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Troubleshooting and Upgrade Guide

www.hp.com/go/vectrasupport

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Troubleshooting and Upgrade Guide

This manual is for anyone who wants to:

- Troubleshoot problems on the PC
- Add accessories to the PC
- Configure the PC
- Find out where to get more information and support.

For information about setting up and using your PC, refer to the *User's Guide* that came with your PC. The *User's Guide* is also available on HP's web site at: **`www.hp.com/go/vectrasupport`**.

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. 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.

Documentation Set Overview

HP's web site allows you to download documentation for your PC free of charge. The documents provided are in Adobe Acrobat (PDF) format and are available from HP's web site at:

www.hp.com/go/vectrasupport.

The available documents include:

- *User's Guide*—describes how to set up your PC for the first time and contains quick troubleshooting information.
- *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 will also find complete information on available service and support at the HP World Wide Web site. To see the full set of services available, go to:

www.hp.com/go/vectra.

Which Vectra PC Do You Have?

Before connecting to HP's web site or phoning your support organization, look at the identification label on the side of your PC. It will tell you the series and model of your Vectra PC.

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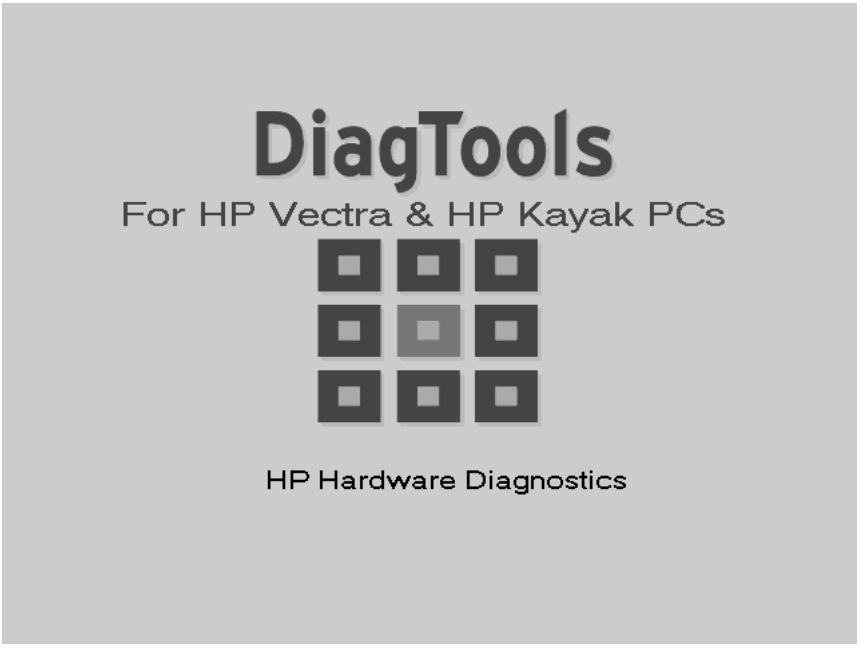
1 Troubleshooting Your PC



Troubleshooting Your PC

This chapter can help you solve problems you may have when using your PC. Do not hesitate to use the *HP DiagTools Hardware Diagnostics* utility (described on page 12). DiagTools can help you to quickly diagnose hardware problems for a speedy recovery.

Troubleshooting With HP Hardware Diagnostics

NOTE

HP strongly recommends you use the Hardware Diagnostics utility. It provides the most effective means for troubleshooting the vast majority of hardware problems.

DiagTools, the Hardware Diagnostics utility, helps you diagnose hardware-related problems on HP 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.

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

Where Can I Get DiagTools?

DiagTools is on the *Diagnostics & Recovery CD-ROM* that came with your PC, as well as preloaded on your PC. You can also download the latest version of this utility from HP's Web Site at **`www.hp.com/go/vectrasupport`**.

Starting DiagTools from the CD-ROM

If you have the *Diagnostics & Recovery CD-ROM* (provided with your PC) and a working CD-ROM drive:

1 Insert the PC's *Diagnostics & Recovery CD-ROM* into the CD-ROM drive.

2 Restart the PC.

3 Enter the *Setup* program by pressing **`F2`** at startup, then set **`PnP Operating System`** in the **`Main`** menu to **`No`**. Press **`Esc`** to save the settings and exit *Setup*.

4 The PC will start (boot) from the CD-ROM and display a menu. Select the option to run DiagTools.

5 Follow the onscreen instructions to carry out the diagnostic tests.

Starting DiagTools from a floppy disk

You can also run DiagTools from the floppy disk drive:

1 Create the diagnostic floppy disks from the preloaded copy of DiagTools on your hard disk:

- either run the **`diaginst.bat`** utility in **`C:\DMI\HPDIAGS`** on your hard disk, or
- run TopTools (look in **`Start`**⇨**`Programs`**⇨**`TopTools`**) and access the online (**`F1`**) help for information.

2 Insert the first floppy disk into the floppy drive (the second floppy disk is only necessary if you want to carry out Advanced System Tests).

3 Restart the PC.

4 Enter the *Setup* program by pressing **`F2`** at startup, then set **`PnP Operating System`** in the **`Main`** menu to **`No`**. Press **`Esc`** to save the settings and exit *Setup*.

5 The PC will start (boot) from the floppy disk and automatically start DiagTools. Follow the onscreen instructions to carry out the diagnostic tests.

This utility will automatically detect the complete hardware configuration of your system before any tests can be performed.

NOTE

If you changed the **`PnP Operating System`** setting in your PC's *Setup* program, you should put it back to the original value once you have finished running the hardware diagnostics.

Getting Online Support for Troubleshooting

HP's support web site provides extensive support material that can help you troubleshoot problems on your PC:

- Documentation for your PC (described below)
- Technical Notes
- BIOS updates (including the upgrade utility and instructions)
- The latest drivers and software utilities
- HP DiagTools Hardware Diagnostics (also provided preloaded and on the *Diagnostics & Recovery CD-ROM*), described on page 12.

For HP's support web site, connect to:

`www.hp.com/go/vectrasupport`.

Documentation For Your PC

You can download documentation for your PC free of charge from HP's support web site. The documents provided are in Adobe Acrobat (PDF) format.

The available documents include:

- *User's Guide*—describes how to set up your PC for the first time and contains quick troubleshooting information.
- *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.

Troubleshooting Orientation Table

Symptom	Problem	Cause	Solution
PC does not start.	No power.		Refer to page 16.
PC's power indicator light works but monitor remains blank.	No display.		Refer to page 19.
Display resolution wrong.	Wrong resolution settings.		Refer to page 19.
An error message/code appears when the PC is switched on.	Power-On-Self-Test has detected an error.	Beep code error.	Refer to page 17.
		Memory error.	Refer to page 20.
		Keyboard or mouse error.	Refer to page 21.
		Floppy drive error.	Refer to page 23.
		Hard disk or CD-ROM error.	Refer to page 24.
		CMOS error.	Refer to page 25.
		Serial or parallel port error.	Refer to page 26.
		Other configuration problems.	Refer to page 27.
You cannot turn off the PC.	The PC is frozen in power saving mode.		Refer to page 28.

Problem	Solution
You have forgotten your password.	Refer to page 29.
There is a problem when you install an accessory board.	Refer to page 30.
There is a problem when you install a LAN board.	Refer to page 31.
There is a problem when you install an add-on sound board.	Refer to page 32.
The PC has an audio problem.	Refer to page 33.
The PC has a software problem.	Refer to page 34.
Recovering hard disk contents.	Refer to page 36.
Further problems with floppy disk, hard disk, CD-ROM drive or DVD drive.	Refer to page 43.

If There Is No Power

Problem	Check that...	How
PC does not start – the PC's power-on indicator is not illuminated.	The PC's power cord is correctly connected.	Connect the power cord to a grounded power outlet and the PC.
	The PC's power outlet is working.	Plug a light into the grounded power outlet and check it illuminates.
If the PC still does not start		
WARNING: for your safety, when the PC is open and switched on, do not touch any of the internal components with a screwdriver or other metal instrument.	The internal components are correctly connected and in place.	1 Disconnect the PC's power cord. 2 Remove the PC's cover. 3 Check all internal components are correctly connected and in place: system board, backplane, processor, memory, accessory boards, etc. 4 Contact HP Support or your authorized dealer.
WARNING: for your safety, when the PC is open and switched on, do not touch any of the internal components with a screwdriver or other metal instrument.	None of the internal devices are causing the problem.	1 Disconnect the PC's power cord. 2 Remove the PC's cover. 3 Remove internal power connectors from all internal devices. 4 Reconnect the PC's power cord. 5 Reconnect the power connectors one by one to the internal devices to see which device is defective. 6 Contact HP Support or your authorized dealer.
If the PC still does not start		
	There is not a problem with the power supply unit.	1 Replace the power supply unit by a known working power supply from the same model of PC. 2 If the PC starts, contact HP Support or your authorized dealer, the power supply unit might need replacing.
If the problem persists, contact HP Support or your authorized dealer		

If There is a Beep Code During Boot

If an error occurs during the Power-On Self-Test (POST), which prevents the PC from starting, the system issues a beep code before attempting to display the error in the upper left corner of the screen. Beep codes are useful for identifying the error when the system is unable to display the error message.

Beep Pattern	Beep Code	Numeric Code	Description	Recommended Action
— - - - - - -	1-2-2-3	16h	BIOS ROM check-sum failure	Inform HP support/HP reseller that system board is defective.
— - - - — —	1-3-1-1	20h	DRAM refresh test failure	Reset the memory. If the error still occurs, replace the module. *Use only HP memory modules provided for your PC model.*
— - - - — - - -	1-3-1-3	22h	8042 Keyboard controller test failure	Inform HP support/HP reseller that system board is defective.
— - - - - - - —	1-3-3-1		RAM module badly inserted or RAM module missing	Ensure the memory module is correctly seated. *Use only HP memory modules provided for your PC model.*
— - - - - - - - - —	1-3-4-1	2Ch	RAM failure on address line	Check the memory is correctly installed. If the error still occurs, replace the module. *Use only HP memory modules provided for your PC model.*
— - - - - - - - - - - -	1-3-4-3	2Eh	RAM failure on data bits .... of low byte of memory bus	Check the memory is correctly installed. If the error still occurs, replace the module. *Use only HP memory modules provided for your PC model.*
— - - - - — —	1-4-1-1	30h	RAM failure on data bits ... of high byte of memory bus	Check the memory is correctly installed. If the error still occurs, replace the module. *Use only HP memory modules provided for your PC model.*
- - — - - - - -	2-1-2-3	46h	ROM copyright notice check failure	Inform HP support/HP reseller that system board is defective.

Beep Pattern	Beep Code	Numeric Code	Description	Recommended Action
- - - - - - - —	2-2-3-1	58h	Unexpected interrupts test failure	Inform HP support/HP reseller that system board is defective.
— - -	1-2	98h	Video configuration failure or option ROMs check-sum failure	This can be caused by problems with the ROM on integrated video, an add-on video board or the ROM on a SCSI card. Inform reseller for the affected component.
- - -	1-1-1		This is not an error. The HP Soft PowerDown utility (available on Windows NT preloaded models) generates three short beeps at the end of the Windows NT startup.	

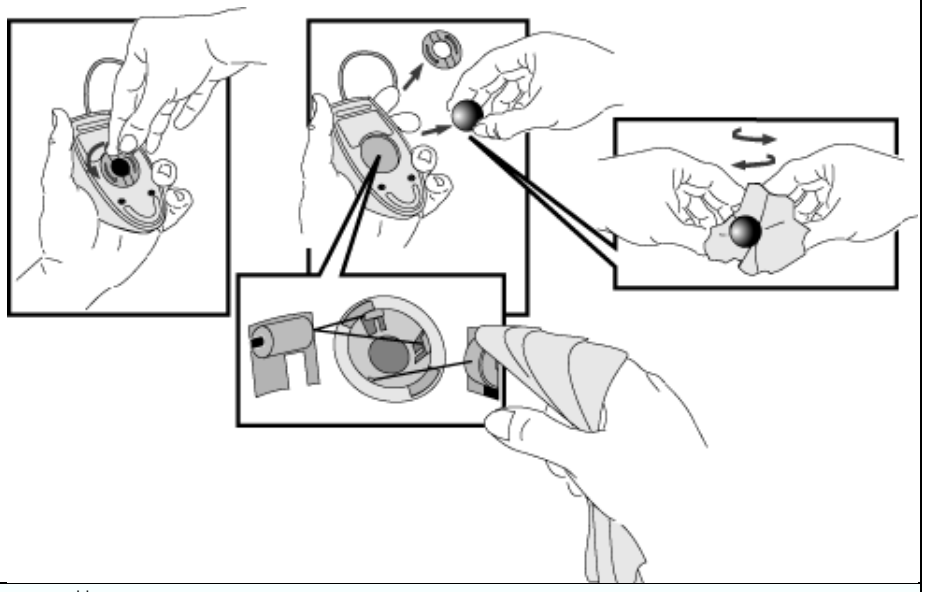
If Your Monitor Is Not Working Properly

Problem	Check that...	How
PC's power indicator light and hard disk activity light work but the screen remains blank.	The display is switched ON (LED is on).	Refer to the monitor manual for an explanation of the LEDs.
	The monitor's power cord is correctly connected.	Ensure the power cord is plugged into a grounded power outlet and into the monitor.
	The monitor's power outlet is working.	Plug a light into the grounded power outlet and check it illuminates.
If the monitor still does not work		
	The monitor's brightness and contrast settings are correct.	Refer to the monitor manual if necessary.
	The video cable pins are not damaged.	1 Switch off and unplug the monitor. 2 Disconnect the video cable and straighten any bent pins. 3 Reconnect the video cable. 4 Switch on the monitor and see if it works.
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
	The PC's integrated video is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Install a known working system board from the same model of PC. 4 Reconnect the power cord. 5 If the monitor works, inform HP Support or your authorized dealer that the system board is defective.
	The monitor settings in your PC are compatible with your monitor	• Windows NT 4.0: Enter VGA mode when prompted during start-up, then reset the resolution. • Windows 95/98: Restart the PC. The HP screen is displayed. When you hear a beep, press **F8** and then start the PC in safe 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.
	The monitor itself is not faulty.	1 Replace the monitor by a known working monitor from the same model of PC. 2 If the monitor starts, contact HP Support or your authorized dealer. The monitor may need to be replaced.

If There Is a Memory Test Error

Problem	Check that...	How
Power-On-Self-Test (POST) displays a memory test error.	The PC's memory modules are correctly installed.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Check the memory modules are correctly installed, of the correct type and in the correct sockets (refer to page 54 for the Desktop and page 84 for the Minitower). 4 Close the PC, reconnect the power cord and check that the PC boots (starts).
	The PC's memory modules are working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the memory modules by known working memory modules from the same model of PC (refer to page 54 for the Desktop and page 84 for the Minitower). 4 Close the PC, reconnect the power cord and check that the PC boots (starts).
If the PC boots but you still have a problem...		
Run DiagTools. Refer to page 12.		
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
	The system board is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the system board by a known working board from the same model of PC. 4 Close the PC, reconnect the power cord and check that the PC boots (starts). 5 If the PC works, contact HP Support or your authorized dealer for further troubleshooting information.
If the problem persists, contact HP Support or your authorized dealer		

If There Is a Keyboard or Mouse Test Error

<table>
<tr><th>Problem</th><th>Check that...</th><th>How</th></tr>
<tr><td rowspan="3">POST displays a keyboard or mouse test error.</td><td>The keyboard and mouse cables are correctly connected.</td><td>1 Switch off the PC.
2 Plug the cables into the correct connectors on the back of the PC.</td></tr>
<tr><td>The keyboard is clean and no keys are stuck down.
The mouse is clean.</td><td>• Check all keys are at the same height, and none are stuck (keyboard).
• Clean the mouse pad, the underneath of the mouse, as well as the mouse ball mechanism, shown below.</td></tr>
<tr><td colspan="2">  </td></tr>
<tr><td colspan="3">If the PC boots but you still have a problem...</td></tr>
<tr><td colspan="3">Run DiagTools. Refer to page 12.</td></tr>
<tr><td></td><td>The keyboard/mouse are working</td><td>1 Switch off the PC.
2 Replace the keyboard/mouse by known working units.
3 Switch on the PC, and check it works.</td></tr>
<tr><td>PC's Basic Input Output System (BIOS) may need updating.</td><td>Your PC has the latest BIOS version.</td><td>Refer to page 38.</td></tr>
</table>

If There Is a Keyboard or Mouse Test Error

If the keyboard/mouse still does not work		
	The system board is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the system board by a known working board from the same model of PC. 4 Close the PC, reconnect the power cord and check that the PC boots (starts). 5 If the keyboard/mouse works, contact HP Support or your authorized dealer for further troubleshooting information.

If There Is a Floppy Disk Drive Test Error

For more floppy drive troubleshooting, refer to see "If the Floppy Drive Does Not Work" on page 43.

Problem	Check that...	How
Power-On-Self-Test displays floppy drive test error.	The drive is correctly configured in the PC's *Setup* program. Refer to page 43.	1 Switch the PC OFF then ON. 2 When the Vectra logo appears, press the **F2** key. 3 Check the floppy disk drive is enabled and the correct type is selected.
	The drive cables are correctly connected.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Check the floppy drive cables are correctly connected (refer to chapter 2 or 3). 4 Close the PC then switch it on and check it works.
	The drive cable is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the floppy drive cable by a known working cable from the same model of PC (refer to page 55 for the Desktop and page 86 for the Minitower). 4 Close the PC then switch it on and check it works.
	The floppy is working.	Insert a known working floppy disk and see if it works.
If the drive still does not work...		
		Run DiagTools. Refer to page 12.
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
	The drive is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the floppy drive by a known working drive from the same model of PC. 4 Close the PC then switch it on and check it works. 5 If the drive works, replace the defective drive.
	The system board is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the system board by a known working board from the same model of PC. 4 Close the PC, reconnect the power cord and check that the PC and drive work.
If the problem persists, contact HP Support or your authorized dealer		

If There Is a Hard Disk, CD-ROM or DVD Test Error

For more hard disk, CD-ROM and DVD drive troubleshooting, refer to see "More Troubleshooting for Drives" on page 43.

Problem	Check that...	How
Power-On-Self-Test displays hard disk or CD-ROM drive test error	The drive is correctly configured in the PC's *Setup* program. Refer to page 44 or page 45.	1 Switch the PC OFF then ON. 2 When the Vectra logo appears, press the **F2** key. 3 Check the drive is enabled and the correct type is selected.
	The drive cables are correctly connected.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Check the drive cables are correctly connected (refer to chapter 2 or 3). 4 Close the PC then switch it on and check it works.
	The drive cable is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the drive cable by a known working cable from the same model of PC (refer to page 55 for the Desktop and page 86 for the Minitower). 4 Close the PC then switch it on and check it works.
If the drive still does not work...		
Run DiagTools. Refer to page 12.		
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
	The drive is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the drive by a known working drive from the same model of PC (refer to page 61 for the Desktop and page 91 for the Minitower). 4 Close the PC then switch it on and check it works.
	The system board and backplane is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the system board and/or backplane by a known working board from the same model of PC. 4 Close the PC, reconnect the power cord and check that the PC and drive work. 5 If the drive works, contact HP Support or your authorized dealer for further troubleshooting information.
If the problem persists, contact HP Support or your authorized dealer		

If There Is a CMOS Test Error

Problem	Check that...	How
POST displays CMOS test error.	Power is correctly connected to the system board.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Check the power connector is correctly attached to the system board. 4 Close the PC, reconnect the power cord and check that the PC boots (starts). 5 You may need to restore the default configuration settings. Refer to page 27.
	The internal battery is working.	1 Set the PC to the correct time (refer to the operating system manual). 2 Switch off and unplug the PC for at least an hour. 3 Restart the PC and check the time is correct. 4 If the time is incorrect, replace the PC's battery (refer to page 76 for the Desktop and page 107 for the Minitower).
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
	The system board is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the system board by a known working board from the same model of PC. 4 Close the PC, reconnect the power cord and check that the PC works.
If the problem persists, contact HP Support or your authorized dealer		

If There Is a Serial or Parallel Port Test Error

Problem	Check that...	How
POST displays a port test error.	The port is correctly configured in the PC's *Setup* program.	1 Switch the PC OFF then ON. 2 When the Vectra logo appears, press the **F2** key. 3 Check the port is enabled in **Integrated I/O Ports** in the **Advanced** menu.
	All connected devices are correctly connected and switched on.	1 Switch off the PC. 2 Plug the cables into the correct connectors on the back of the PC. 3 Switch on the PC and the external devices.
	There are no IRQ and address conflicts with newly installed accessory boards.	Refer to page 30.
If the PC still has a problem...		
Run DiagTools. Refer to page 12.		
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
	The system board is working.	1 Disconnect the power cord. 2 Remove the PC's cover. 3 Replace the system board by a known working board from the same model of PC. 4 Close the PC, reconnect the power cord and check that the PC works. 5 If the port works, contact HP Support or your authorized dealer for further troubleshooting information.
If the problem persists, contact HP Support or your authorized dealer		

Other Configuration Problems

Problem	Check...	How
POST displays an error not covered by an earlier section in this chapter.	The *Setup* program settings.	1 Turn on or restart the PC. 2 When the Vectra logo appears, press the **F2** key. 3 Verify that the *Setup* program settings are correct.
PC's Basic Input Output System (BIOS) may need updating.	Your PC has the latest BIOS version.	Refer to page 38.
You think you may have a problem with the audio or LAN features.		Download the latest drivers from HP Support Web: **`www.hp.com/go/vectrasupport`**
Your hard disk may be fragmented or contain errors.	The state of your hard disk by running ScanDisk and Disk Defragmenter	Use Disk Defragmenter or ScanDisk. To access these utilities, select **Programs** ➪ **Accessories** ➪**System Tools** from the **Start** menu. For more hard disk troubleshooting, refer to page 44.
If the PC still displays an error		
This suggests the configuration settings are corrupted. Restore the default values.		1 Turn on or restart the PC. 2 When the Vectra logo appears, press the **F2** key. 3 Make a note of your current Security settings and then exit Setup. 1 Turn off the PC and disconnect the power cord. 2 Remove the cover. 3 Set system board switch 5 (Clear CMOS) to CLOSED to clear the configuration. 4 Replace the cover, and reconnect the power cord. 5 Turn on the PC. This will erase the CMOS memory. 6 Wait until the PC has started. A message will be displayed saying that the configuration has been cleared. 7 Turn off the PC, disconnect the power cord, and remove the cover. 8 Set system board switch 5 (Clear CMOS) on the switch block to OPEN to re-enable the configuration. 9 Replace the cover, and reconnect the power cord. 10 Switch on the PC. The PC may start more slowly than usual because it will load the default configuration values. 11 Press **F2** to enter the Setup program. Update the necessary fields, such as the date and time, passwords, and Security settings, then save and exit the Setup program. The PC will restart with the new configuration.

If You Cannot Turn Off Your PC

Problem	Check...	How
PC makes a buzzing or beeping sound when you press the power button.	Whether the PC is in a suspend/sleep mode, in which case a "power off" would risk a loss of information/data.	• Move the mouse or press a key to try to wake up the PC. • If you cannot wake up the PC, and you still cannot turn it off using the power button, unplug the PC from the power supply.
PC does *not* make a buzzing or beeping sound when you press the power button, but you are still unable to turn it off.	**That you have saved all data and exited all programs.**	1 Save all data and exit all programs (if you can). 2 Press the power button and keep it pressed for 5 seconds. The PC will turn off.

If You Have Forgotten Your Password

NOTE

Use these instructions if the passwords were set with the *Setup* program.

Problem	Solution
You have forgotten the User password.	1 Switch off the PC. 2 Restart the PC. If you are prompted for a password, enter the Administrator password. 3 When the Vectra logo appears, press the **F2** key. 4 Enter the Administrator Password to access the Setup program. 5 Go to the Security menu. 6 Go to the **Set User Password** field and set a new User Password. This will replace the old password which you had forgotten. 7 Press **F3** to save the new passwords and exit Setup.
You have forgotten the Administrator password.	1 Switch off the PC and remove the power cord. 2 Remove the computer's cover. 3 Set switch 4 on the system board switch block to CLOSED. 4 Switch on the PC and allow it to complete its startup routine. A message is displayed. 5 Switch off the computer. 6 Reset switch 4 to OPEN. 7 Replace the computer's cover. 8 Switch on the PC and allow it to complete its startup routine. 9 After the Power-On-Self-Test has completed, press **F2** when prompted to enter the Setup program. 10 Set new User and Administrator Passwords. 11 Press **F3** to save the new passwords and exit Setup.

If There Is a Problem When You Install An Accessory Board

Problem	Solution
You have installed an accessory board but it won't working.	Check that: 1 The accessory board is correctly installed in the slot. 2 There are no bent connector pins. 3 You have installed the correct drivers (refer to the board manufacturer's web site). 4 The relevant fields in the HP *Setup* program are correctly set. 5 The software installation steps have been followed correctly.
You have installed an accessory board and you get a message telling you that there is no IRQ (Interrupt Request) available for the accessory board.	• Check that you have followed the installation instructions provided with the accessory board. • Check if the new accessory board supports shared interrupts, and if possible, implement a shared interrupt (refer to the accessory board manufacturer for more information). • Remove the new accessory board.
If there is still a problem	
	For ISA Legacy accessory boards under Windows NT: 1 Restart the PC and press **F2** when the Vectra logo is displayed. 2 Reserve an IRQ for the accessory board. You can reserve IRQ 5, IRQ 9, IRQ 10 or IRQ 11 for this purpose. To do this, go to the **Advanced ISA Resource Exclusion** menu in the Setup program and reserve the chosen IRQ. 3 In the **Main** menu, set the **PnP Operating System** item to NO. 4 Press the **Esc** key to save the changes and quit the Setup program. 5 Redo the Windows installation procedure for the accessory board and ensure that the Service Pack has been reinstalled.
	For PCI accessory boards under Windows 95: 1 Restart the PC and press **F2** when the Vectra logo is displayed. 2 In the **Main** menu, set the **PnP Operating System** item to **NO**. 3 Press the **Esc** key to save the changes and quit the Setup program. If this does not work, try installing the accessory board in another PCI slot.

NOTE

Plug and Play operating systems such as Windows 95 and Windows 98 should, in normal circumstances, be able to allocate the IRQs that are used according to the hardware installed in the PC.
However, in certain circumstances it may be necessary to set the **PnP Operating System** field to **NO** so that the board is recognized in Windows 95. This is especially true when there are many accessory boards (three or more) installed in your PC.

If There is a Problem When You Install a LAN Board

Problem	Solution
You have installed a LAN board but it does not work.	**Check that:** • There are no IRQ conflicts with other devices. • The accessory board is correctly installed in the slot. • There are no bent connector pins. • You have installed the correct drivers (refer to the board manufacturer's web site). • The software installation steps have been followed correctly.
If the LAN board still does not work	**Try:** • Setting the **PnP Operating System** field in the *Setup* program to **NO**. (Applies to ISA and PCI boards.) • Putting the LAN board into another PCI or ISA slot.
You have installed a LAN board that supports the Wake On LAN feature and the feature does not work.	• Check that the Wake On LAN cable is correctly connected to the backplane and to the LAN board. Refer to page 68 for the Desktop and page 96 for the Minitower. • Refer to the LAN board documentation for instructions about installing and using the LAN board. • Check that the **Network Interface** fields in the **Power** menu of the Setup program are enabled. (You need to restart the PC and press the **F2** key when the Vectra logo appears).

If There Is a Problem Installing an Add-On Sound Board

You can install a new add-on Sound card if you do not wish to use the integrated sound features of your PC.

Problem	Solution
You have installed a new add-on sound board and you have not disabled the integrated audio features of your PC.	Disable the integrated audio: Turn on or restart the PC. 1 When the Vectra logo appears, press the **F2** key to enter the Setup program. 2 Go to the **Advanced** menu. 3 Select **Integrated Audio Interface** and press **Enter**. 4 Set **Integrated Audio Interface** to **Disabled**. 5 Exit Setup and save the changes.
You have installed a new add-on sound board and you get a message telling you that there is no IRQ (Interrupt Request) available for the sound board.	• Check that you have followed the installation instructions provided with the sound board. • Check that you have disable the integrated audio (see above).
If there is still an IRQ problem	
	1 Restart the PC and press **F2** when the Vectra logo appears. 2 Reserve an IRQ for the ISA sound board. You can reserve IRQ 5, IRQ 9, IRQ 10 or IRQ 11 for this purpose. To do this, go to the **ISA Resource Exclusion** submenu of the Advanced menu and then set the chosen IRQ to **Reserved**. Also, set the **PnP Operating System** item to **NO**. 3 Exit Setup and save the changes. 4 Redo the Windows NT installation procedure for the sound board.

NOTE

Plug and Play operating systems such as Windows 95 and Windows 98 should, in normal circumstances, be able to allocate the IRQs that are used according to the hardware installed in the PC.
However, in certain circumstances it may be necessary to set the **PnP Operating System** field to **NO** so that the board is recognized in Windows 95. This is especially true when there are many accessory boards (three or more) installed in your PC.

If Your PC Has an Audio (Sound) Problem

Problem	Solution
No sound when running any applications.	1 Check that the speakers and headphones are connected correctly. 2 Check that the integrated audio interface is enabled in the **Advanced** ➪ **Integrated Audio Interface** menu of your PC's Setup program. 3 Check that the audio driver has been installed (under some operating systems, a speaker icon will appear in the bottom right-hand corner of your screen if the driver is installed). 4 Double-click on the speaker icon to check that the volume level is set high enough to be heard and that Mute is not selected. 5 Check there are no hardware conflicts with other devices. If there is a hardware conflict, you will need to allocate resources through the BIOS. To do this, ensure that the **PnP Operating System** field is set to **NO**, and reserve an available IRQ for the other device in the **Advanced** ➪ **ISA Resource Exclusion** menu of your PC's Setup program.
Audio input from the microphone is too low, or no audio at all.	1 Check that the microphone specifications meet the requirements of the 16-bit sound components. The microphone should be a 600-ohm electret type. 2 Double-click on the speaker icon to check that **Microphone** is selected, and that the volume level is set high enough to be heard. Ensure that the **Microphone Boost** option is selected in **Multimedia** in the **Start** menu.
The PC hangs while recording.	Uncompressed digital audio can eventually fill your hard disk. For example, one minute of stereo sound recorded at a resolution of 44 kHz will occupy about 10.5 MB. Before recording, check that there is enough free space on your hard disk. Data compression can reduce the space required. The A-law and m-law hardware compression used by the audio interface enables the sampling of sound at a resolution of 16-bits, but it generates the same quantity of data as an 8-bit sample.
A new audio accessory board does not work.	If you install an audio accessory board, you will need to disable the integrated sound feature on your PC. To do this, go to **Advanced** ➪ **Integrated Audio Interface** in your PC's Setup program.
DOS legacy game does not work.	PCI Audio is not SoundBlaster compatible. To use DOS games, you will need to install an ISA accessory board.

If Your PC Has a Software Problem

Problem	Solution
Power indicator light is illuminated, but some software won't run.	• Refer to the application software documentation and/or the operating system documentation for guidance. • If the software is running but not functioning properly, try to save any unsaved data, then close down the application and relaunch it. If it still does not work, restart the PC and then try launching the software again. • Reinstall the software. • If the problem continues, contact the software manufacturer's support services.
Date and time are wrong.	The date and time can be incorrect for the following reasons: • The time has changed to or from Summer Time. • The PC has been unplugged from the power too long, and the battery is discharged. To change the date and time, use your operating system utilities or the *Setup* program. If necessary, install a new battery (refer to page 76 for the Desktop and page 107 for the Minitower).

If you Have Problems Using the Euro Symbol

If your keyboard has a Euro symbol key, it can only be used with operating systems and applications that support this feature.

- Only the latest Operating Systems, such as Windows 98, provide integrated support for the Euro symbol (in certain languages only)
- Not all applications support the Euro symbol
- Not all fonts contain the Euro character.

For Windows 95 and Windows NT Users

Only certain versions of Windows NT 4.0 and Windows 95 provide support for the Euro symbol. For more information on how to enable support of the Euro symbol, refer to Microsoft's web site at: **www.microsoft.com/windows/euro.asp**

Configuring Your Keyboard

To configure your keyboard, go to **Settings** ⇨ **Control Panel** in the **Start** menu. Double-click on **Keyboard** and select the **Language** or **Input Locales** tab in the **Keyboard Properties** window. Click on **Add** and select the country that corresponds with your keyboard, and click **OK**. Click **OK** to exit the **Control Panel**.

Recovering Hard Disk Contents

In the unlikely event of a hard disk crash, you can recover your PC's preloaded operating system and software using the *Diagnostics & Recovery CD-ROM* supplied with your PC. You can recover, for example:

- Windows 95 or Windows NT 4.0 & Service Pack, depending on your model.
- Any HP-supplied drivers (for example, video, IDE and LAN).
- Any HP-designed manageability applications (for example, HP TopTools and HP DiagTools).

NOTE

Any software that has been installed on the PC after it was manufactured, and any personal data that has been generated by applications installed on the PC, are not covered by the recovery process.

Recovering Preloaded Software from a CD-ROM

You can use the *Diagnostics & Recovery CD-ROM* to change or reconfigure your operating system, reinstall drivers or other factory supplied software components. The following paths are available (where D: is the drive letter assigned to your CD-ROM drive):

- ***D:\Win95*** for Windows 95 (CAB files)
- ***D:\I386*** for Windows NT 4.0
- ***D:\Drivers*** for drivers
- **D:\Applications** for software applications and other components.

Reinstallation of Windows NT Service Pack

After reinstalling drivers or reconfiguring your operating system you must install the Service Pack. This can be found in the ***D:\I386\SPx*** directory on the *Diagnostics & Recovery CD-ROM*. To install the Service Pack, double-click on the **SP4I386.EXE** or **UPDATE.EXE** file, as appropriate.

Changing the Hard Disk

If the hard disk is corrupted and you can no longer use it, you should replace it with a new hard disk drive. Refer to “Upgrading the Hard Disk Drive” on page 57 for the Desktop and “Installing a Second Hard Disk Drive” on page 88 for the Minitower.

If the replacement hard disk drive is brand new, you will need to partition and format the drive. Refer to your operating system documentation for information on how to do this.

BIOS Problems

Many problems with your PC can be solved by updating (flashing) the PC's BIOS (Basic Input Output System). The BIOS is a set of program routines that gives the PC its fundamental operational characteristics.

Updating Your PC's BIOS

Updating (flashing) your BIOS is a simple procedure that involves booting your PC from a floppy disk containing the new BIOS.

The latest BIOS for your PC along with instructions on updating can be downloaded from HP's Support Web site at:
`www.hp.com/go/vectrasupport`.

Recovering from a BIOS Update Failure

Although the BIOS update (flashing) process is very well protected, there is always the possibility of a failure. This may occur, for example, if there is a power failure while the BIOS is being updated. To avoid having to replace the system board due to corrupted EEPROM, follow this recovery procedure to restore the contents of EEPROM:

1 Create a bootable floppy disk in MS-DOS.

2 Copy the BIOS image you require (for example, **`HZxxxx.FUL`**, where **`xxxx`** corresponds to the BIOS revision number), and **`phlash.exe`** and **`platform.bin`** onto the bootable floppy disk.

3 Add the following line to the floppy's **`AUTOEXEC.BAT`** file:

```
Phlash/c/mode=3 HZxxxx.FUL.
```

4 Remove the PC's cover and set system board switch 2 (BIOS Crisis Recovery) to ON.

5 Replace the PC's cover and insert the floppy disk into the floppy drive.

6 Power on the PC to flash the BIOS.
When this process is complete, you will hear a long beep.

NOTE

The power button is protected in BIOS update mode, and will appear inactive even after the update procedure has finished.

To power off the system after the update, press and hold the power button for at least 4 seconds.

7 Power off the PC and remove the PC's cover.

8 Reset system board switch 2 (BIOS Crisis Recovery) to OFF and replace the PC's cover.

HP Setup Program

Follow these instructions to check your PC's configuration when you first use the PC:

First, Turn On or Restart Your PC

If your PC is off, turn on the display and then the PC.

If the PC is already turned on, save your data, exit all programs and restart your PC. For Windows NT 4.0, Windows 95 or Windows 98, use the **Shut Down** ⇨ **Restart your computer** command in the **Start** menu. This command will automatically exit the operating system and restart the PC. For operating systems such as Windows NT 3.51, you must exit the operating system, then manually switch off and then on the PC.

To Go to the HP Summary Screen

While the *Vectra* logo appears on your display, press **Esc**. This will take you to the HP Summary Screen. The Summary Screen will appear for only a short time. To retain the screen indefinitely (until you decide to leave it), press the **PAUSE** key.

The Summary Screen shows the basic configuration of your PC, such as the amount of main memory and the type of processor installed.

To Go to the *Setup* Program

To go immediately into the *Setup* program while the *Vectra* logo appears on your display (and bypass the Summary Screen), press **F2** instead of **Esc**.

The *Setup* program allows you to view and change the configuration of your PC, such as the passwords, standby (power saving) mode, IRQ settings and boot device order.

Device Boot Order

Boot Menu for the Current Startup Only

The current startup Boot menu gives the order of devices which the PC attempts to start or "boot" from (for example, the floppy drive first, the CD-ROM drive second, the hard disk drive third, and lastly the network). From this menu you can choose the device to boot from *for the current startup*.

To Go to the Current Startup's Boot Menu

To go to the current startup Boot menu while the *Vectra* logo appears on your display, press **F8**.

Boot Menu for the Default Startup

You can also enter the *Setup* program to change the boot order for *all startups*. To do this, go to the "Boot Device Priority" submenu of the Boot menu in the *Setup* program, accessed by pressing **F2** at startup.

Boot Menu for Hard Disk Drives

In the *Setup* program, you can also select the hard disk drive to boot from if there is more than one hard disk drive installed. To do this, go to the "Hard Disk Drives" submenu of the Boot menu in the *Setup* program.

NOTE

If your PC comes with an IDE hard disk drive, it will by default boot from the hard disk drive connected to the master IDE connector when you first start your PC. If your PC has a SCSI hard disk drive, this will be used as the default boot drive.

To change the bootable hard disk drive, you must enter the *Setup* program and go to the "Hard Disk Drives" submenu of the Boot menu.

Changing the IDE connectors (master and slave) of the hard disk drives has *no effect* on the boot setting in the *Setup* program — refer to the example that follows.

Example for Desktop

For example, a Desktop PC with a single IDE hard disk drive installed:

Hard Disk Drive	Physical Connection	*Setup* HDD Boot Setting	Logical Drive
6.4 GB	Master IDE connector	1 (PC boots on this HDD)	C:

Example for Minitower

For example, a Minitower PC has two IDE hard disk drives installed:

Hard Disk Drive	Physical Connection	*Setup* HDD Boot Setting	Logical Drive
6.4 GB	Master IDE connector	1 (PC boots on this HDD)	C:
8.4 GB	Slave IDE connector	2	D:

If you switch the IDE data connectors between the two hard disk drives, there will be *no change* to the boot setting:

Hard Disk Drive	Physical Connection	*Setup* HDD Boot Setting	Logical Drive
6.4 GB	Slave IDE connector	1 (PC boots on this HDD)	C:
8.4 GB	Master IDE connector	2	D:

To change the bootable hard disk drive, you must use the *Setup* program. The configuration will then be:

Hard Disk Drive	Physical Connection	*Setup* HDD Boot Setting	Logical Drive
6.4 GB	Slave IDE connector	2	D:
8.4 GB	Master IDE connector	1 (PC boots on this HDD)	C:

The PC will now boot from the 8.4 GB hard disk drive instead of the 6.4 GB hard disk drive.

More Troubleshooting for Drives

This section provides more information on how to solve problems with your drives.

WARNING

Be sure to disconnect the power cord and any telecommunication cables from your computer before you remove the cover to check the cable connections or jumper settings.
To avoid electric shock and harm to your eyes by laser light, do not open the CD-ROM drive enclosure. The CD-ROM drive should be serviced by service personnel only. Refer to the label on the CD-ROM for power requirements and wavelength. This PC is a class 1 laser product. Do not attempt to make any adjustment of the laser unit.

If the Floppy Drive Does Not Work

1 Ensure you are using a formatted diskette and it is inserted correctly.
2 Make sure that the Flexible Disk Driver/Flexible Disk Controller option in the *Setup* **Advanced** menu is enabled
3 Clean the floppy drive using a diskette cleaning kit.
4 Check that the floppy drive has been enabled in the *Setup* program, accessed by pressing **F2** at startup.
   - The "Flexible disks" field in the "Hardware Protection" submenu (Security menu group) in *Setup* should be "unlocked".
   - The "Start from floppy" field in the "Boot Devices Security" submenu (Security menu group) in *Setup* should be enabled.
   - The "Write on flexible disks" field in the "Hardware Protection" submenu (Security menu group) in *Setup* should be "unlocked".
5 Check that the drive's power and data cables are correctly connected.

If your Hard Disk Does Not Work

1 If you receive a S.M.A.R.T. alert, this indicates that your hard disk drive is defective. Carry out an immediate data backup, then contact HP Support at **www.hp.com/go/vectrasupport** to ask for a replacement hard disk drive.
2 Check that the disk power and data cables are correctly connected (refer to chapter 2 for a desktop PC and chapter 3 for a minitower model).
3 Check that the hard disk drive has been “unlocked” (refer to the "Hardware Protection" submenu (Security menu group) in the HP *Setup* program, accessed by pressing **F2** at startup). There is also an option in the *Setup* program that lets you disable or enable boot on hard disk drive (refer to the "Boot Devices Security" submenu (Security menu group) in the *Setup* program).
4 Check that the hard disk drive has been detected (refer to the "IDE Devices" submenu (Advanced menu group) in the *Setup* program, accessed by pressing **F2** at startup).
5 Check that the on-board Bus IDE is enabled if you are using the integrated IDE controller (refer to the "IDE Devices" submenu (Advanced menu group) in the *Setup* program, accessed by pressing **F2** at startup).

If the Hard Disk Activity Light Does Not Work

If the hard disk activity light does not flicker when the PC is accessing the hard disk drive:

1 Check that the control panel connector is firmly attached to the backplane.
2 Check that the disk power and data cables are correctly connected.

NOTE

If you are using a hard disk drive with a controller board (a SCSI hard disk, for example), the activity light does **not** flicker when the PC is accessing the hard disk drive.

If the CD-ROM or DVD Drive Has a Problem

CD-ROM or DVD Drive Does Not Work

1 Check that all cables (data, power and audio) have been properly connected.
2 Check that a CD-ROM or DVD is inserted in the drive.
3 Verify that the drive is declared in the HP *Setup* program (**Advanced ➪ IDE Devices**), accessed by pressing **F2** at startup.
4 Verify that the **Local Bus IDE Adapter** parameter is set to **Both, IRQ 14/15** the HP *Setup* program *(***Advanced ➪ IDE Devices**), accessed by pressing **F2** at startup.
5 If you intend to boot from the CD-ROM or DVD drive, verify that:

- **Start From IDE CD-ROM** is enabled in the HP *Setup* program (**Security ➪ Boot Devices Security**), accessed by pressing **F2** at startup.
- **ATAPI CD-ROM** is placed before **Hard Drive** in the HP *Setup* program (**Boot ➪ Boot Device Priority)** accessed by pressing **F2** at startup.
- **Removable Media** is prioritized after pressing **F8** at startup.

6 For further information refer to the manual supplied with the drive.

DVD Drive Doesn't Play DVD Video

1 Check that the DVD disk you are trying to play and your DVD drive have the same regional code setting.
2 Ensure you have either a hardware or a software MPEG decoder installed on your system.

CD-ROM Drive is Idle

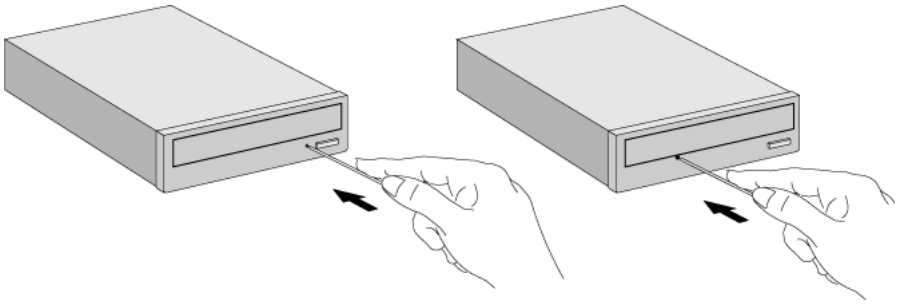
If the CD-ROM drive does not appear to be working, try accessing the disk by clicking on the CD-ROM drive icon or drive letter assigned to the CD-ROM drive by your operating system.

CD-ROM Drive Door Does Not Open

If you have difficulty removing a CD-ROM from the CD-ROM drive (during a power failure for example), you can use the manual eject button.

To eject a CD-ROM using the manual eject button:

1 With a thin, solid rod, such as the end of a paper clip, push the CD-ROM drive's manual eject button.



2 The CD-ROM drive door will be released, opening slightly. Carefully pull it open fully and retrieve the CD.

3 To close the CD-ROM drive door, push it gently closed without forcing it. The CD-ROM drive door may not close completely until it is fully functional (for example, when the power comes back on).

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**

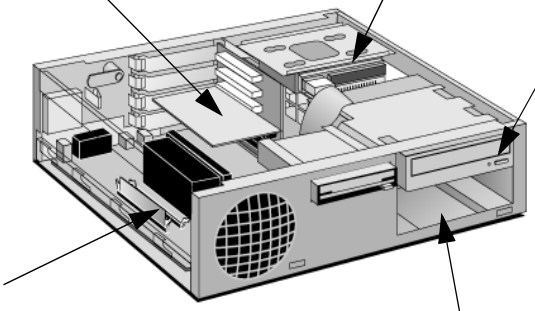
Collecting Information on Your PC Before Contacting Support

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 • Number of megabytes installed • HP RAM or RAM from another manufacturer	• 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 12) 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?	
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.

Hewlett-Packard Support and Information Services

Accessories You Can Install



How to Install and Replace Components In Your Desktop PC

This chapter explains in detail how to install accessories, such as extra memory, accessory boards, and additional drives, in your PC. For information about supported accessories, refer to HP's web site **www.hp.com/go/vectraaccessories**.

Before Starting

Read this section before installing any accessories.

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 telecommunication network. Always replace the cover before switching the PC on again.

To avoid electric shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM drive for power requirements and wavelength. This product is a class 1 laser product.

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.

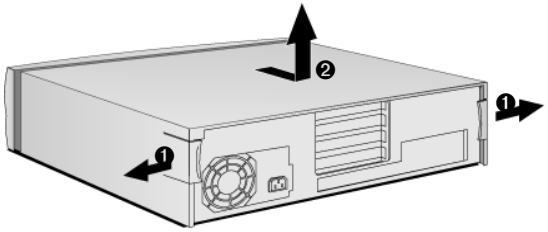
Removing and Replacing the Cover

Removing the Cover

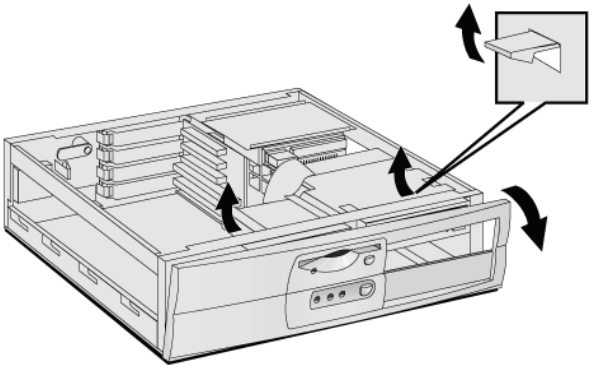
1 Switch off the monitor and PC, disconnect all power cords and any telecommunication cables.

2 If necessary, unlock the cover (with the key) at the rear of the PC.

3 Open the rear catches ❶ and remove the cover ❷.



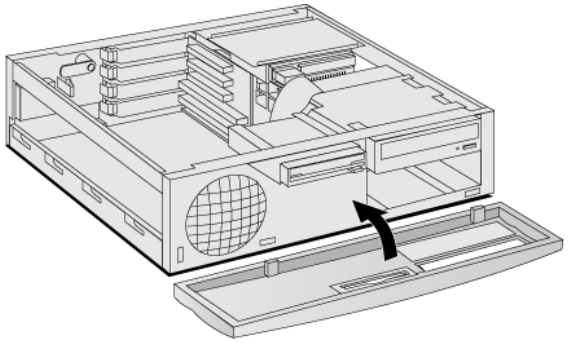
4 Remove the front panel.



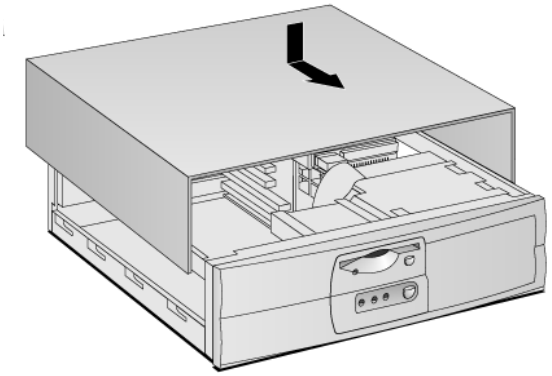
Replacing the Cover

1 Ensure that all internal cables are properly connected and safely routed.

2 Replace the front panel.



3 Lower the cover and slide it into position.

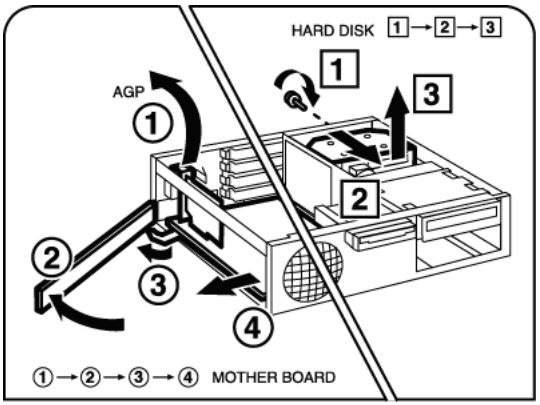


4 If required, lock the cover (with the key) at the rear of the PC.

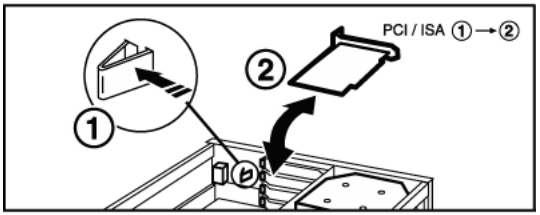
The Label Inside Your PC

Inside, your PC contains a label that can be used as a simplified guide to help you install accessories and replace components.

Shows how to remove the system board (step 1 does not apply to your PC model)

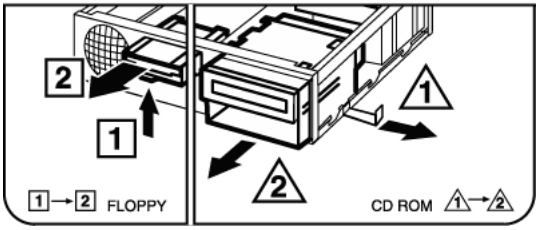


Shows how to remove the hard disk drive



Shows how to add an accessory board

Shows how to remove the floppy drive



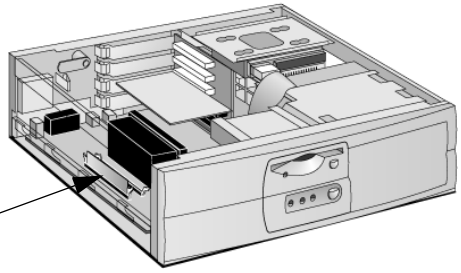
Shows how to remove the front drive bay

Upgrading the Main Memory

NOTE

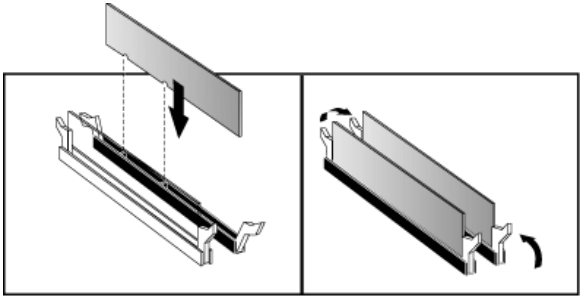
Use only HP memory modules provided for your PC model. The use of other memory modules is not supported. For information about supported HP accessories, connect to the web site **www.hp.com/go/vectraaccessories**.

You can install up to a total of 512 MB (two 256 MB modules). Main memory is available in 100 MHz modules of 32 MB, 64 MB, 128 or 256 MB. (Although the 256 MB memory modules are ECC, the ECC feature is not used by this PC.)



1 Remove the PC's cover (described in this chapter).

2 Line up the two side notches correctly and insert the new memory module. (You can use either slot.)

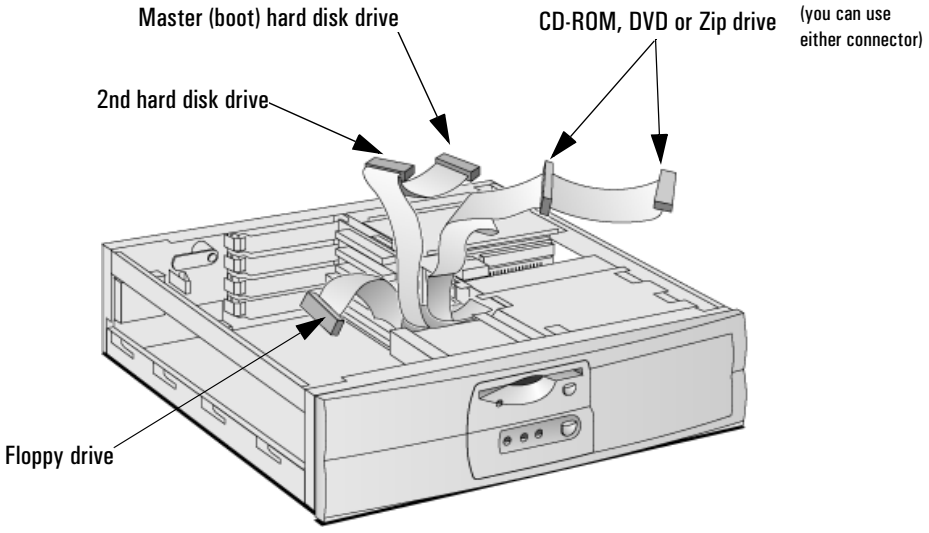


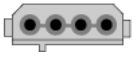
3 Replace the cover (described in this chapter).

Upgrading and Installing Mass Storage Devices

Drive Connectors

Internal drives, such as hard disk drives, DVD drives, and CD-ROM drives, must be connected to data and power cables. When replacing these drives, ensure you use the correct data and power connectors.



Power Connectors	Number	Use for
	5 (3 devices max.)	Hard disk drives, DVD drives, CD-ROM drives, Zip drives
	1	Floppy disk drive

Which Data Connectors to Use

There are three data cables inside your PC. Two of these are for IDE devices.

- An Enhanced Ultra ATA IDE (Integrated Drive Electronics) hard disk drive cable.

  For optimum performance, use this cable to connect the Ultra ATA IDE hard disk drive.

- A second IDE drive cable that supports two IDE devices. If you install a CD-ROM drive, a DVD drive or a Zip drive, connect it to this cable.

- The third cable is non-IDE and has one connector for a floppy drive.

Up to three IDE devices can be connected to the system board using the IDE data cables.

Before Installing an IDE Hard Disk

Refer to the drive's installation guide to see if you must set jumpers or if there is a special installation procedure to follow.

Upgrading the Hard Disk Drive

CAUTION

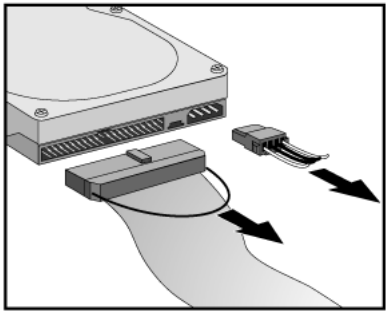
Handle the hard disk drive with care. Avoid shocks and violent movement as this can cause damage to the hard disk drive's internal components.

Make sure that you back up your files before you install a hard disk drive. Refer to your operating system documentation for information on how to do this.

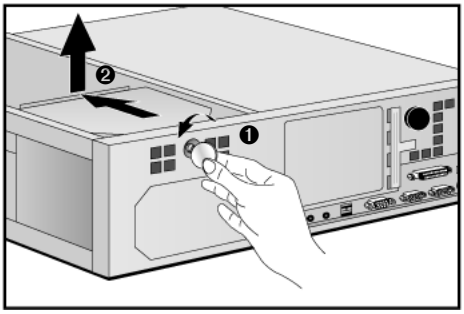
You can replace your PC's hard disk drive with a larger one. To do this:

1 Remove the computer's cover (described in this chapter).

2 Remove the drive's connectors.



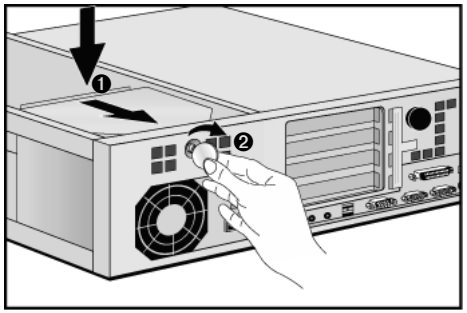
3 Remove the retaining screw ❶ and slide out the drive tray ❷.



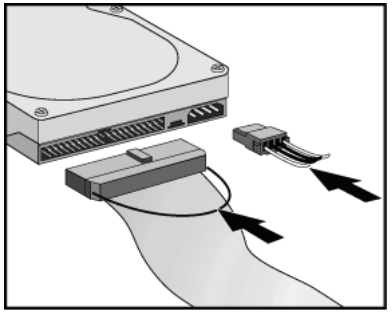
4 Loosen the tray's four screws and remove the old hard drive.

5 Align the new hard drive in the tray (with the correct orientation) and tighten the screws.

6 Replace the drive tray ❶ and retaining screw ❷.



7 Attach the data and power connectors.



8 Replace the cover (described in this chapter).

9 Verify the new configuration by checking the HP Summary Screen. To access the HP Summary Screen, press **Esc** when the *Vectra* logo appears during startup.

NOTE

Ensure that you have installed all the required operating system and HP drivers on the newly installed drive. To reinstall operating system and HP drivers, use the *Diagnostics & Recovery CD-ROM* provided with the PC. In addition, you can find the most up-to-date versions of HP drivers on HP's Web site at: **www.hp.com/go/vectrasupport**.

Installing a Second Hard Disk Drive

CAUTION

Handle the hard disk drive with care. Avoid shocks and violent movement as this can cause damage to the hard disk drive's internal components.

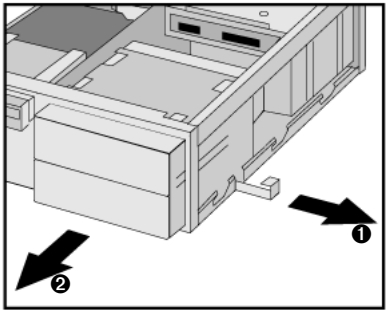
Make sure that you back up your files before you install a hard disk drive. Refer to your operating system documentation for information on how to do this.

You can install a second hard disk drive in the lower front shelf of your desktop PC.

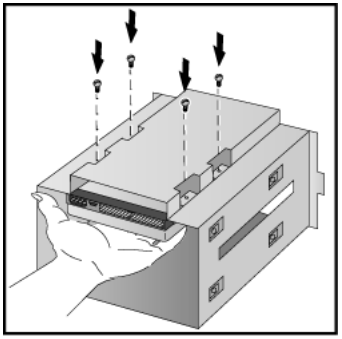
1 Remove the computer's cover (described in this chapter).

2 If there is already a drive installed in the front bay, remove its power and data connectors (so that you can remove the drive bay).

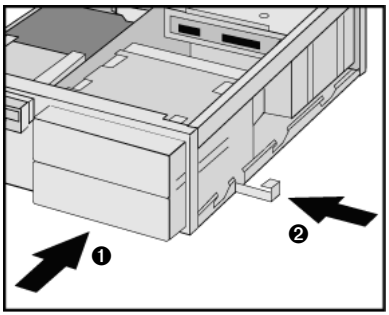
3 Pull out the sliding latch ❶ and remove the drive bay ❷.



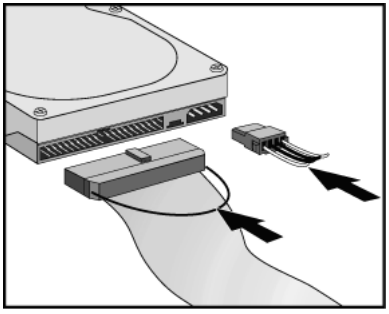
4 Align the new device in the bay (with the correct orientation) and secure it with the screws provided.



5 Slide the drive bay back into the PC (ensuring the bottom catches engage properly) and replace the sliding latch.



6 Attach all data and power connectors.



7 Replace the cover (described in this chapter).

8 Verify the new configuration by checking the HP Summary Screen. To access the HP Summary Screen, press **Esc** when the *Vectra* logo appears during startup.

NOTE

Ensure that you have installed all the required operating system and HP drivers on the newly installed drive. To reinstall operating system and HP drivers, use the *Diagnostics & Recovery CD-ROM* provided with the PC. In addition, you can find the most up-to-date versions of HP drivers on HP's Web site at: **www.hp.com/go/vectrasupport**.

Installing Removable Media Devices

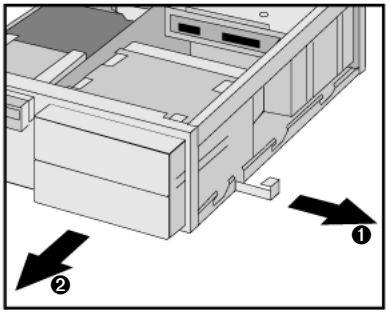
The PC has an integrated Enhanced IDE controller which supports up to four IDE devices. Removable media IDE devices, such as CD-ROM drives, DVD drives, tape drives and Zip drives, require front access. You can install a removable media IDE drive in an empty front shelf.

Refer to the drive's manual to see if you must set jumpers or if there is a special installation procedure to follow.

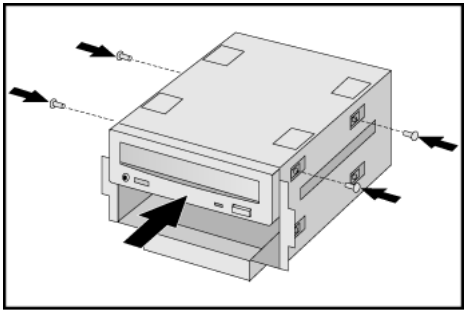
1 Remove the computer's cover (described in this chapter).

2 If there is already a drive installed in the front bay, remove its power and data connectors (so that you can remove the drive bay).

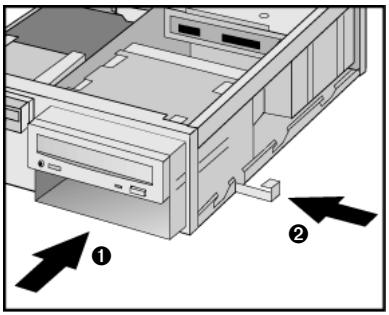
3 Pull out the sliding latch ❶ and remove the drive bay ❷.



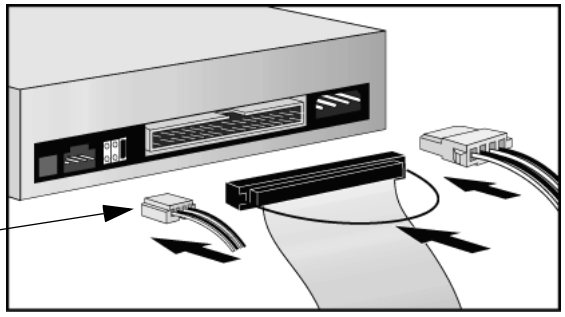
4 Align the new device in the bay (with the correct orientation) and secure it with the screws provided.



5 Slide the drive bay back into the PC (ensuring the bottom catches engage properly) and replace the sliding latch.



6 Attach all data and power connectors. If you are installing a CD-ROM or DVD drive, connect the audio cable too.



7 Replace the cover (described in this chapter).

8 Verify the new configuration by checking the HP Summary Screen. To access the HP Summary Screen, press **Esc** when the *Vectra* logo appears during startup.

Configuring an IDE Device After Installation

After installing any device, you will need to verify that your PC has correctly identified the new configuration, by viewing the HP Summary Screen. If the configuration is not correct, run the *Setup* program to configure the device. To enter the *Setup* program, press **F2** during startup.

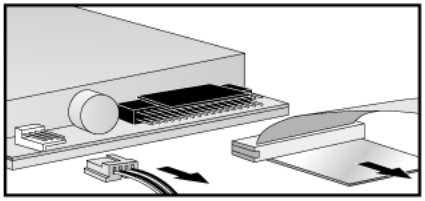
IDE drives are automatically detected by the *Setup* program. However, a newly installed device may require that you install an appropriate device driver. Refer to your operating system documentation for details. You can obtain the latest drivers from HP's Web site at:

www.hp.com/go/vectrasupport.

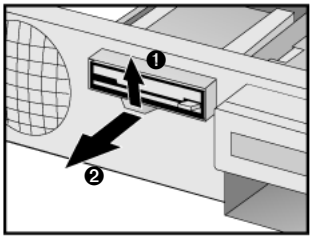
Replacing the Floppy Drive

1 Remove the computer's cover (described in this chapter).

2 Remove the drive's connectors.



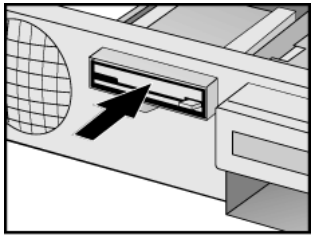
3 Lift the latch ❶ and slide out the floppy drive tray ❷.



4 Remove the tray's screws and remove the old floppy drive.

5 Align the new floppy drive in the tray (with the correct orientation) and replace the 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).

Installing Accessory Boards

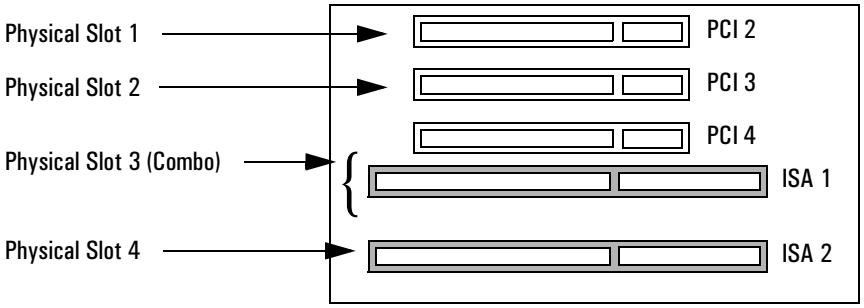
Accessory Board Slots

The PC has four accessory board slots.

NOTE

Use only XT format ISA accessory boards (width less than 10.4 cm or 4.09 inches).

Accessory Board Connectors



- Physical slot 1 (the top slot) can be used for a full-length 32-bit PCI board.
- Physical slot 2 can be used for a full-length 32-bit PCI board.
- Physical slot 3 is a combo slot and can be used either for a full-length 32-bit PCI or a full-length XT format 16-bit ISA board.
- Physical slot 4 (the bottom slot) can be used for a full-length XT format 16-bit ISA board.

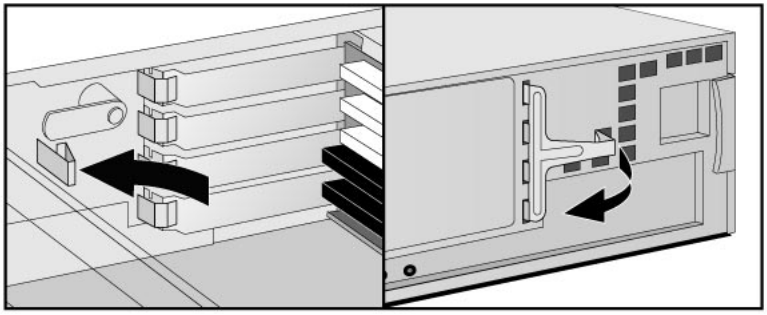
Installing an Accessory Board

NOTE

Use only XT format ISA accessory boards (width less than 10.4 cm or 4.09 inches).

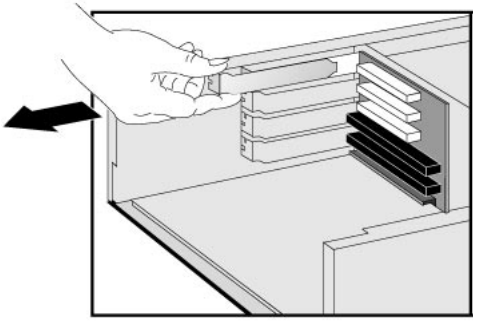
1 Remove the computer's cover (described in this chapter).

2 Remove the retaining bracket.

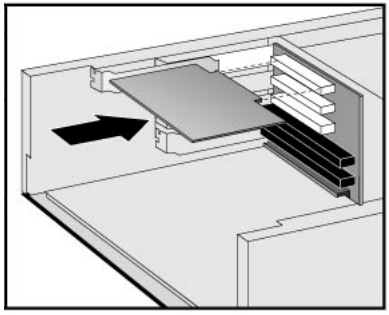


3 If the selected accessory board slot is located behind the processor, you may need to slide out the system board to allow access (refer to see "Replacing the System Board" on page 72 for information on how to do this).

4 Remove the slot cover.

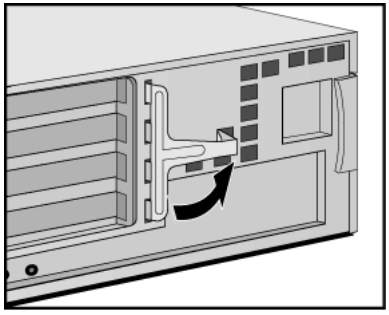


5 Aligning the board carefully, slide it into position and press it firmly into the slot.



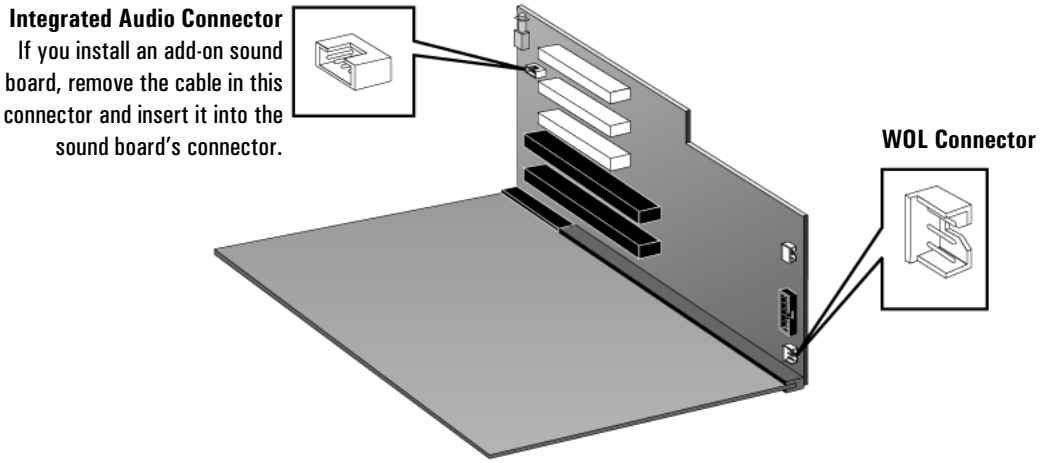
6 If you slid out the system board to allow access to a lower slot, replace it.

7 Replace the retaining bracket.



8 The accessory board may need a special connection, such as:

- WOL (Wake on LAN) connector to the Network board.
- CD-ROM drive to the sound board (if you no longer want to use the integrated audio).



For more information, refer to the documentation that came with the accessory board. The necessary cables are usually provided with the accessory board.

NOTE

If you install a network board and connect it to the WOL connector, you must enable the **`Suspend Wake-Up/Integrated Network`** and/or **`Integrated Network`** fields in the **`Power`** menu of the PC's *Setup* program. This only applies if the network board supports these modes. To enter the *Setup* program, press F2 during startup.

If you install an add-on sound board (and you no longer want to use the integrated audio), you must set the **`Integrated Audio Interface`** in the **`Advanced`** menu of the *Setup* program to **`Disabled`**.

9 Replace the cover (described in this chapter).

Configuring Accessory Boards with Plug and Play

Plug and Play is an industry standard for automatically configuring your PC's hardware resources and the accessory boards installed in it. Your PC has configurable support for Plug and Play in the BIOS.

All PCI accessory boards are Plug and Play, although not all ISA boards are. Check the accessory board's documentation if you are unsure.

When you start your PC after installing an accessory board, the Plug and Play BIOS automatically detects which hardware resources (IRQs, DMAs, memory ranges, and I/O addresses) are used by PC components (such as the keyboard, the communications ports, network adapters, and accessory boards).

Windows 95 and Windows 98

Operating systems that support Plug and Play, such as Windows 95 and Windows 98, will automatically detect a newly installed Plug and Play accessory board and install the driver for this device, if the driver is available.

Windows NT 4.0

For operating systems that do not support Plug and Play, such as Windows NT 4.0, refer to the operating system documentation for information about installing accessory boards.

In Windows NT 4.0, click the **Start** button then click **Help**. You can use the contents or index to find information about installing devices. Windows NT 4.0 helps you through the installation of devices such as modems and sound boards.

NOTE

After installing a new device in Windows NT 4.0, you must re-install the Microsoft Service Pack to update the operating system for your PC. To do this, click the **Start** button then select **Programs – Windows NT Update**.

Configuring non-Plug and Play ISA Accessory Boards

If you install an ISA accessory board that is not Plug and Play, you will need to configure the board before your PC can use it. For instructions about configuring the board, refer to the documentation that came with the board.

For guidelines on available IRQs and I/O addresses in your PC, refer to page 119. Some operating systems, such as Windows 95, can display the IRQs and I/O addresses currently used by your PC. Refer to the operating system documentation for more information.

Refer to the documentation supplied with the operating system for details on your operating system's capabilities and restrictions concerning non-Plug and Play accessory boards.

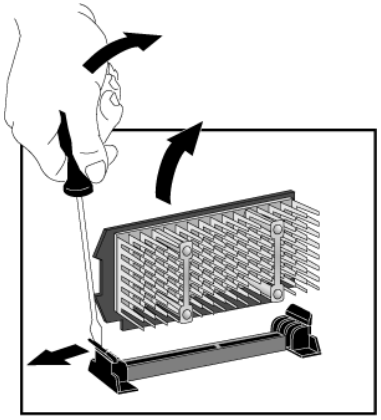
Resetting the PC's Configuration Data

If your PC is having difficulty recognizing the ISA board, try resetting the PC's data configuration. This will clear any old configuration data that is no longer used. To do this, enter the PC's *Setup* program, set the **Reset Configuration Data** parameter to **Yes**, and restart the PC. To enter the *Setup* program, press **F2** during startup.

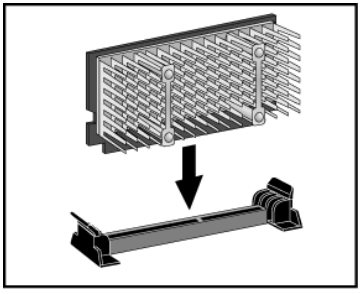
Replacing the Processor

1 Remove the computer's cover (described in this chapter).

2 Remove the old processor.



3 Install the new processor and clip it into place.



4 If the new processor is a different speed, ensure that the system board switches are correctly set for your processor speed. (The correct switch settings are indicated on the system board.)

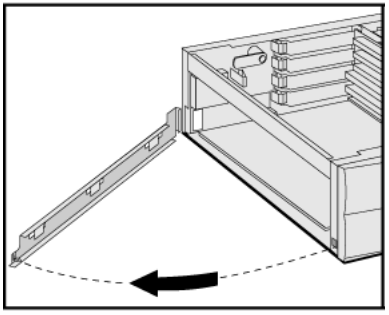
5 Replace the cover (described in this chapter).

6 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

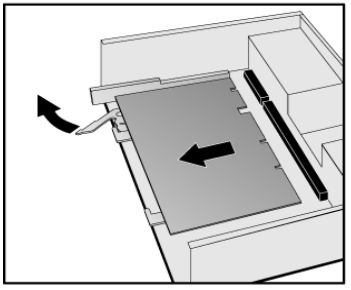
1 Remove the computer's cover (described in this chapter).

2 Remove the lower bracket.

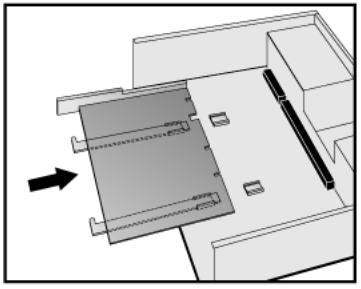


3 Remove the main memory and processor from the old system board (described in this chapter).

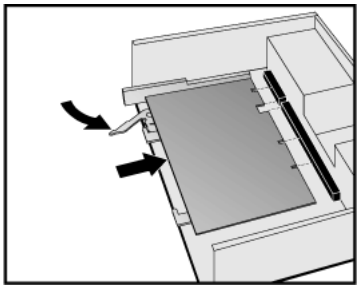
4 Remove the old system board.



5 First ensure the lever is open, then carefully slide in the new system board, aligning the rails and the rear connector bracket correctly.

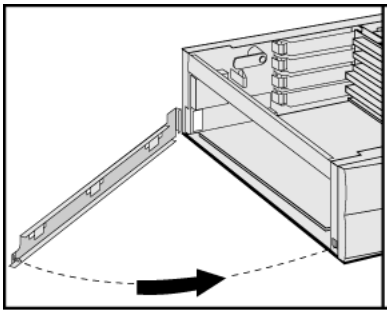


6 Pushing on the lever and on the system board edge, slide the system board firmly into place. Ensure the connectors are well aligned and fully engaged.



7 Replace the main memory and processor in the new system board (described in this chapter).

8 Replace the lower bracket.



9 Replace the cover (described in this chapter).

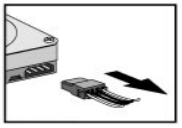
Replacing the Power Supply

WARNING

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

1 Remove the computer's cover (described in this chapter).

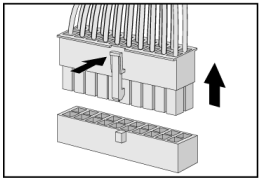
2 Remove *all* internal power supply connectors.



Hard drive(s)

DVD/CD-ROM drive(s)

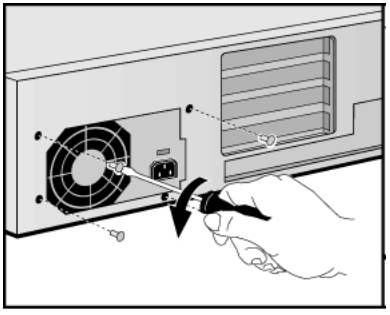
Floppy drive



Main power
(located on backplane near power supply)

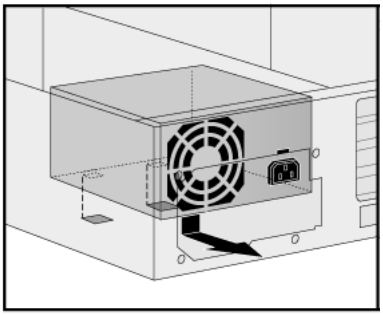
3 Remove the hard drive tray (described in this chapter).

4 Remove the four screws securing the power supply.

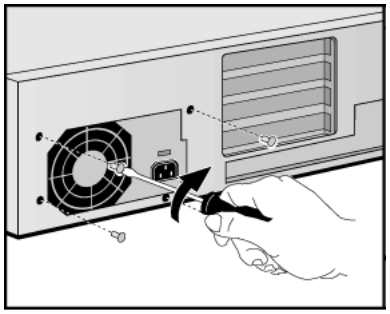


5 Slide the old power supply forward and remove it.

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



7 Replace the four screws to secure the power supply.



8 Re-install the hard drive tray (described in this chapter).

9 Reconnect *all* internal power supply connectors.

10 Replace the cover (described in this chapter).

11 Select the correct voltage setting for your country.

Changing the Battery

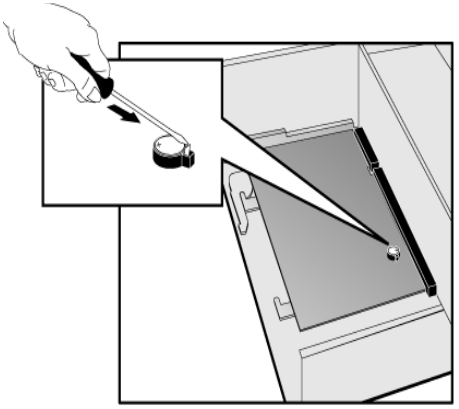
WARNING

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 the battery only with the same or equivalent type recommended by the manufacturer. The battery in this PC is a lithium battery which 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, or to the dealer from which you purchased your PC, or to HP, so that they can either be recycled or disposed of in an environmentally sound way. Returned used batteries will be accepted free of charge.

You should order replacement battery HP 1420-0356 from your local Sales and Service office, or a “CR2032 type” battery, which is available from most local stores.

After removing the computer’s cover:

1 Remove the old battery by pressing the retaining clip with a screwdriver and lifting the battery clear of the battery holder.



2 Place the new battery in the battery holder, with the “+“ sign on top, and ensure it is properly seated.

After installing a replacement battery, replace the computer’s cover and run the *Setup* program to reconfigure the computer. You enter *Setup* by pressing **F2** at startup.

Installing a Security Cable

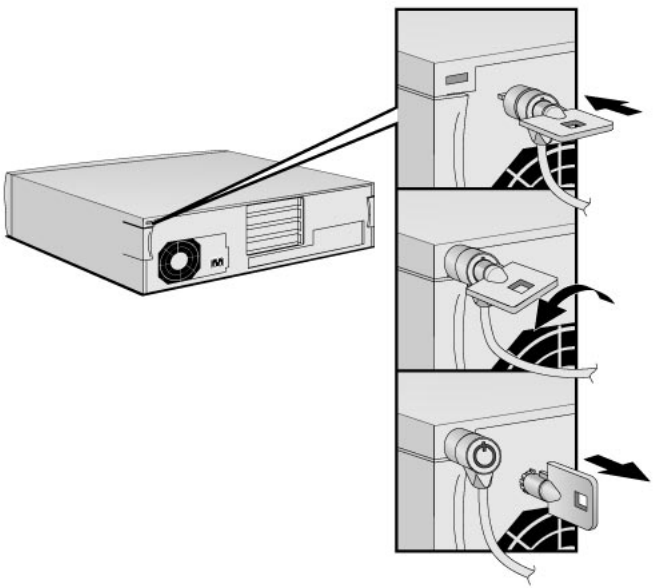
You can secure the PC to your desk, or any other fixed object, using a Kensington™ security cable. Using a security cable will also lock the cover onto the PC.

The PC has a slot at the rear for securing the cable.

1 Insert the lock into the slot located at the rear of the PC.

2 Turn the key to lock the cable to the PC.

3 Remove the key and store it in a safe place.

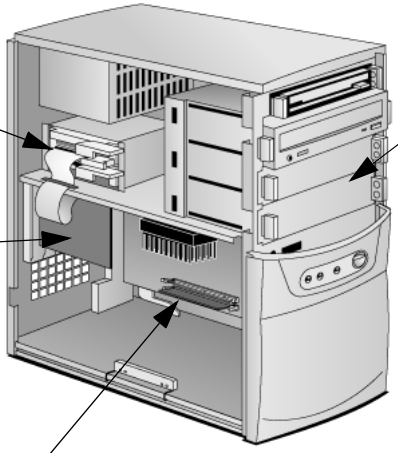


NOTE

The Kensington™ security cable is not an HP accessory. It cannot be ordered from HP. Contact your reseller for more information.

3

Accessories You Can Install



Up to Two Hard Disk Drives
(One hard disk drive already installed)

Up to Six Accessory Boards
Some slots may come with pre-installed boards, such as a network adapter board.

Two or Three Free Front-Access Device Shelves
CD-ROM drive (already installed on some models), DVD drive, Tape drive, Zip drive

Main Memory Modules:
(100 MHz SDRAM only)
32 MB kit
64 MB kit
128 MB kit
256 MB kit

How to Install and Replace Components In Your Minitower PC

This chapter explains in detail how to install accessories, such as extra memory, accessory boards, and additional disk drives, in your PC. For information about supported accessories, refer to HP's web site **www.hp.com/go/vectraaccessories**.

Before Starting

Read this section before installing any accessories.

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 telecommunication network. Always replace the cover before switching the PC on again.

To avoid electric shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM drive for power requirements and wavelength. This product is a class 1 laser product.

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

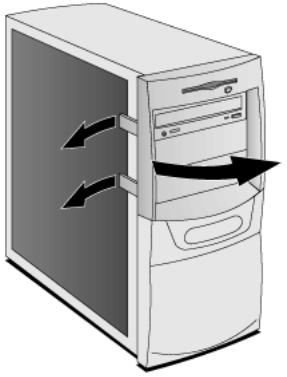
Removing the Cover

1 Switch off the monitor and PC, disconnect all power cords and any telecommunication cables.

2 If necessary, unlock the cover (with the key) at the rear of the PC.

3 Open the latch and remove the side panel.

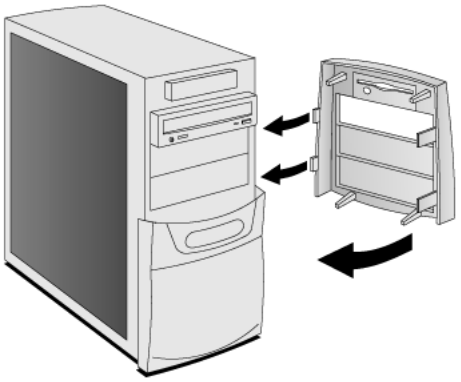
4 Remove the front panel.



Replacing the Cover

1 Ensure that all internal cables are properly connected and safely routed.

2 Replace the front panel.



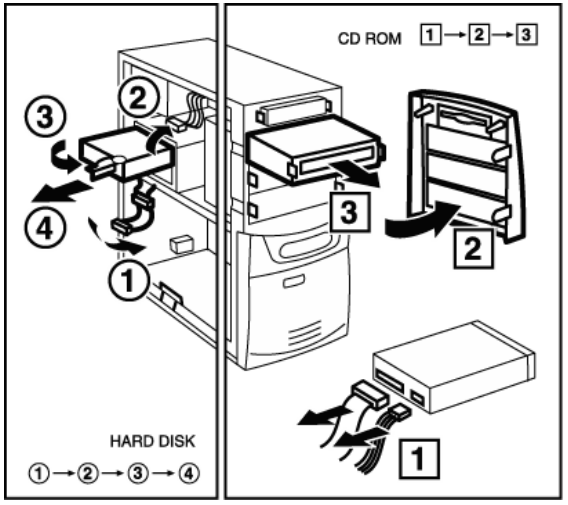
3 Replace the side panel, making sure you align the hinges first.

4 If required, lock the cover (with the key) at the rear of the PC.

The Label Inside Your PC

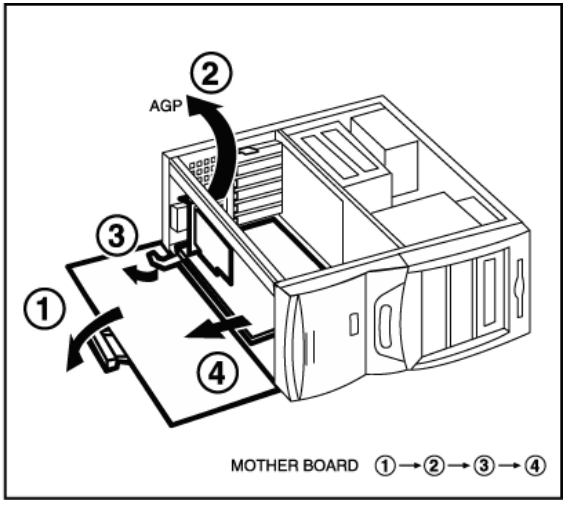
Inside, your PC contains a label that can be used as a simplified guide to help you install accessories and replace components.

Shows how to remove the hard disk drive



Shows how to remove the CD-ROM drive

Shows how to remove the system board
(step 2 does not apply to your PC model)



Upgrading the Main Memory

NOTE

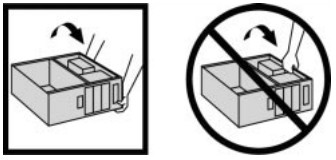
Use only HP memory modules provided for your PC model. The use of other memory modules is not supported. For information about supported HP accessories, connect to the web site **www.hp.com/go/vectraaccessories**.

You can install up to a total of 512 MB (two 256 MB modules). Main memory is available in 100 MHz modules of 32 MB, 64 MB, 128 or 256 MB. (Although the 256 MB memory modules are ECC, the ECC feature is not used by this PC.)

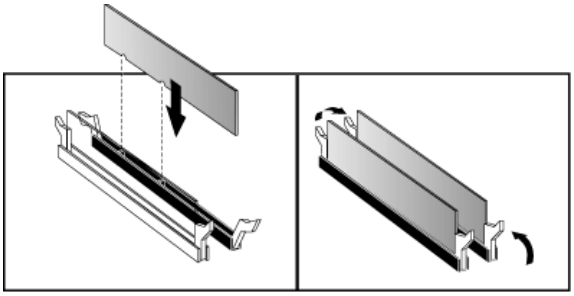
Location of Main Memory (modules can be installed in either slot)

1 Remove the PC's cover (described in this chapter).

2 Lay the minitower on its side.



3 Line up the two side notches correctly and insert the new memory module. (You can use either slot.)

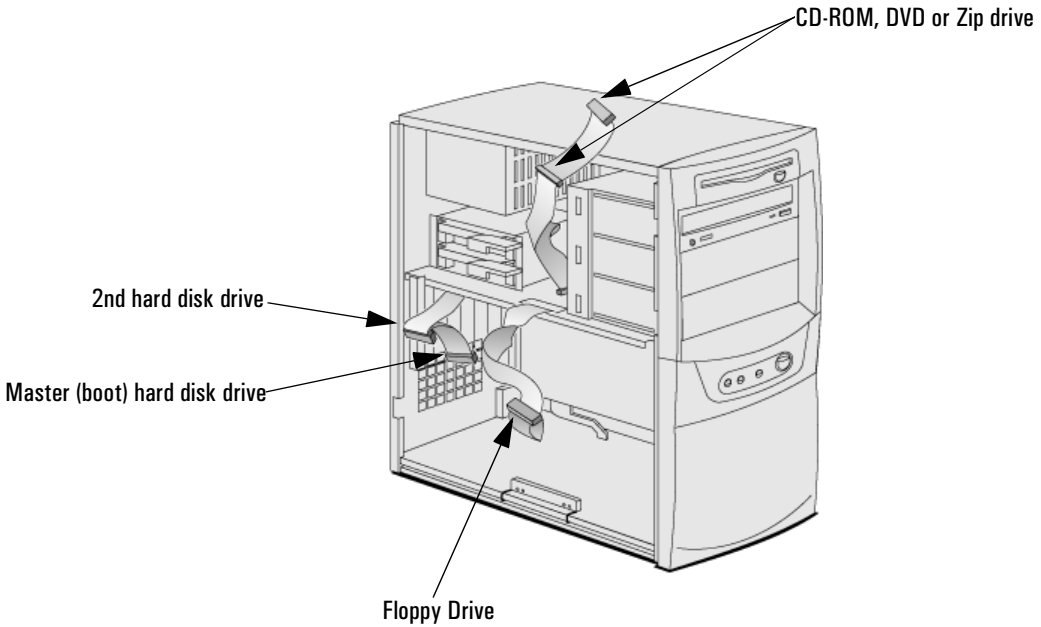


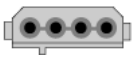
4 Replace the cover (described in this chapter).

Upgrading Mass Storage Devices

Drive Connectors

Internal drives, such as hard disk drives, DVD drives, and CD-ROM drives, must be connected to data and power cables. When replacing these drives, ensure you use the correct data and power connectors.



Power Connectors	Number	Use for
	5	Hard disk drives, DVD drives, CD-ROM drives, Zip drives
	1	Floppy disk drive

Which Data Connectors to Use

There are three data cables inside your PC. Two of these are for IDE devices.

- An Enhanced Ultra ATA IDE (Integrated Drive Electronics) hard disk drive cable.

  For optimum performance, use this cable to connect IDE hard disk drives that are Ultra ATA compatible.

- A second IDE drive cable that supports two IDE devices. If you install a CD-ROM drive, a DVD drive or a Zip drive, connect it to this cable.

- The third cable is non-IDE and has one connector for a floppy drive.

Up to four IDE devices can be connected to the system board using the IDE data cables.

Selecting the Bootable Hard Disk Drive

To select the IDE hard disk drive to start (boot) from, you must enter the *Setup* program and go to the "Hard Disk Drives" submenu of the Boot menu.

NOTE

Connecting a hard disk drive to the IDE master connector *does not* ensure that the PC will boot on that hard disk drive.

Before Installing an IDE Hard Disk

Refer to the drive's installation guide to see if you must set jumpers or if there is a special installation procedure to follow.

Installing a Second Hard Disk Drive

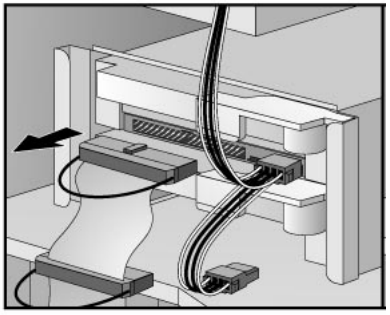
CAUTION

Handle the hard disk drive with care. Avoid shocks and violent movement as this can cause damage to the hard disk drive's internal components.

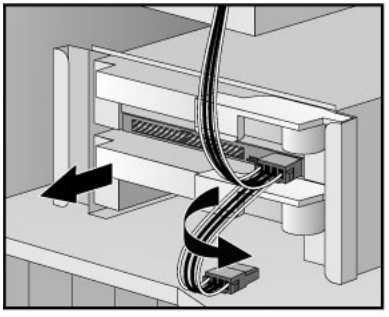
Make sure that you back up your files before you install a hard disk drive. Refer to your operating system documentation for information on how to do this.

1 Remove the computer's cover (described in this chapter).

2 To allow access to the empty drive shelf, remove the IDE connector from the already installed hard disk drive.

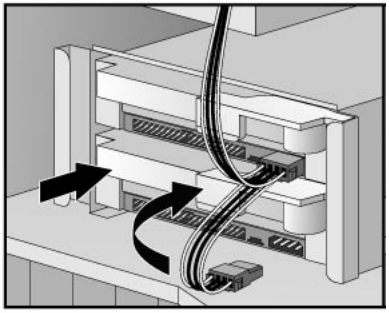


3 On the empty drive shelf, open the lever and slide out the drive tray.

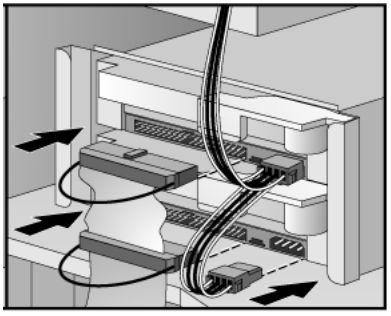


4 Align the new hard drive in the tray (with the correct orientation) and tighten the self-retaining screws.

5 Slide the drive tray back into the bay and close the lever.



6 Attach an IDE data connector to each hard disk drive and a power connector to the new hard disk drive.



CAUTION

Ensure that you route the hard drive power cable correctly. Do not pinch the cable when closing the hard drive tray's lever.

7 Replace the cover (described in this chapter).

8 Verify the new configuration by checking the HP Summary Screen. To access the HP Summary Screen, press **Esc** when the *Vectra* logo appears during startup.

NOTE

If you intend to boot from the newly installed drive, ensure that you have configured *Setup* to do this. Also ensure that you have installed all the required operating system and HP drivers on the newly installed drive. To reinstall operating system and HP drivers, use the *Diagnostics & Recovery CD-ROM* provided with the PC. In addition, you can find the most up-to-date versions of HP drivers on HP's Web site at: **www.hp.com/go/vectrasupport**.

Configuring an IDE Device After Installation

After installing any drive, you will need to verify that your PC has correctly identified the new configuration, by viewing the HP Summary Screen. If the configuration is not correct, run the *Setup* program to configure the device. To enter the *Setup* program, press **F2** during startup.

IDE drives are automatically detected by the *Setup* program. However, a newly installed device may require that you install an appropriate device driver. Refer to your operating system documentation for details. You can obtain the latest drivers from HP's Web site at:

www.hp.com/go/vectrasupport.

Upgrading Removable Media

WARNING

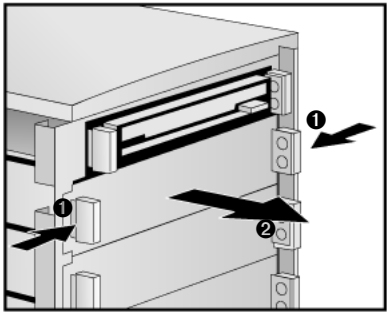
To avoid electric shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM drive for power requirements and wavelength. This product is a class 1 laser product.

The PC has an integrated Enhanced IDE controller which supports up to four IDE devices. Removable media IDE devices, such as CD-ROM drives, DVD drives, tape drives and Zip drives, require front access. You can install a removable media IDE drive in an empty front shelf.

Refer to the drive's manual to see if you must set jumpers or if there is a special installation procedure to follow.

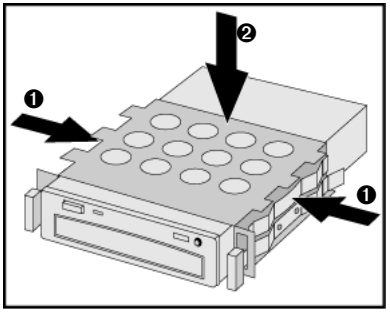
1 Remove the computer's cover and front panel (described in this chapter).

2 Select an empty front drive shelf. Press the two latches inward ❶ and slide out the shelf ❷.

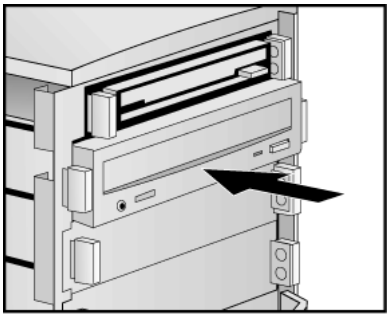


3 Remove the tray's RFI shield.

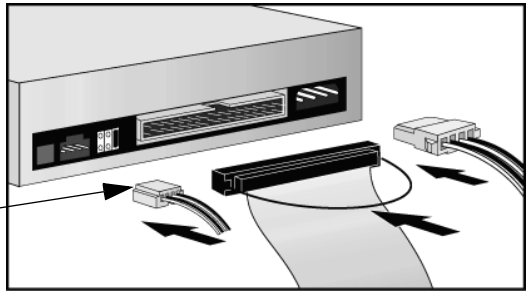
4 Place the new device upside down, press the metal strips ❶, and lower the tray into position ❷. Ensure the tray clicks into place.



5 Slide the device into the PC.



6 Attach the data and power connectors. If you are installing a CD-ROM or DVD drive, connect the audio cable too.



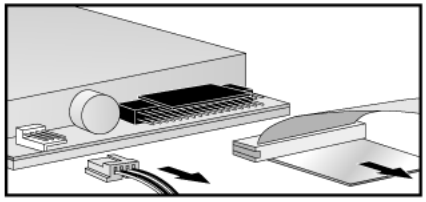
7 Replace the cover (described in this chapter).

8 Verify the new configuration by checking the HP Summary Screen. To access the HP Summary Screen, press **Esc** when the *Vectra* logo appears during startup.

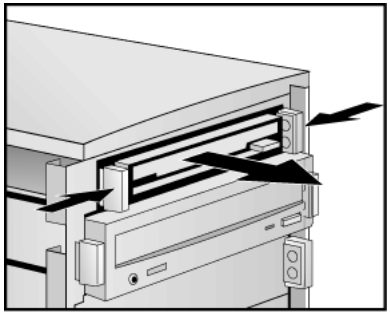
Replacing the Floppy Drive

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

2 Remove the drive's connectors.

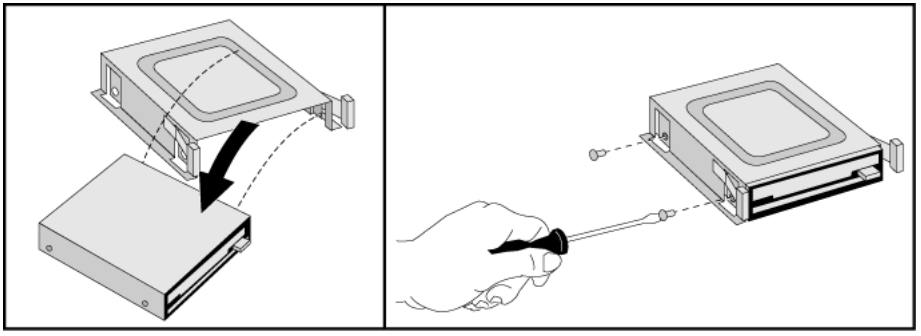


3 Press the two latches inward ❶ and slide out the floppy drive ❷.

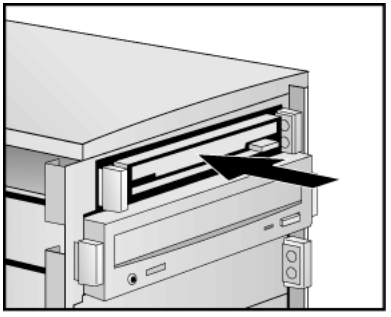


4 Place the drive upside down, remove the two side screws, and lift out the drive.

5 Insert the new floppy drive (pin side first) then replace the two side screws.



6 Slide the floppy drive back into the PC.



7 Attach the data and power connectors.

8 Replace the cover (described in this chapter).

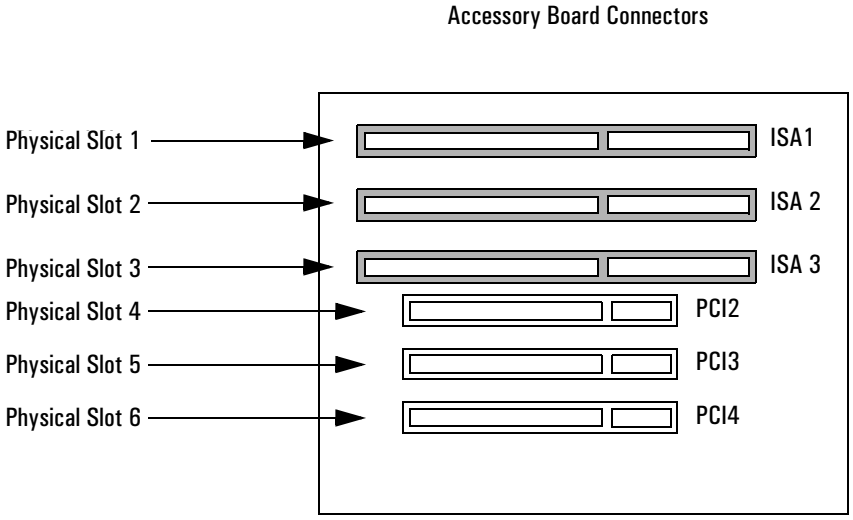
Installing Accessory Boards

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 computer while you are removing the accessory from the bag. Handle the accessory as little as possible and with care.

Accessory Board Slots

The PC has six accessory board slots.

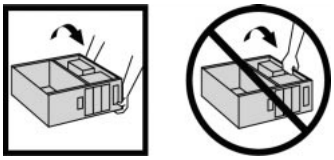


- Physical slot 1 (the outermost slot) can be used for a full-length 16-bit ISA board.
- Physical slot 2 can be used for a full-length 16-bit ISA board.
- Physical slot 3 can be used for a full-length 16-bit ISA board.
- Physical slot 4 can be used for a full-length 32-bit PCI board.
- Physical slot 5 can be used for a full-length 32-bit PCI board.
- Physical slot 6 (the innermost slot) can be used for a full-length 32-bit PCI board.

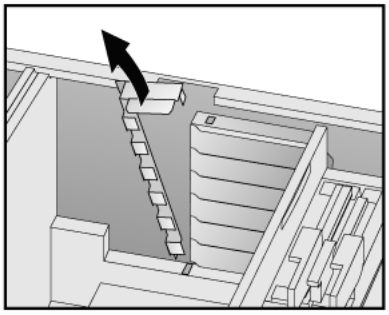
Installing an Accessory Board

1 Remove the computer's cover (described in this chapter).

2 Lay the minitower on its side.

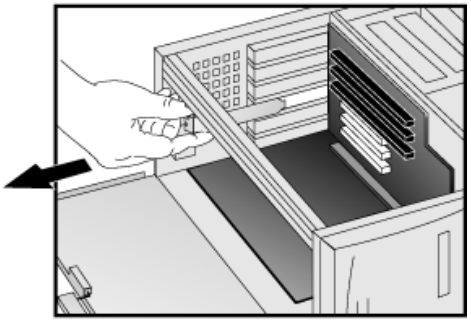


3 Remove the retaining bracket.

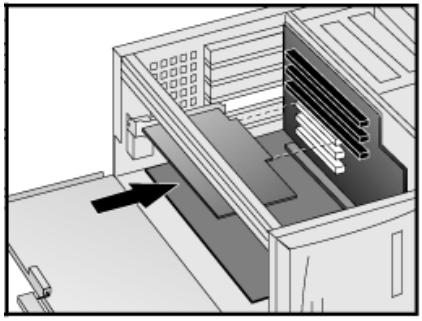


4 If the selected accessory board slot is located behind the processor, you may need to slide out the system board to allow access (refer to see "Replacing the System Board" on page 103 for information on how to do this).

5 Remove the slot cover.

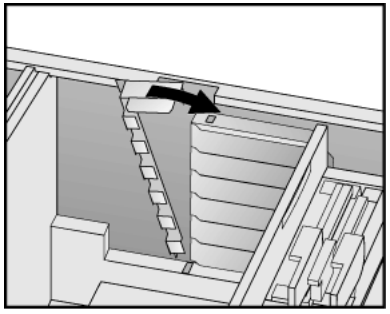


6 Aligning the board carefully, slide it into position and press it firmly into the slot.



7 If you slid out the system board to allow access to a lower slot, replace it.

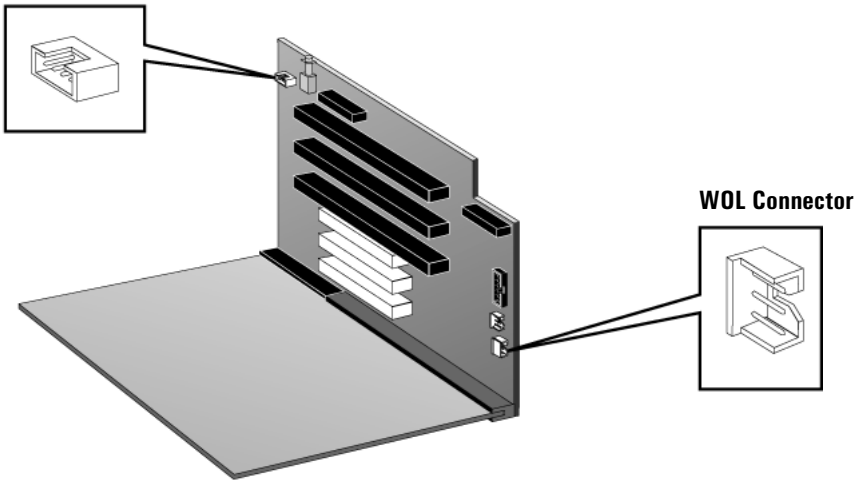
8 Replace the retaining bracket.



9 The accessory board may need a special connection, such as:

- WOL (Wake on LAN) connector to the Network board.
- CD-ROM drive to the sound board (if you no longer want to use the integrated audio).

Integrated Audio Connector
If you install an add-on sound board, remove the cable in this connector and insert it into the sound board's connector.



For more information, refer to the documentation that came with the accessory board. The necessary cables are usually provided with the accessory board.

NOTE

If you install a network board and connect it to the WOL connector, you must enable the **`Suspend Wake-Up/Integrated Network`** and/or **`Integrated Network`** fields in the Power menu of the PC's *Setup* program. This only applies if the network board supports these modes. To enter the *Setup* program, press **`F2`** during startup.

If you install an add-on sound board (and you no longer want to use the integrated audio), you must set the **`Integrated Audio Interface`** in the **`Advanced`** menu of the *Setup* program to **`Disabled`**.

10 Replace the cover (described in this chapter).

Configuring Accessory Boards with Plug and Play

Plug and Play is an industry standard for automatically configuring your PC's hardware resources and the accessory boards installed in it. Your PC has configurable support for Plug and Play in the BIOS.

All PCI accessory boards are Plug and Play, although not all ISA boards are. Check the accessory board's documentation if you are unsure.

When you start your PC after installing an accessory board, the Plug and Play BIOS automatically detects which hardware resources (IRQs, DMAs, memory ranges, and I/O addresses) are used by PC components (such as the keyboard, the communications ports, network adapters, and accessory boards).

Windows 95 and Windows 98

Operating systems that support Plug and Play, such as Windows 95 and Windows 98, will automatically detect a newly installed Plug and Play accessory board and install the driver for this device, if the driver is available.

Windows NT 4.0

For operating systems that do not support Plug and Play, such as Windows NT 4.0, refer to the operating system documentation for information about installing accessory boards.

In Windows NT 4.0, click the **Start** button then click **Help**. You can use the contents or index to find information about installing devices. Windows NT 4.0 helps you through the installation of devices such as modems and sound boards.

NOTE

After installing a new device in Windows NT 4.0, you must re-install the Microsoft Service Pack to update the operating system for your PC. To do this, click the **Start** button then select **Programs – Windows NT Update**.

Configuring non-Plug and Play ISA Accessory Boards

If you install an ISA accessory board that is not Plug and Play, you will need to configure the board before your PC can use it. For instructions about configuring the board, refer to the documentation that came with the board.

For guidelines on available IRQs and I/O addresses in your PC, refer to page 119. Some operating systems, such as Windows 95, can display the IRQs and I/O addresses currently used by your PC. Refer to the operating system documentation for more information.

Refer to the documentation supplied with the operating system for details on your operating system's capabilities and restrictions concerning non-Plug and Play accessory boards.

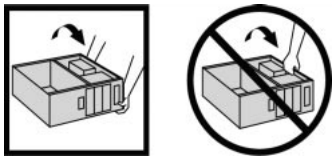
Resetting the PC's Configuration Data

If your PC is having difficulty recognizing the ISA board, try resetting the PC's data configuration. This will clear any old configuration data that is no longer used. To do this, enter the PC's *Setup* program, set the **Reset Configuration Data** parameter to **Yes**, and restart the PC. To enter the *Setup* program, press **F2** during startup.

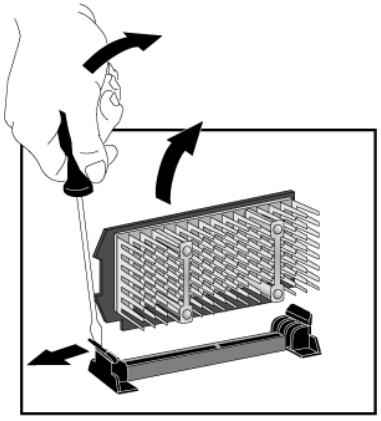
Replacing the Processor

1 Remove the computer's cover (described in this chapter).

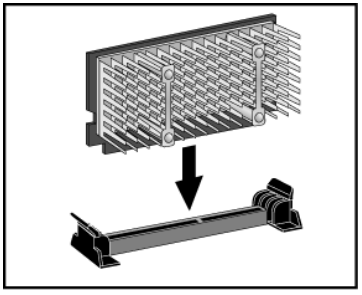
2 Lay the minitower on its side.



3 Remove the old processor.



4 Install the new processor and clip it into place.



5 If the new processor is a different speed, ensure that the system board switches are correctly set for your processor speed. (The correct switch settings are indicated on the system board.)

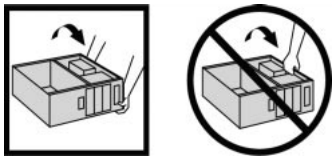
6 Replace the cover (described in this chapter).

7 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**.

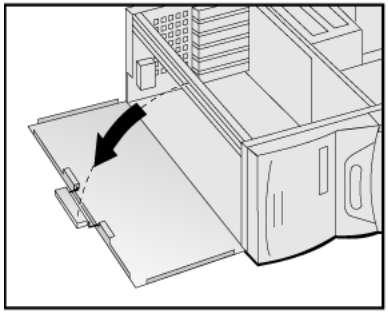
Replacing the System Board

1 Remove the computer's cover (described in this chapter).

2 Lay the minitower on its side.

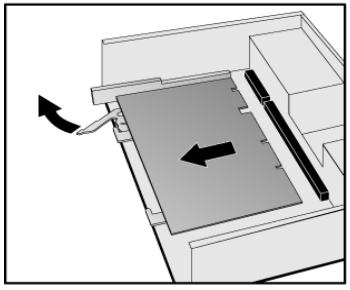


3 Open the bottom plate.

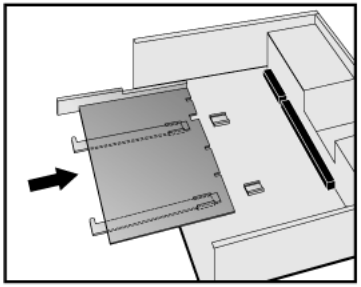


4 Remove the main memory and processor from the old system board (described in this chapter).

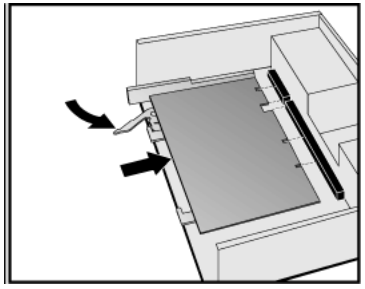
5 Remove the old system board. First lift the lever to release it before pulling it open.



6 First ensure the lever is open, then carefully slide in the new system board, aligning the rails and the rear connector bracket correctly.

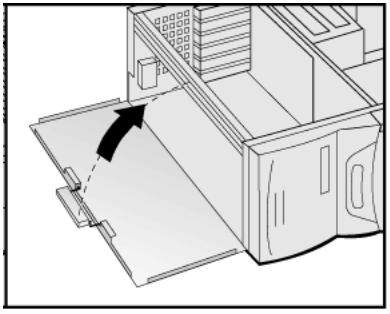


7 Pushing on the lever and on the system board edge, slide the system board firmly into place. Ensure the connectors are well aligned and fully engaged.



8 Replace the main memory and processor in the new system board (described in this chapter).

9 Close the bottom plate.



10 Replace the cover (described in this chapter).

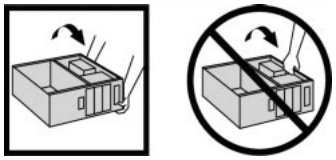
Replacing the Power Supply

WARNING

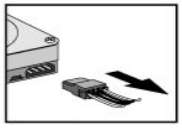
To avoid electric shock, do not open the power supply. There are no user-serviceable parts inside.

1 Remove the computer's cover (described in this chapter).

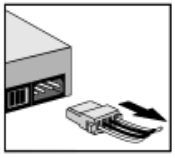
2 Lay the minitower on its side.



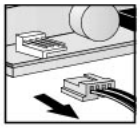
3 Remove *all* internal power supply connectors.



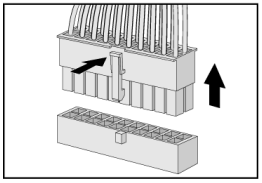
Hard drive(s)



DVD/CD-ROM drive(s)

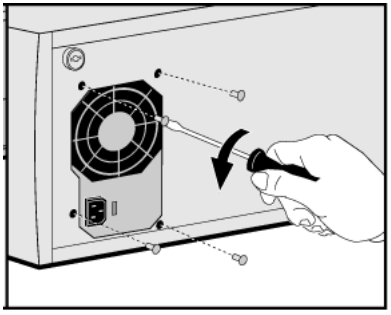


Floppy drive



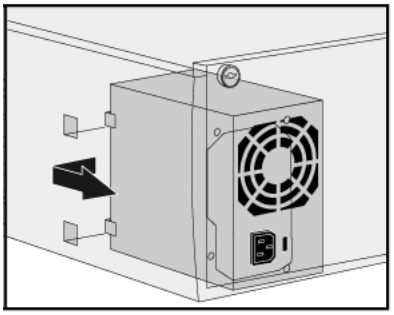
Main power (located on backplane near power supply)

4 Remove the four screws securing the power supply.

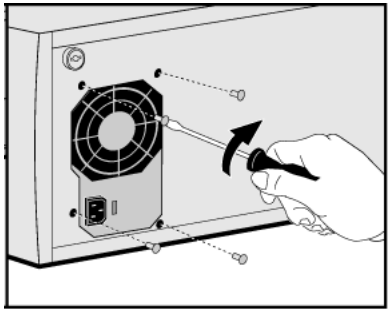


5 Slide the old power supply forward and remove it.

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



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.

Changing the Battery

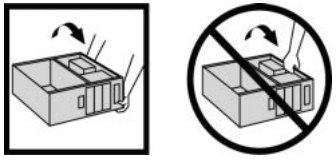
WARNING

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 the battery only with the same or equivalent type recommended by the manufacturer. The battery in this PC is a lithium battery which 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, or to the dealer from which you purchased your PC, or to HP, so that they can either be recycled or disposed of in an environmentally sound way. Returned used batteries will be accepted free of charge.

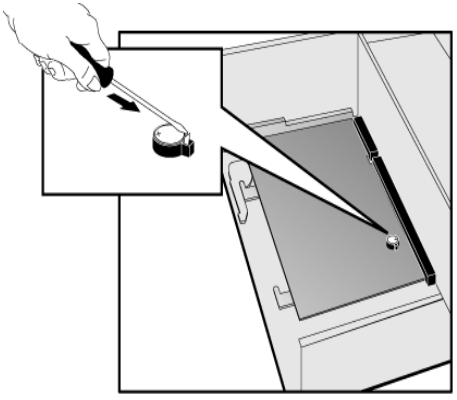
You should order replacement battery HP 1420-0356 from your local Sales and Service office, or a “CR2032 type” battery, which is available from most local stores.

After removing the computer’s cover:

1 Lay the minitower on its side.



2 Remove the old battery by lifting it clear of the battery holder with a screwdriver.



3 Place the new battery in the battery holder, with the "+" sign on top, and ensure it is properly seated.

After installing a replacement battery, replace the computer's cover and run the *Setup* program to reconfigure the computer. You enter *Setup* by pressing **F2** at startup.

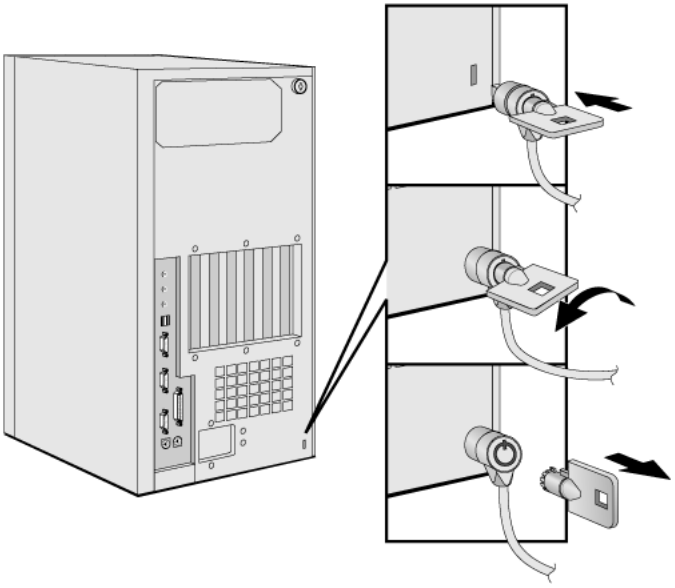
Installing a Security Cable

You can secure the PC to your desk, or any other fixed object, using a Kensington™ security cable. The PC has a slot at the rear for securing the cable.

1 Insert the lock into the slot located at the rear of the PC.

2 Turn the key to lock the cable to the PC.

3 Remove the key and store it in a safe place.



NOTE

The Kensington™ security cable is not an HP accessory. It cannot be ordered from HP. Contact your reseller for more information.

4

Security and Manageability Features

This chapter explains how to use the security features of your PC, such as passwords and hardware monitoring.

Setting Passwords

Your PC has two types of passwords:

- BIOS passwords.

  You can set two passwords, the Administrator password and the User password, to provide two levels of protection for your PC. You set both passwords in the Security menu group of the *Setup* program.

- Software passwords.

  Operating systems such as Windows NT 4.0 and Windows 95 have a password facility. Refer to your operating system documentation for more information.

Tips for Using Passwords

- Set a User password to prevent your PC from being started in your absence.
- Set an Administrator password to protect your PC's *Setup* configuration.

Setting the Administrator Password

Set the Administrator password to protect the PC's configuration in *Setup*. An Administrator password can provide a power-on password prompt to prevent your PC being started or used in your absence.

If you have set both an Administrator password and a User password, and you enter the *Setup* program by using the User password, you will be restricted in your ability to change setup items. If you enter the *Setup* program with an Administrator password, you will have no restrictions.

How to Set an Administrator Password

To set an Administrator password:

1 Enter the *Setup* program, by pressing **F2** during startup.

2 Select the Security menu group.

3 Select the "Administrator Password" submenu.

4 Choose the "Set Administrator Password" setup item. You will be asked to enter your password twice. Save your changes when you exit the *Setup* program by selecting "Exit", then "Save and Exit".

To remove the password, follow the same procedure as to set a password. You will be asked to enter the existing password first. Then, for the new password, leave the password field blank and press **Enter**. To confirm your choice, press **Enter** a second time.

Setting the User Password

A User password can only be set if an Administrator password has already been set.

The User Password provides these security features:

- Automatic lock at startup to enable remote management, but prevent unauthorized access.
- A keyboard lock timer to automatically lock your PC after a specified number of minutes of keyboard inactivity—you must type the password and press **Enter** to unlock the keyboard.
- Blank the screen to conceal confidential data when the PC is locked.

If you have set both an Administrator password and a User password, and you enter the *Setup* program by using the User password, you will be restricted in your ability to change setup items. If you enter the *Setup* program with an Administrator password, you will have no restrictions.

How to Set a User Password

To set a User password:

1. Enter the *Setup* program, by pressing **F2** during startup.
2. Select the Security menu group.
3. Select the “User Password” submenu.
4. Choose the “Set User Password” setup item. You will be asked to enter your password twice. Save your changes when you exit the *Setup* program by selecting “Exit”, then “Save and Exit”.

To remove the password, follow the same procedure as to set a password. You will be asked to enter the existing password first. Then, for the new password, leave the password field blank and press **Enter**. To confirm your choice, press **Enter** a second time.

Hardware Monitoring with HP TopTools

If you have HP TopTools, the Health tool in the HP TopTools for Desktops agent interface provides the following tools for hardware monitoring:

- Status, for a general overview of your PC's health, showing an indicator light and a text message for each health feature.
- Disk reliability, for the health status of your IDE hard disk drives. Non-IDE disks such as SCSI are not supported by this tool.
- Power-on self test information, for the details of power-on test failures as well as recommendations for remedy.
- Chassis Intrusion, which alerts your system administrator if your PC's cover is removed.
- Alert Log, which allows you to view alerts generated by DMI-enabled applications such as TopTools and McAfee VirusScan®.

HP TopTools also includes a Crash Monitor module that can be downloaded and installed together with TopTools. This module helps you to save your data if an application crashes. Since crashes are often caused by low system resources, TopTools can send out alerts when these resources are running low.

You can use the HP TopTools Device Manager to carry out remote updates from the Web on video, LAN, IDE device and SCSI device drivers. PCs whose drivers are being updated must have TopTools for Desktops 4.0 agent or higher installed.

HP TopTools is provided on preloaded Windows 95 and Windows NT 4.0 models. It is also available free of charge on the HP Web site at **`www.hp.com/go/manageability`**.

To start TopTools or to consult the TopTools online help in Windows NT 4.0 or Windows 95, click the **`Start`** button, then select **`Programs`**, and click **`HP TopTools for Desktops`**.

For more information about HP TopTools, connect to HP's Web site at **`www.hp.com/go/manageability`**.

Master Pass Key System

The Master Pass Key System is an accessory that enables a system administrator to open all machines in an installed base with a single key. The Master Pass Key System can be purchased from any authorized HP reseller.

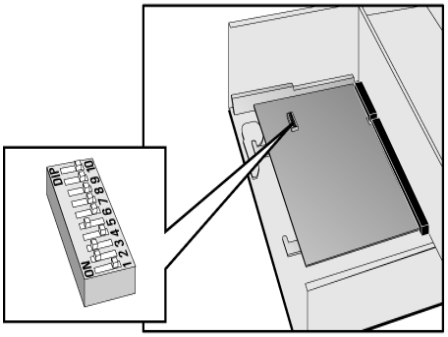
For more information, refer to HP's Support web site at **www.hp.com/go/vectraaccessories**.

5

Technical Information

System Board Switches

The position of system board switches is shown below:



Switch	Switch function:	
1	Reserved	Do not use – OFF by default
2	BIOS Crisis Recovery	Should normally be kept in the OFF position. Used in case of power loss during BIOS update. Refer to flash.txt in the BIOS package downloadable from the HP Web site.
3	Keyboard power-on:	OFF = disabled ON = enabled (default)
4	Password:	OFF = enabled (default) ON = disabled / clear User and Administrator passwords
5	CMOS:	OFF = normal (default) ON = clear CMOS and reload default values in *Setup*
6- 9	Processor speed, refer to the table on your PC's system board.	
10	Reserved	Do not use – OFF by default

IRQs, DMAs, and I/O Addresses Used by Your PC

IRQs used by PC The IRQ, DMA, and I/O address mappings shown here are for a PC with a basic configuration. The resources used by your PC may vary, depending upon which accessory boards are bundled with the PC.	IRQ0	system timer
	IRQ1	keyboard
	IRQ2	system cascade
	IRQ3	used by serial port if enabled
	IRQ4	used by serial port if enabled
	IRQ5	free if not used by parallel port or embedded audio controller
	IRQ6	floppy disk controller
	IRQ7	used by parallel port if enabled
	IRQ8	real-time clock
	IRQ9	available for PCI devices, if not used by ISA board or USB port
	IRQ10	available for PCI devices, if not used by ISA board or USB port
	IRQ11	available for PCI devices, if not used by ISA board or USB port
	IRQ12	mouse
	IRQ13	co-processor
	IRQ14	integrated IDE hard disk drive controller
	IRQ15	free if not used by second IDE controller
DMAs used by PC	DMA 0	free
	DMA 1	free if not used for parallel port in Setup
	DMA 2	floppy disk controller
	DMA 3	free if not used for parallel port in Setup
	DMA 4	used to cascade DMA channels 0-3
	DMA 5	free
	DMA 6	free
	DMA 7	free

NOTE

An audio card will use at least 1 IRQ and 1DMA.
A LAN card will use at least one IRQ.
A video card will use one IRQ.

IRQs, DMAs, and I/O Addresses Used by Your PC

I/O Addresses used by PC	96h - 97h HP reserved 170h - 177h, 376h IDE secondary channel 1F0h - 1F7h, 3F6h IDE primary channel 278h - 27Fh (and 3A8h) parallel port 2E8h - 2EFh serial port 2F8h - 2FFh serial port 378h - 37Fh parallel port 3B0h - 3DFh (3B0-3BB,300-3DF) integrated video graphics controller 3E8h - 3EFh serial port 3F0h - 3F5h, 3F7h integrated floppy disk controller 3F8h - 3FFh serial port 678h - 67Bh parallel port if ECP mode is selected 778h - 77Bh parallel port if ECP mode is selected

Power Consumption

All models have an EPA-compliant power management system.

Total Power Consumption

Power Consumption (Windows NT 4.0 and Windows 95)	Desktop Models	
	115V / 60Hz	230V / 50Hz
Operating without I/O	≤ 37.0 W	≤ 37.0 W
Standby	≤ 29.0 W	≤ 29.0 W
Off	≤ 4.0 W	≤ 4.0 W

Power Consumption (Windows NT 4.0 and Windows 95)	Minitower Models	
	115V / 60Hz	230V / 50Hz
Operating without I/O	≤ 41.0 W	≤ 41.0 W
Standby	≤ 29.0 W	≤ 29.0 W
Off	≤ 4.0 W	≤ 4.0 W

Physical Characteristics

Characteristic	Desktop PC
Weight (excl. display and keyboard)	10.4 kg (22.9 pounds)
Dimensions	Width: 44.3 cm (17.4 inches), Height: 13.8 cm (5.4 inches), Depth: 43.5 cm (17.1 inches)
Footprint	0.193 m^2 (2.07 ft^2)
Storage temperature	–40 ºC to 70ºC (–40 ºF to 158 ºF)
Storage humidity	8% to 85% (relative), non-condensing at 40ºC (104 ºF)
Operating temperature	10 ºC to 35 ºC (50 ºF to 95 ºF)
Operating humidity	15% to 80% (relative)
Power supply	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

Characteristic	Minitower PC
Weight (excl. display and keyboard)	14.8 kg (32.6 pounds)
Dimensions	Width: 20.7 cm (8.1 inches), Height: 46.9 cm (18.5 inches), Depth: 45.5 cm (17.9 inches)
Footprint	0.094 m^2 (1.01 ft^2)
Storage temperature	–40 ºC to 70ºC (–40 ºF to 158 ºF)
Storage humidity	8% to 85% (relative), non-condensing at 40ºC (104 ºF)
Operating temperature	10 ºC to 35 ºC (50 ºF to 95 ºF)
Operating humidity	15% to 80% (relative)
Power supply	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

Acoustic Noise Emission

Acoustic Noise Emission[1] (Measured according to ISO 7779)	Desktop Models	
	Sound Power (typical)	Sound Pressure (typical)
Operating	LwA ≤ 37 dB	LpA ≤ 30 dB
Operating with HDD access	LwA ≤ 38 dB	LpA ≤ 31 dB
Operating with FDD access	LwA ≤ 42 dB	LpA ≤ 39 dB

Acoustic Noise Emission[1] (Measured according to ISO 7779)	Minitower Models	
	Sound Power (typical)	Sound Pressure (typical)
Operating	LwA ≤ 37 dB	LpA ≤ 30 dB
Operating with HDD access	LwA ≤ 38 dB	LpA ≤ 31 dB
Operating with FDD access	LwA ≤ 42 dB	LpA ≤ 38 dB

1. Typical measurements with 5400 rpm hard disk drive.

For more information, refer to HP's Support web site at **`www.hp.com/go/vectrasupport`**.

HEWLETT PACKARD
Expanding Possibilities

Troubleshooting Quick Reference

PC won't start	• Check power cord is correctly connected • Check voltage switch is correctly set
PC starts but there is no display	• Check the display is correctly connected and switched ON • Check the display's brightness and contrast settings
PC starts but there may be a software problem	• Refer to the software documentation or the software provider's support web site for information.
PC starts but there may be a hardware problem	• Run the HP DiagTools software to analyze the problem
PC starts but there is a configuration error	• Run the HP *Setup* program to correct the configuration problem
If there is a memory error	• Check memory modules are of the correct type, HP-supported and correctly inserted
If there is a mouse or keyboard error	• Check power cord is correctly connected • Check the device driver is correctly installed • Check the device configuration in *Setup* • Clean the mouse ball
If there is a floppy disk error	• Try using a known working floppy disk • Check the floppy drive configuration in *Setup* • Check the drive cable is correctly connected
If there is a hard disk, DVD or CD-ROM error	• Check the drive configuration in *Setup* • Check the drive cable is correctly connected • Ensure the OS and drivers are installed
If there is a CMOS error	• Check the power cord is connected • Check power cables to system board are correctly connected • Ensure the OS and drivers are installed
If there is a serial or parallel port error	• Check the devices are connected and on line • Check device drivers are installed • Check the device configuration in *Setup* • Try using a known working device

Part Number D7940-UPG-ABA
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