Main power

- 4 Remove the four screws (three external, one internal) securing the power supply.

Desktop



Minitower



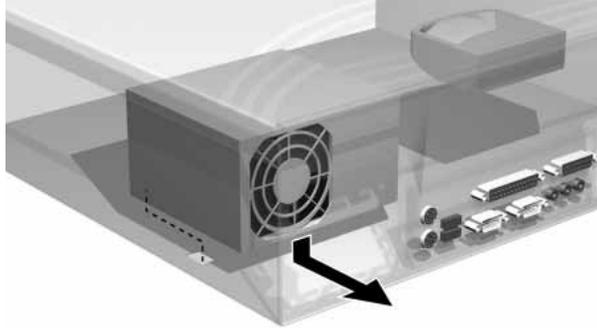
- 5 Slide the old power supply forward and remove it.

3 Replacing and Upgrading PC Components

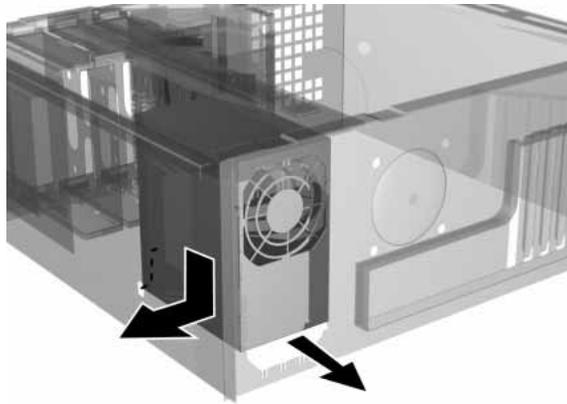
Replacing the Power Supply

- 6 Insert the new power supply (lining up the metal catches).

Desktop



Minitower

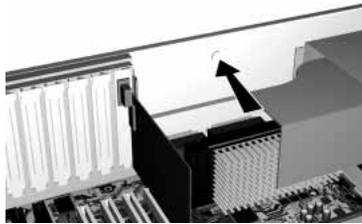


- 7 Replace the four screws to secure the power supply.
- 8 Reconnect *all* internal power supply connectors.
- 9 Replace the cover (described in this chapter).
- 10 Select the correct voltage setting for your country.

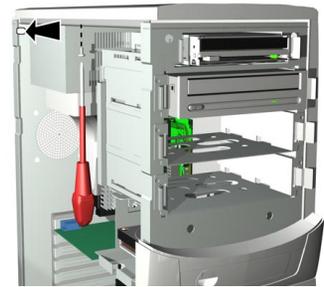
Installing a Master Pass Key Lock

- 1 Remove the computer's cover (described in this chapter).
- 2 Push out the metal filler disc on the PC's back panel.

Desktop

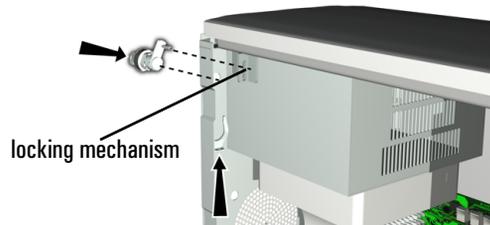


Minitower



- 3 **In a desktop:** remove the lock from the adapter and insert the lock in the hole (with the key in the lock).
- 4 **In a minitower:**
 - a Remove the screw situated in the top casing of the PC, just behind the power supply (see above).
 - b Insert the lock in the hole (with the key in the lock). Make sure that the pin on the bottom of the lock is engaged in the hole in the side panel locking mechanism.

Minitower

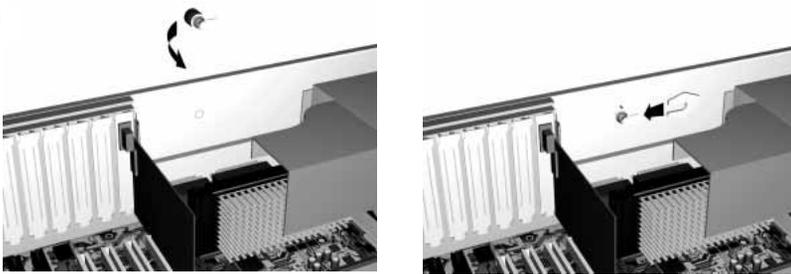


3 Replacing and Upgrading PC Components

Installing a Master Pass Key Lock

- 5 Secure the lock with the metal clip provided. This drawing shows a desktop PC. See the previous drawing for minitower models.

Desktop



- 6 Replace the computer's cover (described in this chapter)

For more information, refer to the *User's Guide* that came with this accessory.

Regulatory Information

Regulatory Information

DECLARATION OF CONFORMITY According to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: HEWLETT-PACKARD France
Manufacturer's Address: 5 Avenue Raymond Chanas-Eybens
38053 Grenoble Cedex 09
FRANCE

Declares that the product: **Product Name:** Personal Computer
Model Number: HP VECTRA VL600
Models DT and MT

Conforms to the following Product Specifications:

SAFETY International: IEC 60950:1991 + A1 + A2 + A3 + A4 / GB4943-1995
Europe: EN 60950:1992 + A1 + A2 + A3 + A4

EMC CISPR 22:1993 + A1 + A2 / EN 55022:1994 + A1 + A2 Class B ¹⁾
GB9254-1988
EN 50082-1:1992
IEC 801-2:1992 / prEN 55024-2:1992 - 4kV CD, 8kV AD
IEC 801-3:1984 / prEN 55024-3:1991 - 3V/m
IEC 801-4:1988 / prEN 55024-4:1992 - 0.5 kV Signal Lines,
1 kV Power Line
IEC 555-2:1982 + A1:1985 / EN60555-2:1987
IEC 1000-3-3:1994 / EN61000-3-3:1995

¹⁾ The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

Supplementary information: The product herewith complies with the requirements of the following Directives and carries the CE-marking accordingly: EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC, both amended by the directive 93/68/EEC.

FCC Title 47 CFR, Part 15 Class B ²⁾ / ICES-003, Issue 2

²⁾ 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.

VCCI-B
AS / NZ 3548:1992

Grenoble
June 1999

Jean-Marc JULIA
Quality Manager



For Compliance Information ONLY, contact:
USA Contact: Hewlett-Packard Company, Corporate Product Regulations Manager,
3000 Hanover Street, Palo Alto, CA 94304. (Phone: (415) 857-1501)

Regulatory Statements

FCC (for USA only)

Federal Communications Commission Radio Frequency Interference Statement

Warning:

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 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/TV technician for help.
- Hewlett-Packard's FCC Compliance Tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your system. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment.

Notice for Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Class B est conforme à la norme NMB-003 du Canada.

Safety Warning for the USA and Canada

If the power cord is not supplied with the computer, select a power cord in accordance with your national electrical specifications.

USA: use a UL listed type SVT detachable power cord.

Canada: use a CSA certified detachable power cord.

For your safety, never remove the PC's cover without first removing the power cord from the power outlet and any connection to a telecommunications network. Always replace the cover before switching the PC on again

(If lithium battery is used)

There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn an old battery. Only replace the battery with the same or equivalent type, as recommended by the manufacturer. The battery in this PC is a lithium battery which does not contain any heavy metals. Nevertheless, in order to protect the environment, do not dispose of batteries in household waste. Please return used batteries either to the shop from which you bought them, to the dealer from whom you purchased your PC, or to HP so that they can either be recycled or disposed of in the correct way. Returned batteries will be accepted free of charge.

Si le cordon secteur n'est pas livré avec votre ordinateur, utiliser un cordon secteur en accord avec votre code électrique national.

Canada: utiliser un cordon secteur certifié CSA.

Pour votre sécurité, ne pas enlever le capot de cet équipement avant de débrancher le cordon secteur et toute connexion au réseau de télécommunication. Remettez toujours le capot avant de mettre sous tension

(En cas d'utilisation de pile au lithium)

Il y a danger d'explosion lorsque la pile n'est pas installée correctement. Pour votre sécurité, ne jamais essayer de recharger, de démonter ou de brûler l'ancienne pile. Remplacer uniquement avec une pile du même type ou d'un type équivalent recommandé par le constructeur. La pile dans cet ordinateur est une pile au lithium qui ne contient pas de métaux lourds, néanmoins, afin de protéger l'environnement, ne jetez pas les piles dans les ordures ménagères. Rendez les où vous les avez achetées, au revendeur où vous avez acheté votre ordinateur ou à Hewlett Packard, pourqu'elles soient recyclées ou rangées de manière qui ne nuit pas à l'environnement. Les piles usées seront acceptées gratuitement.

Warnung

Wenn die Batterie nicht korrekt eingebaut wird, besteht Explosionsgefahr. Zu ihrer eigenen Sicherheit sollten Sie nicht versuchen, die Batterie wiederaufzuladen, zu zerlegen oder die alte Batterie zu verbrennen. Tauschen Sie die Batterie nur gegen den gleichen oder ähnlichen Typ aus, der vom Hersteller empfohlen wird. Bei der in diesem PC integrierten Batterie handelt es sich um eine Lithium-Batterie, die keine Schwermetalle enthält. Batterien und Akkumulatoren gehören nicht in den Hausmüll. Sie werden vom Hersteller, Händler oder deren Beauftragten kostenlos zurückgenommen, um sie einer Verwertung bzw. Entsorgung zuzuführen.

Notice for the Netherlands



Bij dit apparaat zijn batterijen geleverd. Wanneer deze leeg zijn, moet U ze niet weggooien maar inleveren als KCA.

Hinweis für Deutschland: Geräuschemission

Lärmangabe nach Maschinenlärmmittelverordnung - 3 GSGV (Deutschland):
LpA < 70 dB am Arbeitsplatz bei normalem Betrieb nach DIN 45635 T.19
(under normal use in the workplace, as per ISO 7779).

Notice for Japan

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

This equipment is in the Class B category information technology equipment based on the rules of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). Although aimed for residential area operation, radio interference may be caused when used near a radio or TV receiver. Read the instructions for correct operation.

Notice for Korea

사용자 안내문 (B급 기기)

이 기기는 비업무용으로 전자파장애검정을 받은 기기로서, 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

HP Software Product License Agreement

Your HP Vectra PC contains preinstalled software programs. Please read the Software License Agreement before proceeding.

CAREFULLY READ THIS LICENSE AGREEMENT AND LIMITED WARRANTY STATEMENT BEFORE PROCEEDING TO OPERATE THIS EQUIPMENT. RIGHTS IN THE SOFTWARE ARE OFFERED ONLY ON THE CONDITION THAT THE CUSTOMER AGREES TO ALL TERMS AND CONDITIONS OF THE LICENSE AGREEMENT. PROCEEDING TO OPERATE THE EQUIPMENT INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE WITH THE TERMS OF THE LICENSE AGREEMENT, YOU MUST NOW EITHER REMOVE THE SOFTWARE FROM YOUR HARD DISK DRIVE AND DESTROY THE MASTER DISKETTES, OR RETURN THE COMPLETE COMPUTER AND SOFTWARE FOR A FULL REFUND. PROCEEDING WITH CONFIGURATION SIGNIFIES YOUR ACCEPTANCE OF THE LICENSE TERMS.

UNLESS OTHERWISE STATED BELOW, THIS HP SOFTWARE PRODUCT LICENSE AGREEMENT SHALL GOVERN THE USE OF ALL SOFTWARE THAT IS PROVIDED TO YOU, THE CUSTOMER, AS PART OF THE HP COMPUTER PRODUCT. IT SHALL SUPERSEDE ANY NON-HP SOFTWARE LICENSE TERMS THAT MAY BE FOUND ONLINE, OR IN ANY DOCUMENTATION OR OTHER MATERIALS CONTAINED IN THE COMPUTER PRODUCT PACKAGING.

Note: Microsoft software products are licensed to you under the Microsoft End User License Agreement (EULA) contained in the Microsoft documentation or in the documentation online.

The following License Terms govern the use of the software:

USE. Customer may use the software on any one computer. Customer may not network the software or otherwise use it on more than one computer. Customer may not reverse assemble or decompile the software unless authorized by law.

COPIES AND ADAPTATIONS. Customer may make copies or adaptations of the software (a) for archival purposes or (b) when copying or adaptation is an essential step in the use of the software with a computer so long as the copies and adaptations are used in no other manner.

OWNERSHIP. Customer agrees that he/she does not have any title or ownership of the software, other than ownership of the physical media. Customer acknowledges and agrees that the software is copyrighted and protected under the copyright laws. Customer acknowledges and agrees that the software may have been developed by a third party software supplier named in the copyright notices included with the software, who shall be authorized to hold the Customer responsible for any copyright infringement or violation of this Agreement.

PRODUCT RECOVERY CD-ROM. If your computer was shipped with a product recovery CD-ROM: (i) The product recovery CD-ROM and/or support utility software may only be used for restoring the hard disk of the HP computer with which the product recovery CD-ROM was originally provided.(ii) The use of any operating system software by Microsoft contained in any such product recovery CD-ROM shall be governed by the Microsoft End User License Agreement (EULA).

TRANSFER OF RIGHTS IN SOFTWARE. Customer may transfer rights in the software to a third party only as part of the transfer of all rights and only if Customer obtains the prior agreement of the third party to be bound by the terms of this License Agreement. Upon such a transfer, Customer agrees that his/her rights in the software are terminated and that he/she will either destroy his/her copies and adaptations or deliver them to the third party.

SUBLICENSING AND DISTRIBUTION. Customer may not lease, sublicense the software or distribute copies or adaptations of the software to the public in physical media or by telecommunication without the prior written consent of Hewlett-Packard.

TERMINATION. Hewlett-Packard may terminate this software license for failure to comply with any of these terms provided Hewlett-Packard has requested Customer to cure the failure and Customer has failed to do so within thirty (30) days of such notice.

UPDATES AND UPGRADES. Customer agrees that the software does not include updates and upgrades which may be available from Hewlett-Packard under a separate support agreement.

EXPORT CLAUSE. Customer agrees not to export or re-export the software or any copy or adaptation in violation of the U.S. Export Administration regulations or other applicable regulation.

U.S. GOVERNMENT RESTRICTED RIGHTS. Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013. Hewlett-Packard Company, 3000 Hanover Street, Palo Alto, CA 94304 U.S.A. Rights for non-DOD U.S. Government Departments and Agencies are as set forth in FAR 52.227-19(c)(1,2).

Recycling Your PC

HP has a strong commitment toward the environment. Your HP Personal Computer has been designed to respect the environment as much as possible.

HP can also take your old PC back for recycling when it reaches the end of its useful life.

HP has a product take-back program in several countries. The collected equipment is sent to one of HP's recycling facilities in Europe or the USA. As many parts as possible are reused. The remainder is recycled. Special care is taken for batteries and other potentially toxic substances, which are reduced into non-harmful components through a special chemical process.

If you require more details about HP's product take-back program, contact your dealer or your nearest HP Sales Office.

Index

A

- accessories
 - installing, 35
- accessory board
 - replacing, 43
- ACPI, 23
- audio
 - connectors, 18

B

- basic problem solving, 25

C

- CD-ROM drive
 - replacing, 51
- components
 - replacing, 35
- connecting
 - external SCSI device, 15
 - multimedia keyboard, 18
 - power cords, 20
- connectors
 - audio, 18
 - headphones, 18
 - internal data, 45
 - internal drive, 45
 - internal power, 45
 - microphone, 18
 - MIDI, 18
- cover
 - removing, 37
 - replacing, 39

D

- data connectors, 45
 - diagnosing hardware problems, 29
 - DiagTools, 29
 - documentation
 - downloadable from Web, 4
 - DVD drive
 - replacing, 51
- ## E
- Energy Star, 23
 - EPA, 23
 - errors, 25

F

- floppy drive
 - replacing, 54

H

- hard disk drive
 - replacing, 48
- hardware problems
 - diagnosing, 29
- headphones
 - connector, 18
- help
 - online, 3
- HP ProtectTools, 24
- HP Setup program, 18, 23, 28
- HP Support and Information Services, 34
- HP Web site, 3, 35

I

- IDE
 - connectors, 45
 - drive connectors, 45
- initializing
 - software, 21
- installing
 - accessories, 35

K

- keyboard
 - connecting multimedia, 18

L

- line in
 - connector, 18
- line out
 - connector, 18

M

- manageability, 24
- manuals for you PC
 - description, 4
- memory
 - replacing, 41
- microphone
 - connector, 18
- MIDI

- connector, 18
- monitor
 - connecting, 13
- multimedia keyboard
 - connecting, 18
- O
- online information, 3
- P
- partitioning a hard drive, 21
- PC
 - starting and stopping, 21
 - unpacking, 12
- power
 - internal connectors, 45
- power cords
 - connecting, 20
- power management
 - using, 23
- power supply
 - replacing, 60
- Power-On Self-Test
 - screen, 21
- printer
 - connecting, 13
- problem solving, 25
- problems
 - Frequently Asked Questions, 31
 - keyboard, 27
 - mouse, 27
 - PC doesn't start, 26
 - POST error, 28
- processor
 - replacing, 57
- R
- removing the cover, 37
- replacing
 - accessory board, 43
 - CD-ROM drive, 51
 - components, 35
 - DVD drive, 51
 - floppy drive, 54
 - hard disk drive, 48
 - memory, 41
 - power supply, 60
 - processor, 57
 - system board, 59
- replacing the cover, 39
- S
- safety, 36
- SCSI
 - connecting external device, 15
 - drive connectors, 45
 - hard disk drive, 45
- security, 24
- smart card reader, 13
- software
 - initializing, 21
 - license agreement, 21
- stability, 24
- Stability for Life, 24
- starting
 - and stopping PC, 21
- support
 - HP, 34
- system board
 - replacing, 59
- T
- TopTools, 24
- troubleshooting
 - basic, 25
 - Frequently Asked Questions, 31
- Troubleshooting and Upgrade Guide, 35
- U
- upgrading
 - your PC, 35
- USB connectors, 13
- using
 - power management, 23
- V
- voltage selection, 20
- W
- Web site, HP, 3

Physical Characteristics

For more information, refer to the PC's data sheet in the library on HP's web site at: www.hp.com/desktop.

Characteristic	Desktop PC	Minitower PC
Weight (excl. display and keyboard)	10 kg (22 pounds)	13.4 kg (29.5 pounds)
Dimensions	Width: 43.5 cm (17.13 inches), Height: 13.5 cm (5.32 inches), Depth: 43 cm (16.93 inches)	Width: 20.6 cm (8.1 inches), Height: 46.9 cm (18.5 inches), Depth: 45.5 cm (17.9 inches)
Footprint	0.187 m ² (2.01 ft ²)	0.094 m ² (1.01 ft ²)
Storage temperature	-40 °C to 70°C (-40 °F to 158 °F)	-40 °C to 70°C (-40 °F to 158 °F)
Storage humidity	8% to 85% (relative), non-condensing at 40°C (104 °F)	8% to 85% (relative), non-condensing at 40°C (104 °F)
Operating temperature	10 °C to 35 °C (50 °F to 95 °F)	10 °C to 35 °C (50 °F to 95 °F)
Operating humidity	15% to 80% (relative)	15% to 80% (relative)
Power supply	Input voltage: 100 – 127 V 4.0A, 200 – 240V 2.0A ac (voltage selection switch) Input frequency: 50/60 Hz Maximum output power: 120W continuous	Input voltage: 100 – 127 V 6.0A, 200 – 240V 3.0A ac (voltage selection switch) Input frequency: 50/60 Hz Maximum output power: 200W continuous

Power Consumption

Power Consumption	Desktop Models		Minitower Models	
	115V / 60Hz	230V / 50Hz	115V / 60Hz	230V / 50Hz
Suspend	30.0 W	30.0 W	30.0 W	30.0 W

These are typical values given for standard base models. For more information, refer to the PC's datasheet on HP's Web site at: www.hp.com/desktop.

NOTE

When the PC is turned off with the power button on the front panel, the power consumption falls below 5 Watts, but is not zero. The special on/off method used by *this* PC considerably extends the lifetime of the power supply and battery. To reach zero power consumption in "off" mode, either unplug the PC from the power outlet or use a power block with a switch.

Acoustic Noise Emission

Acoustic Noise Emission (Measured according to ISO 7779)	All Models	
	Sound Power (typical)	Sound Pressure (typical)
Operating (idle)	LwA ≤ 37 dBA	LpA ≤ 32 dBA

These are typical values given for standard configuration as shipped. For more information, refer to the PC's datasheet on HP's Web site at: www.hp.com/desktop.

Where to Find Documentation for Your PC

If you want to ...

