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Troubleshooting and Upgrade Guide

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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. If a power protection device is fitted to your PC, you must remove the power cord then wait for a complete shutdown of your system before removing the cover. Remove the power protection device cables before any servicing operation. Always replace the cover before switching the PC on again.

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

If you have a modem:
Do not attempt to connect this product to the phone line during a lightning storm. Never install telephone jacks in wet locations unless the telephone line has been disconnected at the network interface. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Use caution when installing or modifying telephone lines. Avoid using a telephone (other than a cordless type) during an lightning storm. There may be a risk from lightning.
Do not use the telephone to report a gas leak in the vicinity of the leak.
Never touch or remove the communications board without first removing the connection to the telephone network.

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 on HP's 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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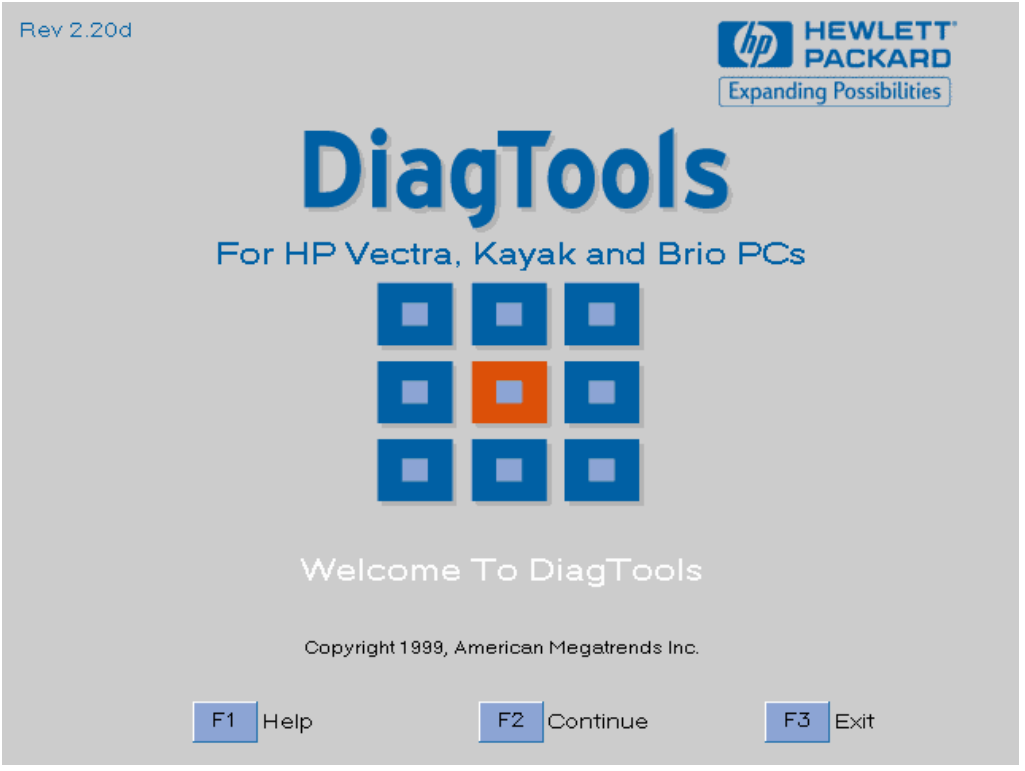


Troubleshooting Your PC

This chapter can help you solve problems you may have when using your PC. Do not hesitate to use the *DiagTools* utility (described on page 14). DiagTools can help you diagnose hardware problems quickly and easily.

Start Here

Use the following checklist to see where you can find help with your problem.

Is there really a problem with my PC or do I just not know how to do something?	Refer to your PC's *User's Guide*
I really do have problem and need to do some troubleshooting.	• For quick tips, refer to "Troubleshooting Quick Reference" on page 13. • For more detailed help, refer to "Troubleshooting Help Zone" on page 15. • Run HP's powerful diagnostic utility, DiagTools, to check your hardware (refer to page 14). • For a wide range of information and support, refer to the HP Vectra support web site at: `www.hp.com.go/vectrasupport`.
Still Need Help?	• Collect information on your PC to help support services (refer to page 44). • Contact your support provider.

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. • Check the graphics card is fully inserted into its connector
PC starts but pressing keys on the keyboard or moving the mouse has no effect	• Check the keyboard and mouse cables are properly connected. • Check the keyboard and mouse drivers are correctly installed.
PC starts but there may be a software problem	• Refer to page 19. • 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 DiagTools to analyze the problem. Refer to page 14. • Upgrade your PC's BIOS. Refer to page 41.
PC starts but there is a configuration error	• Run the HP *Setup* program to correct the configuration problem. Refer to page 124.
If there is a memory error	• Check memory modules are of the correct type, HP-supported and correctly inserted in their sockets. Refer to page 50 (desktop) or page 84 (minitower).
If there is a mouse or keyboard error	• Check the mouse and power cables are correctly connected. • Check the device driver is correctly installed. • Check the device configuration in *Setup*. Refer to page 124. • 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*. Refer to page 124. • Check the drive cable is correctly connected. Refer to page 52 and page 61 (desktop) or page 87 and page 90 (minitower).
If there is a hard drive or CD-ROM error	• Check the drive configuration in *Setup*. Refer to page 124. • Check the drive cable is correctly connected. Refer to page 52 and page 55 (desktop) or page 87 and page 97 (minitower). • Ensure the OS and drivers are installed. • Check any drive jumpers are correctly set.
If there is a CMOS error	• Check the power cord is connected. • Check power to system board is correctly connected. Refer to page 71 (desktop) and page 109 (minitower). • Clear CMOS. Refer to page 127. • Ensure the OS and drivers are installed. • Upgrade your PC's BIOS. Refer to page 41.
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*. Refer to page 124. • Try using a known working device.

Troubleshooting With DiagTools

NOTE

HP strongly recommends you use DiagTools. It provides the most effective means of troubleshooting most hardware problems.

With DiagTools, you can:

- check the configuration of your system and see whether it is functioning correctly.
- diagnose hardware-related problems.
- provide precise information to support personnel so they can solve any problems quickly and effectively.

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

Running DiagTools

You can run DiagTools either from:

- Your PC's hard drive.
  To run diagnostics from the hard drive, restart the PC and press **F10** when the message **Press F10 to start hardware diagnostics...or any other key to proceed** appears on screen.
- Your PC's *HP Image Creation & Recovery CD-ROM*. Refer to "HP Image Creation & Recovery CD-ROM" on page 38.

Troubleshooting Help Zone

Where to Find Help

No Power

Problem	Possible cause	To try and fix this...
PC does not start – the PC's power-on indicator is not on.	The PC's power cord is incorrectly connected.	Connect the power cord to a grounded power outlet and the PC.
	The PC's power outlet is not working.	Plug a light into the power outlet and check it works.
	The PC voltage switch is incorrectly set.	1 Disconnect the power cord. 2 Select the correct setting on the voltage switch located beside the power connector in the rear of the PC. 3 Reconnect the power cord. 4 Start the PC.
More Advanced Troubleshooting		
WARNING: for your safety, do not open the PC when the power cord is connected.	One of the internal devices is causing the problem.	1 Disconnect the PC's power cord. 2 Remove the PC's cover. 3 Check all required internal components are in place. 4 Remove internal power connectors from all internal devices. 5 Reconnect the power connectors one by one to the internal devices to see which device is defective. 6 Replace the PC's cover each time, reconnect the PC's power cord and restart the PC. 7 Contact your authorized support provider.
	Problem with the power supply unit.	1 Replace the power supply unit by a known working power supply from the same model of PC. See page 71 (desktop) or page 109 (minitower). 2 If the PC starts, contact your authorized support provider. The power supply unit might need replacing.
If the problem persists, contact your authorized support provider		

Problems Starting the PC

Problem	Possible cause	To try and fix this...
During startup the PC hangs (freezes).	You may have added an incompatible memory module.	1 Disconnect the PC's power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Remove or replace the memory module. See page 50 (DT) or page 84 (MT). 4 Reconnect the PC's power cord and start up the PC.
	You may have added an incompatible expansion card.	1 Disconnect the PC's power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Remove the expansion card. See page 63 (DT) or page 99 (MT). 4 Reconnect the PC's power cord and start up the PC.
	You might have made changes to the PC's *Setup* program.	1 Enter the *Setup* program by pressing **F2** when prompted during startup. 2 Reload the factory settings by pressing **F9**. 3 Press **ESC** twice to exit the *Setup* program saving changes.
When you start the PC, you get a "non-system disk" or "operating system not found" message.	There is a non-bootable floppy disk in your floppy drive	1 Remove the floppy disk. 2 Restart the PC.
If the problem persists, contact your authorized support provider		

PC Stuck in Sleep Mode

Problem	To try and fix this...
Moving the mouse or pressing a key on the keyboard is not enough to wake your PC from its sleep state.	1 Press in the power button for 5 seconds. The PC will shut down. Note that any unsaved data will be lost. 2 Unplug the power cord from your PC, wait for a few seconds and then plug it in again. Your PC will restart automatically.

PC Freezes

Problem	To try and fix this...
While you are using a program on your PC, it suddenly freezes (hangs).	1 Try pressing the **CTRL + ALT + DEL** keys simultaneously. A window appears showing the applications currently running. One of these may be marked as not responding. 2 Select the application and click on the End Task button. 3 Restart the program to see if it is working normally. 4 If it does not work normally, restart the PC and try again.
The PC keeps locking up.	1 Run DiagTools (refer to page 14). 2 If the problem persists, try removing any added memory or expansion cards.

Forgotten Your PC's Password

NOTE

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

Problem	To try and fix this...
You have forgotten the password that has been set in the *Setup* program to prevent unauthorized users from starting your PC (see page 124).	1 Ask your system administrator, if you have one, to remind you of the password. 2 If you cannot find out the password, clear passwords (see page 120). This allows the PC to start without a password.

Can't Shut Down Your PC

Problem	To try and fix this ...
PC hangs when you try to shut it down	1 Press in the power button for 5 seconds. The PC will shut down. Note that any unsaved data will be lost. 2 Unplug the power cord from your PC, wait for a few seconds and then plug it in again. Your PC will restart automatically.
PC will not shut down when you press the power button.	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.

Software Problem

Problem	To try and fix this...
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, select **Settings ⇨Control Panel ⇨Date/Time** from the **Start** menu or use the *Setup* program (see page 124). If necessary, install a new battery. Refer to page 73 (desktop) or page 112 (minitower).
You receive the error message "some necessary system files are corrupted"	Reinstall the operating system or return the PC to its original factory configuration by using the *HP Image Creation & Recovery CD-ROM*. Refer to page 38 for more information.

Monitor Not Working Properly

Problem	Possible Cause	To try and fix this...
PC's power indicator light and hard disk activity light work but the screen remains blank or the image is not satisfactory.	The monitor is not switched on (no LED).	Refer to the monitor manual for an explanation of the monitor LEDs.
	The monitor's power cord is incorrectly connected.	Ensure the power cord is plugged into a grounded power outlet and into the monitor.
	The monitor's power outlet is not working.	Plug another device into the grounded power outlet and check it works.
	The monitor's brightness and contrast settings are incorrect.	Refer to the monitor manual if necessary.
	The monitor cable pins are damaged or not properly connected.	1 Switch off and unplug the monitor. 2 Disconnect the monitor cable and straighten any bent pins. 3 Reconnect the monitor cable. 4 Switch on the monitor and see if it works.
More Advanced Troubleshooting		
	The monitor settings in your PC are incompatible with your monitor	Refer to the monitor manual to find out which settings are supported then change the settings as follows: • Windows NT 4.0: Enter VGA mode when prompted during start-up, then reset the resolution. • Windows 95, Windows 98 and Windows 2000: Restart the PC. The Vectra screen is displayed. For Windows 95 and Windows 98, when you hear a beep, press **F8** and then start the PC in safe mode. For Windows 2000, press **F8** and then start the PC in VGA mode. Double-click on the **Display** icon in your PC's **Control Panel**, then click on the **Settings** button. Use the sliding control to reset the resolution.
	You may need to update your PC's BIOS.	Create a floppy to update your PC's BIOS. Refer to page 41.
	The monitor itself is faulty.	1 Replace the monitor by a known working monitor from the same model of PC. 2 If the replacement monitor works fine, contact your authorized support provider. The other monitor may need to be replaced.

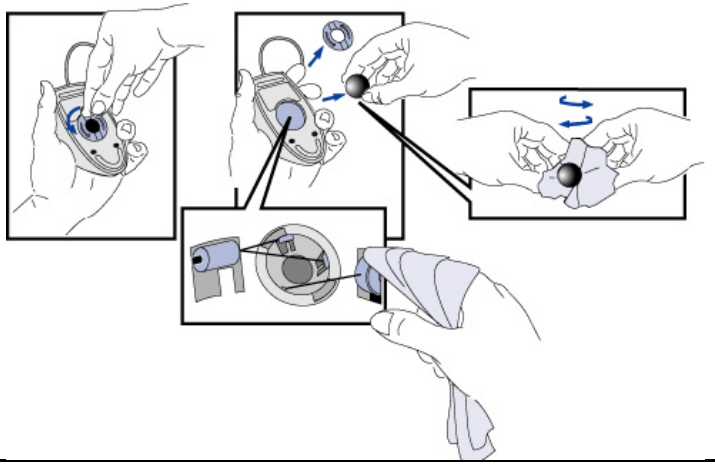
PC Displays an Error at Startup

When your PC starts up it performs a Power-on Self Test (POST) to test your hardware configuration for any problems. If a problem is detected during the POST, an error is displayed on your PC's monitor. The following section describes what to do if your PC displays one of these error messages.

Memory Test Error

Problem	Possible cause	To try and fix this...
Power-On-Self-Test (POST) displays a memory test error.	The PC's memory modules are not installed correctly.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Check the memory modules are correctly installed, of the correct type and in the correct sockets (refer to page 50). 4 Close the PC, reconnect the power cord and check that the PC boots (starts).
	The PC's memory modules are not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the memory modules by known working memory modules from the same model of PC. See page 50 (DT) or page 84 (MT) for more information on memory modules. 4 Close the PC, reconnect the power cord and check that the PC boots (starts).
If the problem persists, run DiagTools to diagnose the problem. Refer to page 14.		
More Advanced Troubleshooting		
	You may need to update your PC's Basic Input Output System (BIOS).	Create a floppy to update your PC's BIOS. Refer to page 41.
	The system board is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the system board by a known working board from the same model of PC. See page 70 (DT) or page 107 (MT). 4 Close the PC, reconnect the power cord and check that the PC boots (starts). 5 If the PC works, contact your authorized support provider for further troubleshooting information.
If the problem persists, contact your authorized support provider		

Keyboard or Mouse Test Error

Problem	Possible cause	To try and fix this...
POST displays a keyboard or mouse test error.	The keyboard and mouse cables are incorrectly connected.	1 Switch off the PC. 2 Plug the cables into the correct connectors on the back of the PC. These are color coded to help you connect them properly.
	The keyboard is not clean and keys are sticking. The mouse is not clean.	• 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.
		
If the problem persists, run DiagTools to diagnose the problem. Refer to page 14.		
You may need to update your PC's Basic Input Output System (BIOS).		Create a floppy to update your PC's BIOS. Refer to page 41.
	The keyboard/mouse are not working	1 Switch off the PC. 2 Replace the keyboard/mouse by known working units. 3 Switch on the PC, and check it works.
More Advanced Troubleshooting		
	The system board is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the system board by a known working board from the same model of PC. See page 70 (DT) or page 107 (MT). 4 Close the PC, reconnect the power cord and check that the PC boots (starts). 5 If the keyboard/mouse works, contact your authorized support provider for further troubleshooting information.

Floppy Drive Test Error

Problem	Possible cause	To try and fix this...
Power-On-Self-Test displays floppy drive test error.	The drive is incorrectly configured in the PC's *Setup* program.	1 Switch the PC OFF then ON. 2 When the message **Press F2 to Enter Setup** appears, press the **F2** key. Refer to page 124. 3 Check the floppy disk drive is enabled and that the correct type is selected (refer to page 33).
	The floppy is not working.	Insert a known working floppy disk and see if it works.
If the problem persists, run DiagTools to diagnose the problem. Refer to page 14.		
You may need to update your PC's Basic Input Output System (BIOS).		Create a floppy to update your PC's BIOS. Refer to page 41.
More Advanced Troubleshooting		
	The drive cables are not correctly connected.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Check the floppy drive's power and data cables are correctly connected and that the power cable pins are not bent. See page 52 (DT) and page 87 (MT). 4 Close the PC then switch it on and check it works.
	The drive cable is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). Replace the floppy drive cable by a known working cable from the same model of PC. 3 Close the PC then switch it on and check it works.
	The drive is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the floppy drive by a known working drive from the same model of PC. See page 61 (DT) or page 97 (MT). 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 not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the system board by a known working board from the same model of PC. See page 70 (DT) or page 107 (MT). 4 Close the PC, reconnect the power cord and check that the PC and drive work.
Refer to page 33 for more information on troubleshooting floppy drives. If the problem persists, contact your authorized support provider		

Hard Disk, CD-ROM, CD-RW or DVD Drive Test Error

Problem	Possible cause	To try and fix this...
Power-On-Self-Test displays hard disk, DVD or CD-ROM drive test error	The drive is incorrectly configured in the PC's *Setup* program. Refer to page 34.	1 Switch the PC OFF then ON. 2 When the message **Press F2 to Enter Setup** appears, press the **F2** key. Refer to page 124. 3 Check the drive is enabled and the correct type is selected.
If the problem persists, run DiagTools from the HP Image Creation & Recovery CD-ROM to test your hard drive, or from your hard drive to test the CD-ROM drive. Refer to page 14.		
	You may need to update your PC's Basic Input Output System (BIOS).	Create a floppy to update your PC's BIOS. Refer to page 41.
More Advanced Troubleshooting		
	The drive cables are not correctly connected.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Check the drive's power and data cables are correctly connected. See page 52 (DT) and page 87 (MT). 4 Close the PC then switch it on and check it works.
	The drive cable is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the drive cable by a known working cable from the same model of PC. 4 Close the PC then switch it on and check it works.
	The drive is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the drive by a known working drive from the same model of PC. See page 55 (DT) or page 90 (MT). 4 Close the PC then switch it on and check it works.
	The system board is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the system board by a known working board from the same model of PC. See page 70 (DT) or page 107 (MT). 4 Close the PC, reconnect the power cord and check that the PC and drive work. 5 If the drive works, contact your authorized support provider for further troubleshooting information.
You receive a S.M.A.R.T. alert during the Power-On-Self-Test.	Defective drive	Important: Carry out an immediate data backup, then contact your authorized support provider.
Refer to page 33 for more information on troubleshooting drives. If the problem persists, contact your authorized support provider		

CMOS Test Error

Problem	Possible cause	To try and fix this...
POST displays a CMOS test error. CMOS is a chip that keeps a record of installed components when the PC is turned off.	The internal battery is not working.	1 Set the PC to the correct time (refer to the operating system manual). 2 Switch off and unplug the PC for an hour. 3 Restart the PC and check the time is correct. 4 If the time is incorrect, replace the PC's battery by a new one. See page 73 (DT) and page 112 (MT).
	You may need to clear CMOS settings.	Refer to page 127.
	You may need to update your PC's Basic Input Output System (BIOS).	Create a floppy to update your PC's BIOS. Refer to page 41.
More Advanced Troubleshooting		
	Power is not correctly connected to the system board.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 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).
	You may need to restore the default configuration settings	1 Switch the PC OFF then ON. 2 When the message **Press F2 to Enter Setup** appears, press the **F2** key. 3 Press **F9** to restore default values. 4 Exit the *Setup* program saving changes.

Serial or Parallel Port Test Error

Problem	Possible cause	To try and fix this...
POST displays a port test error.	The port is incorrectly configured in the PC's *Setup* program.	1 Switch the PC OFF then ON. 2 When the message **Press F2 to Enter Setup** appears, press the **F2** key. Refer to page 124. 3 Check the port is enabled and the correct setting is selected under **I/O Device Configuration** in the **Advanced** menu.
	A connected device may be incorrectly connected and not 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.
	Incorrect device drivers may be installed.	Refer to the documentation for your serial or parallel device.
If the problem persists, run DiagTools to diagnose the problem. Refer to page 14.		
	You may need to update your PC's Basic Input Output System (BIOS).	Create a floppy to update your PC's BIOS. Refer to page 41.
More Advanced Troubleshooting		
	The system board is not working.	1 Disconnect the power cord. 2 Remove the PC's cover. See page 47 (DT) or page 81 (MT). 3 Replace the system board by a known working board from the same model of PC. See page 70 (DT) or page 107 (MT). 4 Close the PC, reconnect the power cord and check that the PC works. 5 If the port works, contact your authorized support provider for further troubleshooting information.
If the problem persists, contact your authorized support provider		

Other Configuration Problems

Problem	To try and fix this...
POST displays an error not covered by an earlier section in this chapter.	Check your *Setup* program settings: 1 Turn on or restart the PC. 2 When the message **Press F2 to Enter Setup** appears, press the **F2** key.
You may need to update your PC's Basic Input Output System (BIOS).	Create a floppy to update your PC's BIOS. Refer to page 41.
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**
More Advanced Troubleshooting	
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 2 on the (Clear CMOS) to ON to clear the configuration. See page 127 for the location of the switch block. 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 2 to OFF 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.

Problem Installing an Accessory Board

Problem	To try and fix this...
You have installed an accessory card but it doesn't work.	Check that: 1 The accessory card is correctly installed in the slot. 2 There are no bent connector pins. 3 You have installed the correct drivers (refer to the card 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.
More Advanced Troubleshooting	
	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. To do this, go to the **Advanced** ⇨**ISA Resource Exclusion** field 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, Windows 98 and Windows 2000 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.

Problem Installing a LAN Card

Problem	To try and fix this...
You have installed a LAN card but it doesn't work.	**Check that:** • There are no IRQ conflicts with other devices. • The card 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 instructions have been followed correctly.
If the LAN card still does not work	**Try:** • Setting the **PnP Operating System** field in the *Setup* program to **NO** (applies to ISA and PCI boards). To enter *Setup*, restart the PC and press **F2** when the Vectra logo appears. • Putting the LAN card into another PCI or ISA slot.
You have installed a LAN card that supports the Wake On LAN feature and the feature does not work.	• Refer to the LAN card documentation for instructions about installing and using the LAN card. • Check that the **Network Interface** fields in the **Power** menu of the *Setup* program are enabled. To enter *Setup*, restart the PC and press **F2** when the Vectra logo appears.

NOTE

Under Windows 95, some LAN cards may lose their LAN connection when the PC goes into suspend mode.

Problem Installing a Smart Card Reader

Problem	To try and fix this...
You have installed a smart card reader but it doesn't work.	**Check that:** • The device is connected to the mouse PS/2 port. This device may not work correctly if connected to the keyboard port,

Problem Installing an Add-On Sound Card

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

Problem	To try and fix this...
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 **F2** 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 card and you get a message telling you that there is no IRQ (Interrupt Request) available for the sound card.	• Check that you have followed the installation instructions provided with the sound card. • Check that you have disabled the integrated audio (see above).
If there is still an IRQ problem...	
... and your PC is running Windows NT and has an ISA card installed	1 Restart the PC and press **F2** when the Vectra logo appears. 2 Reserve an IRQ for the ISA sound card. 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 card.

NOTE

Plug and Play operating systems such as Windows 95, Windows 98 and Windows 2000 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.

PC Has an Audio (Sound) Problem

Problem	To try and fix this...
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 PC's **Control Panel**. To open the **Multimedia** Control Panel, go to **Settings** ➪ **Control Panel** 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.
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.

Printer Problem

Problem	To try and fix this...
Printer is not functioning normally	• Refer to the documentation that came with your printer. • Ensure that the printer is correctly configured on your PC. To view a printer's settings, click on **Start**, then point to **Settings** and click on **Printers**. Double-click on the printer icon and then select **Properties** from the **Printer** menu. • You may have set a printer on your network as a local printer. If you want to use a shared network printer, you can set it up by browsing for it in **Network Neighborhood**, clicking the printer's icon, and then clicking on **Install** in the **File** menu.

Problems Using the Euro Symbol

Problem	To try and fix this...
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.	Windows 95 and Windows NT 4.0 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**.

More Troubleshooting for Your Drives

This section provides more information on how to solve problems with your drives. It covers problems with floppy drives, hard drives, CD-ROM, CD-RW and DVD 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 electrical shock and harm to your eyes by laser light, do not open the laser module. The laser module should only be serviced by service personnel. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM for power requirements and wavelength. This PC is a class 1 laser product.

More Floppy Drive Troubleshooting

Checklist	
1	Ensure you are using a formatted diskette and it is inserted correctly.
2	Make sure that the Flexible Disk Drives ⇨ Floppy Disk Controller option in the *Setup* Advanced menu is enabled. Refer to page 124.
3	Check that correct floppy type is highlighted in the Legacy Diskette A field in the *Setup* Main menu. It should read 1.44 M, 3.5 in. You may need to configure this differently for use in Japan. See the *Setup* help for more details.
4	The Flexible Disks field should be unlocked in the Hardware Protection submenu of the *Setup* Security menu.
5	The Start from Floppy field should be enabled in the Boot Devices Security submenu of the *Setup* Security menu.
6	The Write on Flexible Disks field should be unlocked in the Hardware Protection submenu of the *Setup* Security menu
7	Clean the floppy drive using a diskette cleaning kit.
8	Check that the drive's power and data cables are correctly connected as shown on page 52 (DT) or page 87 (MT).
9	Run DiagTools to see if it detects a problem with the floppy drive (refer to page 14).

More Hard Disk Troubleshooting

Checklist	
1	If you receive a S.M.A.R.T. alert at any time, this indicates that your hard disk drive is defective. Carry out an immediate data backup, then contact your authorized service provider.
2	Check that the disk power and data cables are correctly connected.
3	Check that booting from the hard drive has not been disabled in the Boot menu of the *Setup* program, accessed by pressing **F2** at startup.
4	Check that the hard disk drive has been detected (refer to the Main menu in the *Setup* program, accessed by pressing **F2** at startup). You should see a hard disk drive declared in the Primary Master field.
5	Verify that both is selected in the Local Bus IDE adapter field in the Advanced menu of the *Setup* program, accessed by pressing **F2** at startup.
6	Run ScanDisk and Disk Defragmenter to see if they detect a problem with the hard disk drive. To access these utilities, select Programs ⇨ Accessories ⇨ System Tools from the Start menu.
7	If the hard disk activity light does not flicker when the PC is accessing the hard disk drive, check that the drive's power and data cables are correctly connected, and that the status panel connector is firmly attached to the system board. If you have a SCSI hard drive, check that the hard drive activity LED cable is correctly connected. Refer to the hard drive's documentation for more information.

CD-ROM, CD-RW or DVD Drive Doesn't Work

Checklist	
1	Check that a CD-ROM or DVD is inserted in the drive.
2	Check that all cables (data, power and audio) have been properly connected both to the CD-ROM drive and to the system board.
3	Verify that the drive has been detected in the *Setup* program (refer to the Main menu in the *Setup* program, accessed by pressing **F2** at startup). You should see a CD-ROM drive declared in the Secondary Master or Secondary Slave field or in the IDE Secondary Master or IDE Secondary Slave field.
4	Verify that both is selected in the Local Bus IDE adapter field in the Advanced menu of the *Setup* program, accessed by pressing **F2** at startup.
5	If you intend to boot on CD-ROM, press **F8** at startup or place CD-ROM before HDD in *Setup* (refer to the Boot Device Priority submenu in the Boot menu group of the HP *Setup* program).
6	Run DiagTools to see if it detects a problem with the drive. Refer to page 14.

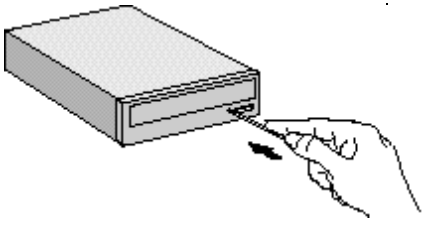
DVD Drive Doesn't Play DVD Video

Checklist
1 Check that the DVD disk you are trying to play and your DVD drive have the same regional code setting. Your DVD drive's regional code setting is set by the first DVD disk you insert in the drive.
2 Ensure you have either a hardware or a software MPEG decoder installed on your system.

CD-ROM, CD-RW or DVD Drive is Idle

Checklist
If the drive does not appear to be working, try accessing the disc by clicking on the drive icon or drive letter assigned to the drive by your operating system.

CD-ROM, CD-RW or DVD Drive Door Doesn't Open

Checklist
1 If you have difficulty removing a disc from the CD-ROM or DVD drive (during a power failure for example), you can use the manual eject button. For example, to eject a CD-ROM using the manual eject button: • 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).

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	Activate the crisis recovery procedure (refer to "BIOS Problems" on page 41).
— - - - — —	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 authorized support provider/HP reseller that system board is defective.
— - - - - - —	1-3-3-1	28h	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	Activate the crisis recovery procedure (refer to "BIOS Problems" on page 41).

Beep Pattern	Beep Code	Numeric Code	Description	Recommended Action
- - - - - - - —	2-2-3-1	58h	Unexpected interrupts test failure	Inform authorized support provider/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.

HP Image Creation & Recovery CD-ROM

Your PC comes with an *HP Image Creation & Recovery CD-ROM*. This enables you to:

- restore your PC to its original factory configuration (includes operating system, drivers and utilities)
- recover your operating system only
- downgrade Windows 98 to Windows 95 (Windows 98 models)
- upgrade Windows 95 to Windows 98 (Windows 95 models)
- reconfigure your operating system, for example, when Windows prompts you to insert your operating system CD-ROM after you install a new device
- reinstall device drivers
- partition and format a newly installed hard drive
- run DiagTools hardware diagnostics.

When Should I Use the CD-ROM?

NOTE

It is important to perform a backup of all important data before performing a hard disk recovery, since the existing contents of your hard drive will be overwritten.

- To run DiagTools if you cannot run diagnostics from the hard disk partition
- To perform a full recovery on a new hard drive if your old hard drive fails
- To deal with a virus infection. The recovery process will clean up the hard drive
- To reinstall a driver if you cannot access HP's support Web site
- To reinstall the initial software if you suspect an unstable software environment

Using the HP Image Creation & Recovery CD-ROM

To use the CD-ROM:

1 Remove a floppy disk from the floppy drive, if you have a floppy inserted.

2 Place the CD-ROM in the PC's CD-ROM drive and restart the PC.

3 Select the option you want from the menu that appears on screen. Some examples are provided below.

NOTE

If the PC does not boot from the HP Image Creation & Recovery CD-ROM, you must change the order of devices from which your PC tries to start up.

To do so, restart your PC and press **F8** when prompted to enter the **Boot Menu**. Select **ATAPI CD-ROM Drive** in the **Boot Menu**. You can also change the device boot order from the **Boot** menu of your PC's *Setup* program, accessed by pressing **F2** during startup.

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 *HP Image Creation & Recovery CD-ROM* supplied with your PC. You can recover, for example:

- Windows 95, Windows 98 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).

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.

NOTE

Some drivers may be updated. You can get the latest drivers at: **www.hp.com/go/vectrasupport**.

Recovering Preloaded Software from a CD-ROM

You can use the *HP Image Creation & Recovery CD-ROM* to change or reconfigure your operating system, and to 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 and Windows 2000
- **`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 *HP Image Creation & Recovery CD-ROM*. To install the Service Pack, double-click on the **`SP5I386.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 55 (desktop) and page 90 (minitower).

If the replacement hard disk drive is brand new, you will need to partition and format the drive. The *HP Image Creation & Recovery CD-ROM* contains utilities to guide you through this process.

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 by typing **`format a: /s`**.

2 Copy the BIOS image you require (for example, **`hyxxxx.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 hyxxxx.ful.
```

4 Remove the PC's cover and set system board switch 1 (BIOS Crisis Recovery) to ON. See "System Board Switches" on page 126.

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 1 (BIOS Crisis Recovery) to OFF and replace the PC's cover.

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
- Technical notes
- BIOS updates (including the upgrade utility and instructions)
- The latest drivers and software utilities.

For HP's support web site, connect to:

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

Hewlett-Packard Support and Information Services

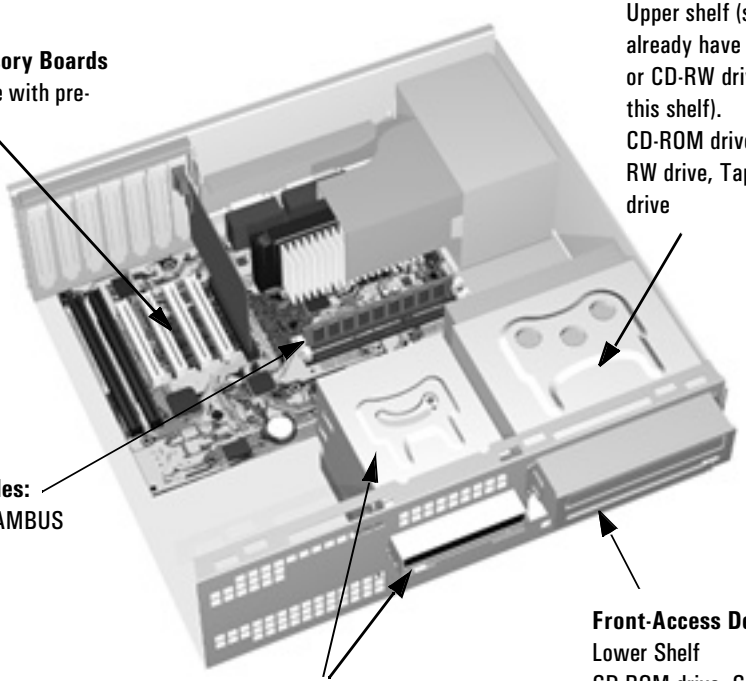
You can learn more about HP service and support from the support Web site: **www.hp.com/go/vectrasupport**

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 your authorized support provider 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 14) 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.

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/pcaccessories**.

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 telecommunications network. If a power protection device is fitted to your PC, you must remove the power cord then wait for a complete shutdown of your system before removing the cover. Remove the power protection device cables before any servicing operation. Always replace the cover before switching the PC on again.

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.

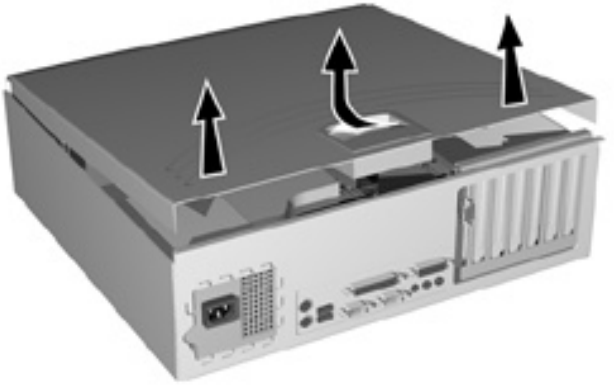
Removing and Replacing the Cover

Removing the Cover

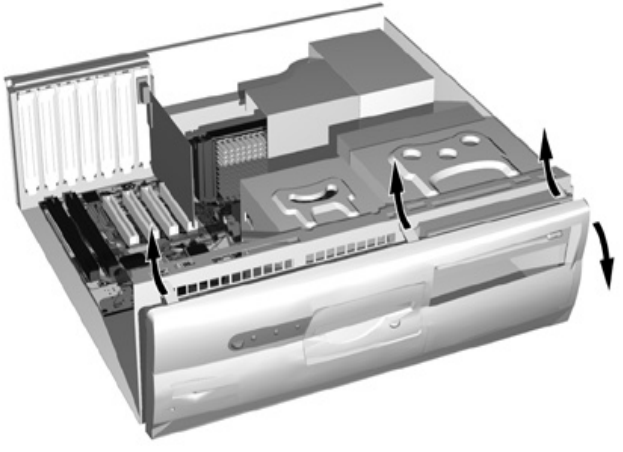
1 Switch off the monitor and PC, disconnect all power cords and any telecommunication cables.

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

3 Open the latch and remove the cover.



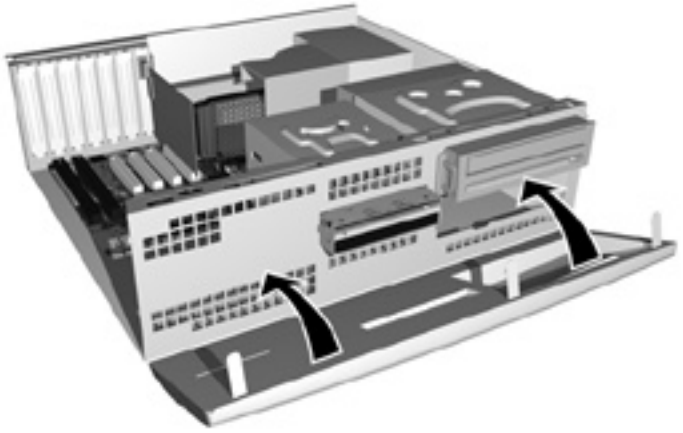
4 Remove the front panel (if you are adding a front-access device).



Replacing the Cover

1 Ensure that all internal cables are properly connected and safely routed (not trapped or snagging on anything.)

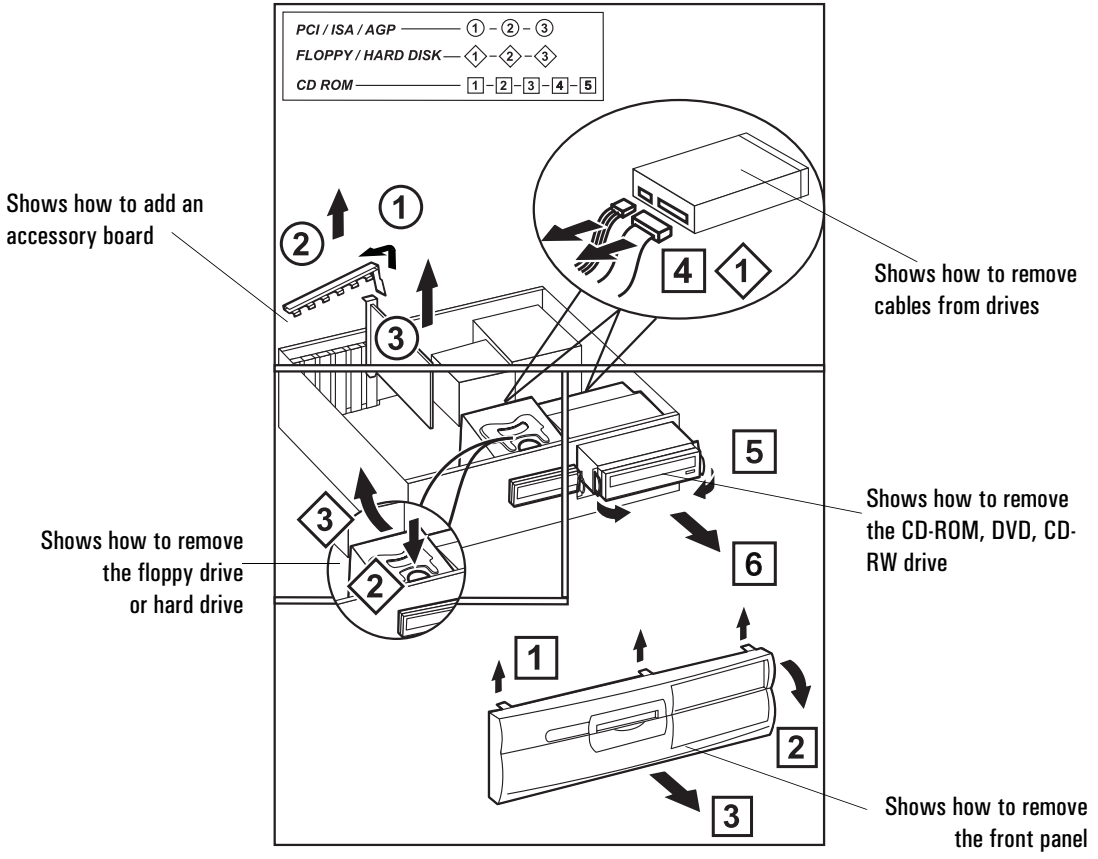
2 Replace the front panel.



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

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.



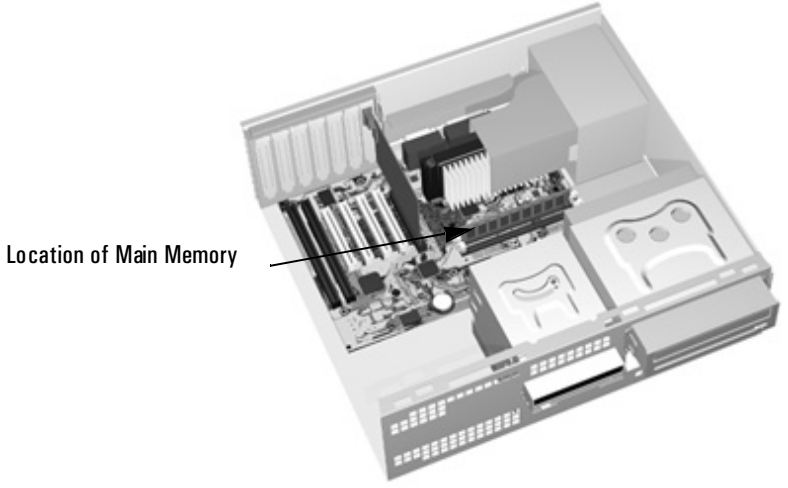
Upgrading the Main Memory

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/pcaccessories**.

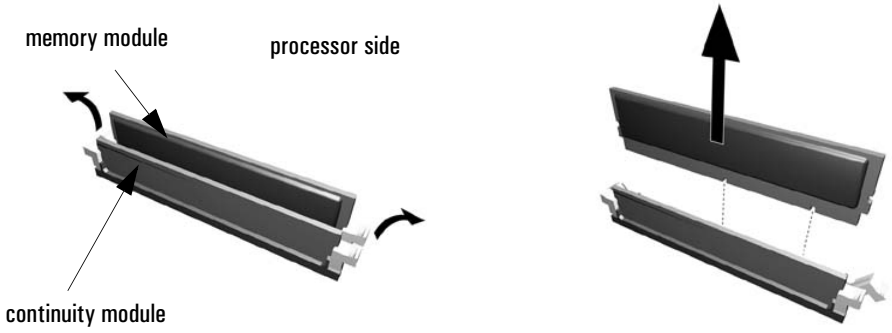
If you are installing only one memory module, install it in the slot nearest the processor. Fill the remaining slot with a continuity module. Continuity modules are flat on both sides (they have no soldered components) and are lower than memory modules.

You can install up to a total of 512 MB (two 256 MB modules) and up to 1GB when 512MB modules become available.

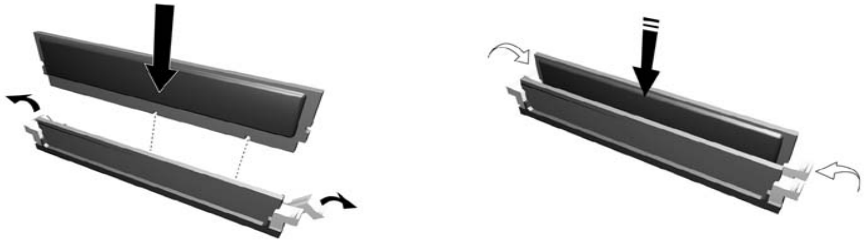


1 Remove the PC's cover (described in this chapter).

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



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



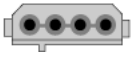
4 Replace the cover (described in this chapter).

Upgrading and Installing Mass Storage Devices

Connecting Devices

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

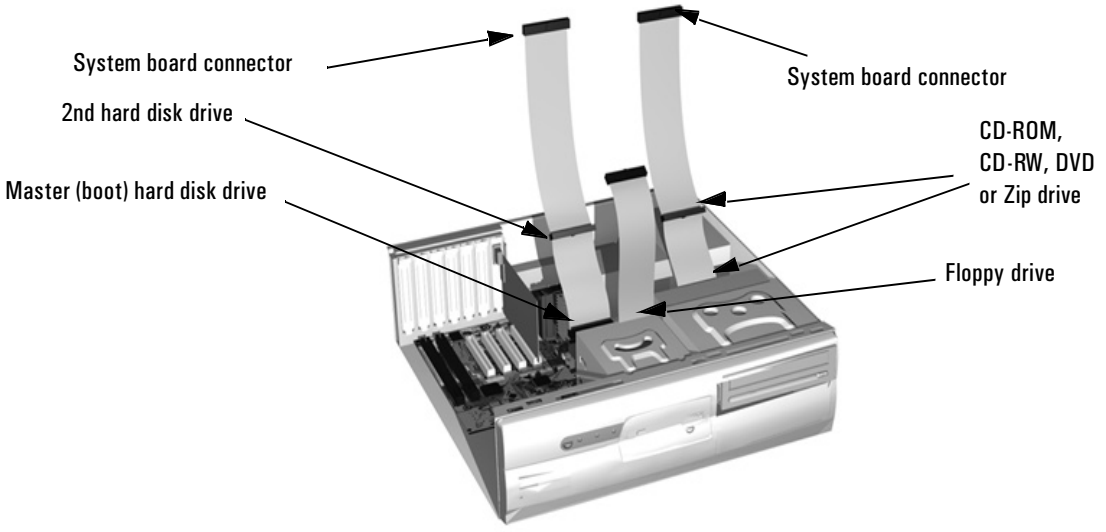
IDE hard disk drives should always be connected to the primary IDE controller. CD-ROM, DVD-ROM and CD-RW drives should always be connected to the secondary IDE controller. **PRIMARY** and **SECONDARY** are printed on the system board to help you locate the connectors.

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

NOTE

Do not connect a hard drive on the one hand and a CD-ROM, CD-RW or DVD drive on the other to the same IDE cable as this would adversely affect the drives' performance.

The IDE cables in your PC are *cable select*. You must, therefore, set the jumpers on any IDE devices you install to cable select. See the documentation for the device for more information.



Which IDE Data Connectors to Use

There are three data cables inside your PC (or four if your PC is fitted with a SCSI adapter). Two of these are for IDE devices.

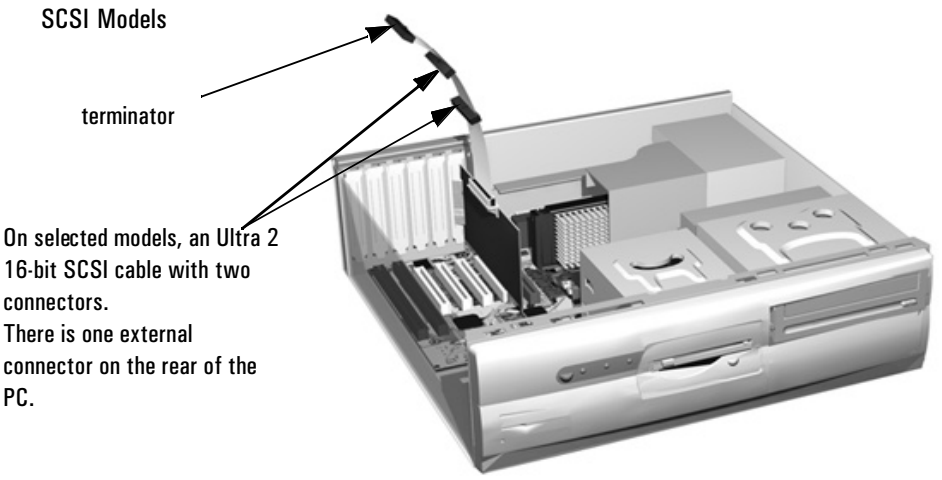
- An Enhanced Ultra ATA IDE (Integrated Drive Electronics) hard disk drive cable.

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



Before Installing a Hard Drive

Refer to the drive's installation guide to see if you must set jumpers or if there is a special installation procedure to follow. The cables provided with your PC are *cable select*. This means that you do not need to change the jumper settings on a hard drive if you set the drive to cable select.

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.

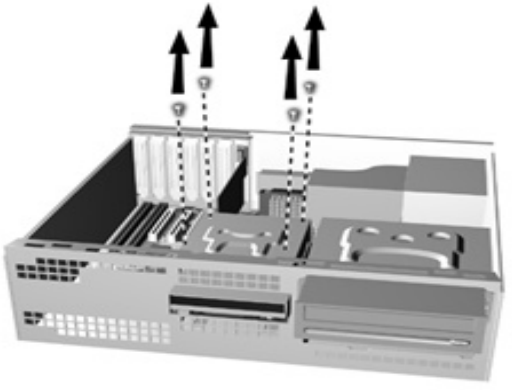
Make sure that you back up your files before you install a hard disk drive. Refer to your operating system documentation for information on how to do this.

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



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

5 Attach the data and power connectors.

6 Replace the cover (described in this chapter).

7 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 *Image Creation & 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

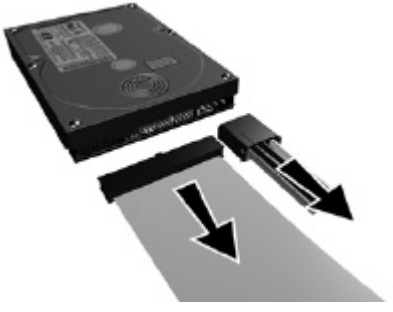
Handle the hard disk drive with care. Avoid shocks and violent movement as this can cause damage to the hard disk drive's internal components.

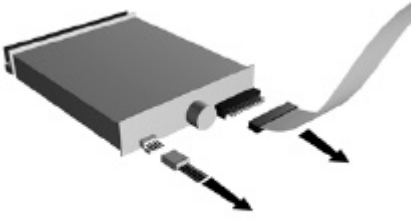
Make sure that you back up your files before you install a hard disk drive. Refer to your operating system documentation for information on how to do this.

You can install a second hard disk drive in the lower bay of your desktop PC's drive tray.

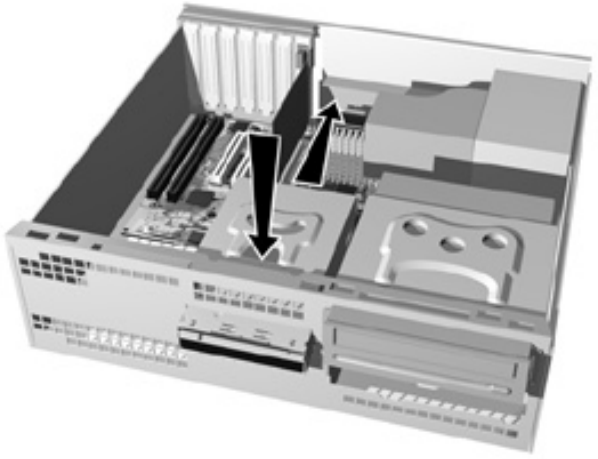
1 Remove the computer's cover (described in this chapter).

2 Remove data and power connectors from both the hard drive and the floppy drive.

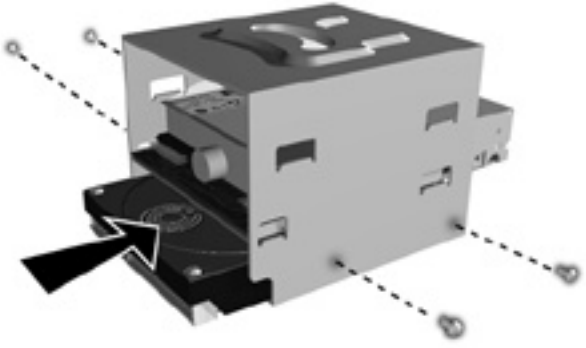




3 Press the retaining clip on top of the drive tray and slide it backwards to remove it.



4 Align the new hard drive in the lower part of the tray (with the correct orientation) and secure it with the screws provided with the drive.



5 Replace the drive tray in the PC.

6 Attach all data and power connectors. Assuming you want to use the original hard drive to boot your PC from, attach the end connector (marked DRIVE 0) to this drive and the middle connector (marked DRIVE 1) to the new drive. This requires you to bend the data cable slightly round the floppy drive data cable.

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 *HP Image Creation & 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**.

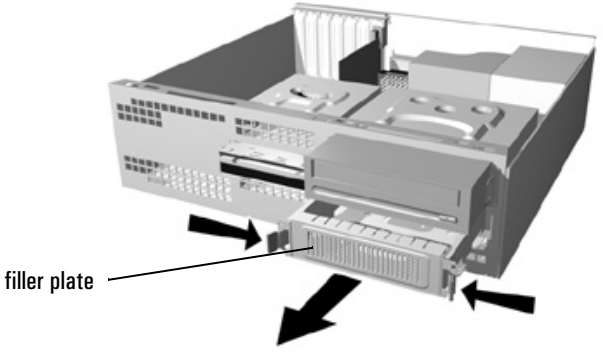
Installing Removable Media Devices

The PC has an integrated Enhanced IDE controller which supports up to four IDE devices. Removable media IDE devices, such as CD-ROM drives, CD-RW 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 Press the two latches inward and slide out the drive tray.

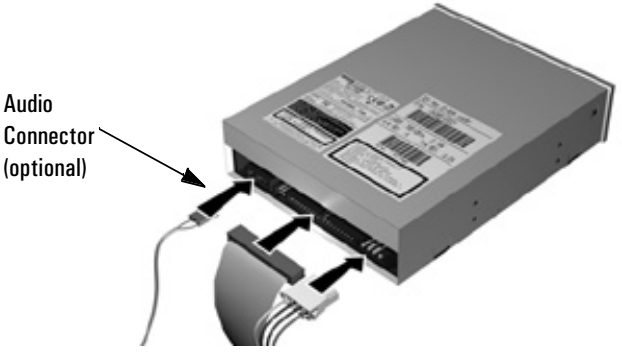


3 Remove the filler plate from the front of the tray.

4 Tighten the tray's four screws (two on each side).

5 Slide the drive tray back into the PC until it clicks into place.

6 Attach all data and power connectors. If you are installing a CD-ROM, CD-RW 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 need to view the HP Summary Screen to verify that your PC has correctly identified the new configuration. 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.

The IDE cables in your PC are *cable select*. You must, therefore, set the jumpers on any IDE devices you install to cable select. See the documentation for the device for more information.

Configuring a SCSI Device After Installation

To configure a SCSI drive:

1 Switch on the computer.

2 Press **F6** when the message **Press F6 to start Configuration Utility...** is displayed during the PC's startup routine.

3 Check or change the configuration of the new drive, as required. For more information on configuring a SCSI hard drive, refer to the *SCSI Administrator's Guide* available on HP's Web site at **www.hp.com/go/vectrasupport**

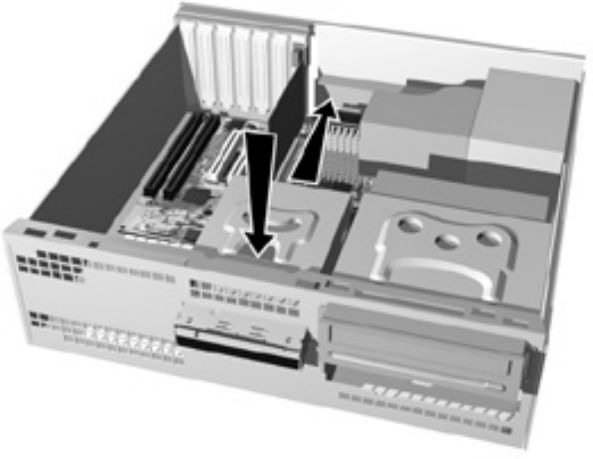
4 When configuration is complete, exit the SCSI Configuration Utility and reboot the computer to save any changes.

Replacing the Floppy Drive

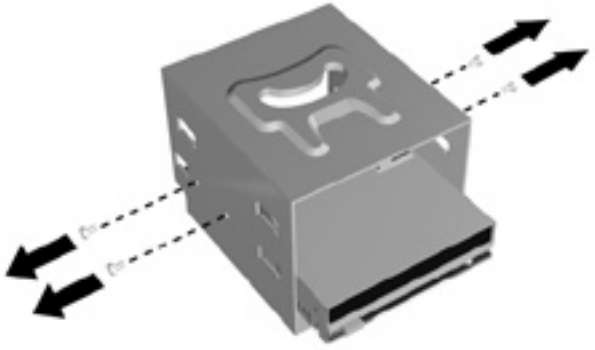
1 Remove the computer's cover (described in this chapter).

2 Remove the connectors from both the floppy drive and the hard drive.

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



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 drive tray back into the PC.

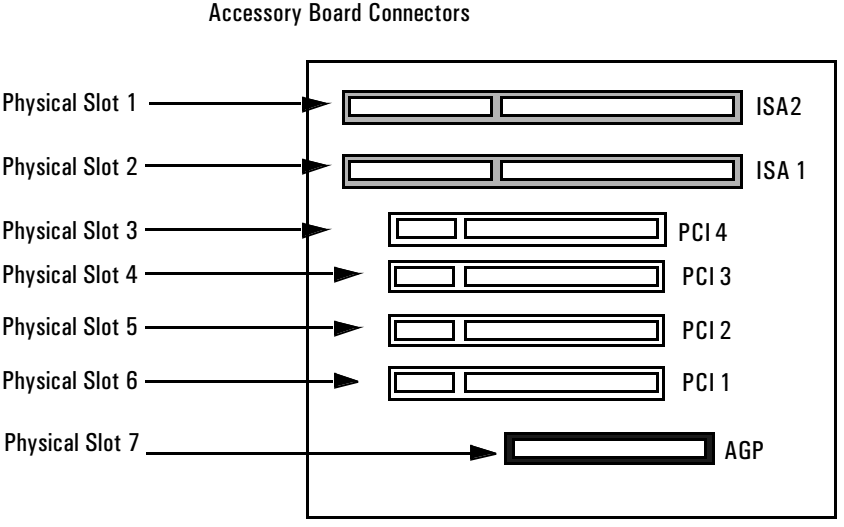
7 Attach the data and power connectors.

8 Replace the cover (described in this chapter).

Installing Accessory Boards

Accessory Board Slots

The PC has seven accessory board slots.



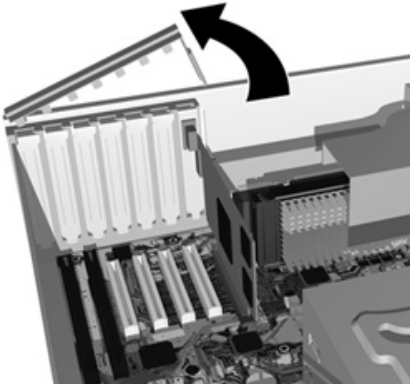
- Physical slot 1 (the outermost slot) can be used for a full-length 16-bit ISA board.
- Physical slot 2 can be used for a full-length 16-bit ISA board.
- Physical slot 3 can be used for a full-length 32-bit PCI board.
- Physical slot 4 can be used for a full-length 32-bit PCI board.
- Physical slot 5 can be used for a full-length 32-bit PCI board.
- Physical slot 6 can be used for a full-length 32-bit PCI board.
- Physical slot 7 (the innermost slot) can be used for an AGP board.

NOTE It is recommended that you install a LAN card in Physical Slot 4 (PCI 3).

Installing an Accessory Board

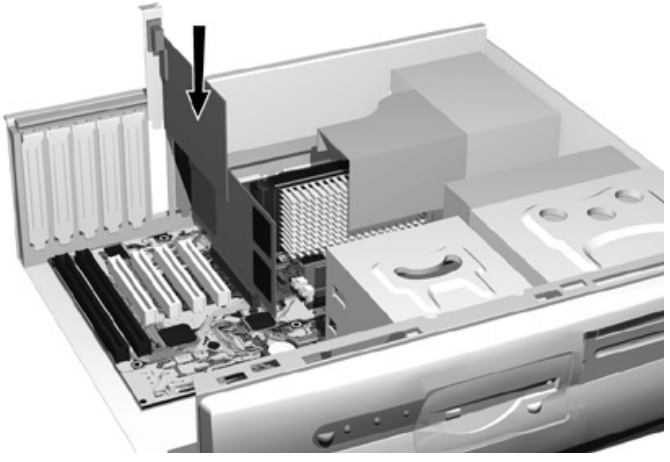
1 Remove the computer's cover (described in this chapter).

2 Remove the retaining bracket.



3 Remove the slot cover.

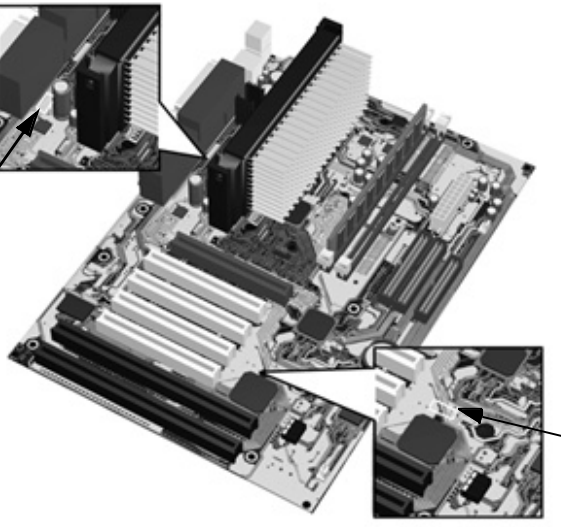
4 Aligning the board carefully, slide it into position and press it firmly into the slot.



5 Replace the retaining bracket.

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

- WOL (Wake on LAN) connector to the network card (not necessary with PCI 2.2-compliant network cards).
- 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.

WOL 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`**.

7 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, Windows 98 and Windows 2000

Operating systems that support Plug and Play, such as Windows95, Windows 98 and Windows 2000 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 WindowsNT4.0, refer to the operating system documentation for information about installing accessory boards.

In WindowsNT4.0, 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 132. Some operating systems, such as Windows95, 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.

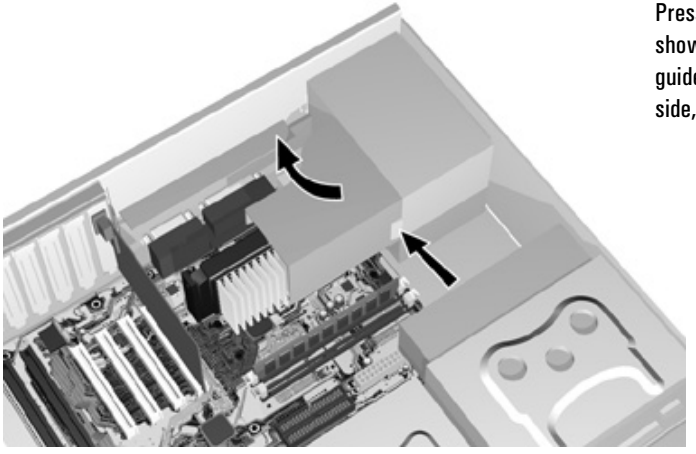
Resetting the PC's Configuration Data

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

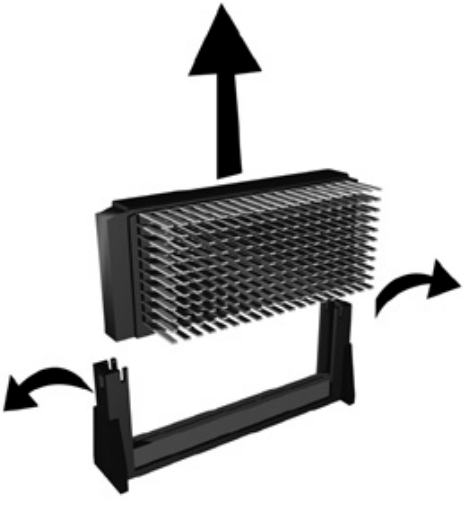
1 Remove the computer's cover (described in this chapter).

2 Remove the airflow guide.

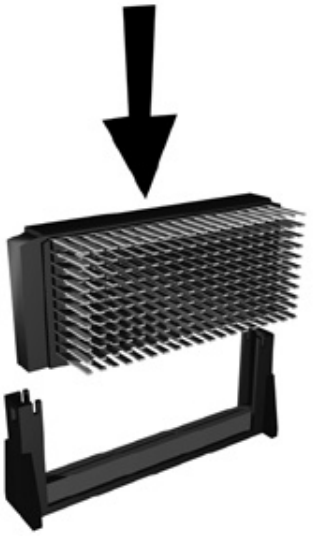


Press firmly on the side as shown until the airflow guide comes free on one side, then lift it out

3 Remove the old processor.



4 Install the new processor and clip it into place.



5 Replace the airflow guide, aligning the clips with the holes on the power supply. Insert the bottom clip in the hole first, then squeezing the airflow guide on both sides, insert the side clips.

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**.

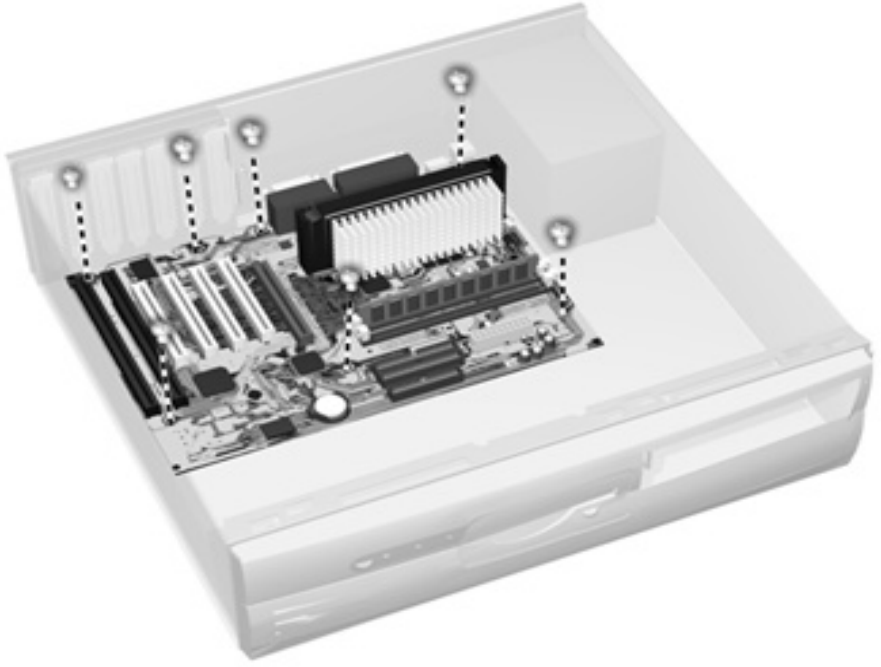
Replacing the System Board

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

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

3 Remove all data and power cables from the old system board.

4 Remove the old system board by removing the screws that secure the board in position and lifting it out of the PC.



5 Insert the new system board into the PC and fasten the screws to secure the board in place.

6 Replace all components and any data and power cables in the new system board (described in this chapter).

7 Replace the cover (described in this chapter).

Replacing the Power Supply

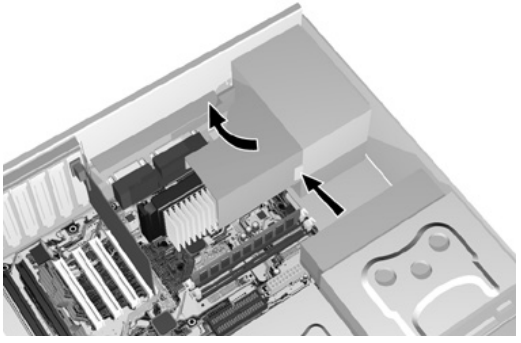
WARNING

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

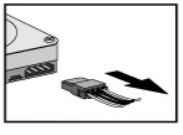
1 Remove the computer's cover (described in this chapter).

2 Remove the airflow guide.

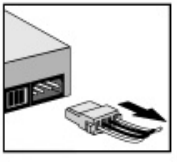
Press firmly on the side as shown until the airflow guide comes free on one side, then lift it out



3 Remove *all* internal power supply connectors.

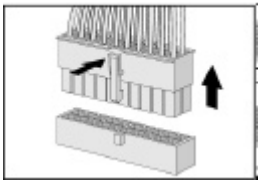


Hard drive(s)



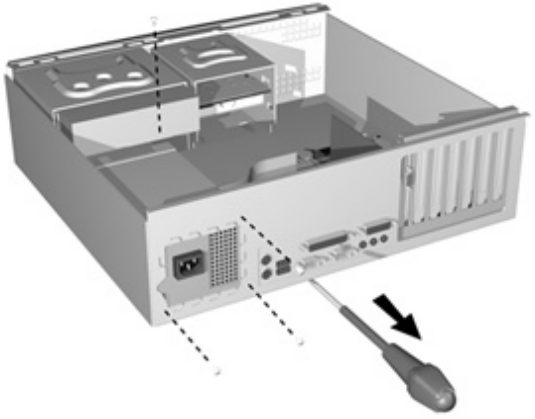
DVD, CD-RW, CD-ROM drive(s)

Floppy drive



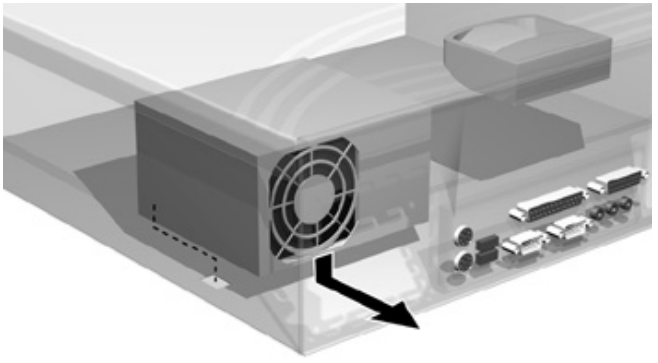
Main power (located on system board near memory modules)

4 Remove the four screws (three external, one internal) 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.

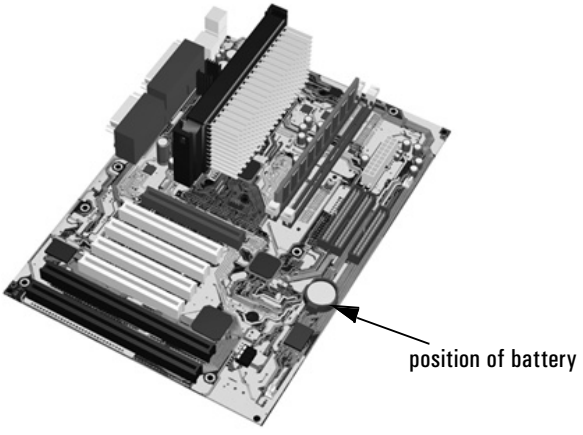
Changing the Battery

WARNING

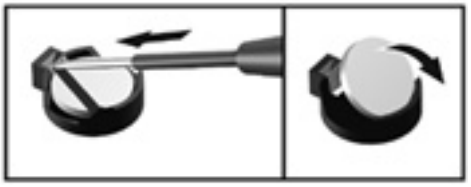
There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn the old battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. The battery in this PC is a lithium battery which does not 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.

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



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



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.

Replacing a Power Protection Device

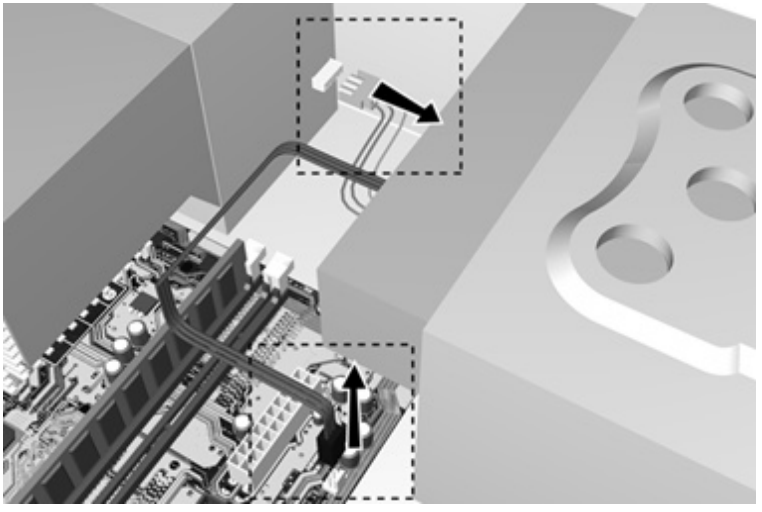
WARNING

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

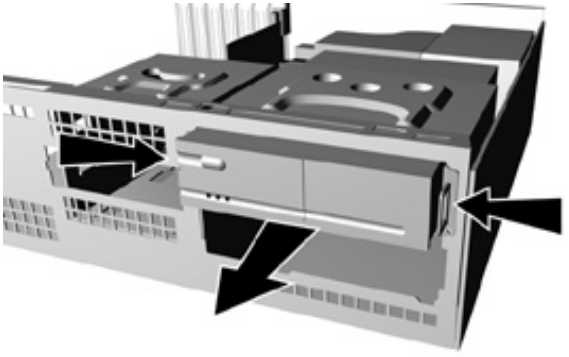
1 Remove the computer's cover and front panel (described in this chapter).

2 Remove the power alert and passthru cables from the power protection device, and from the power supply unit and system board.

For more information, refer to the *Installation Guide* that comes with this device.



3 Press the two latches inward and slide out the device.



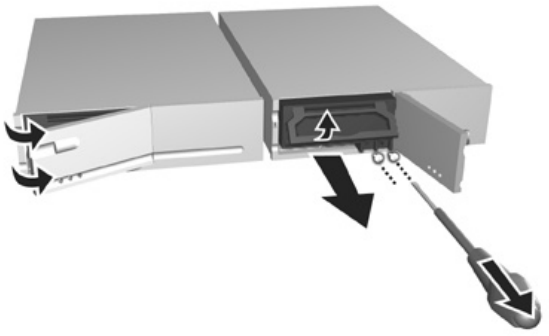
4 Remove the power protection device from the tray by removing the two retaining screws.

5 Attach the new device to the tray and secure it into position with the two retaining screws.

6 Slide the device back into the PC.

7 Replace the power alert and passthru cables to the power protection device, and to the power supply unit and system board.

8 Remove the battery compartment cover and retaining screws.



9 Slide the battery into the battery compartment and secure into position with the retaining screws.

10 Replace the battery compartment cover.

11 Replace the cover and front panel (described in this chapter).

Installing a Security Cable

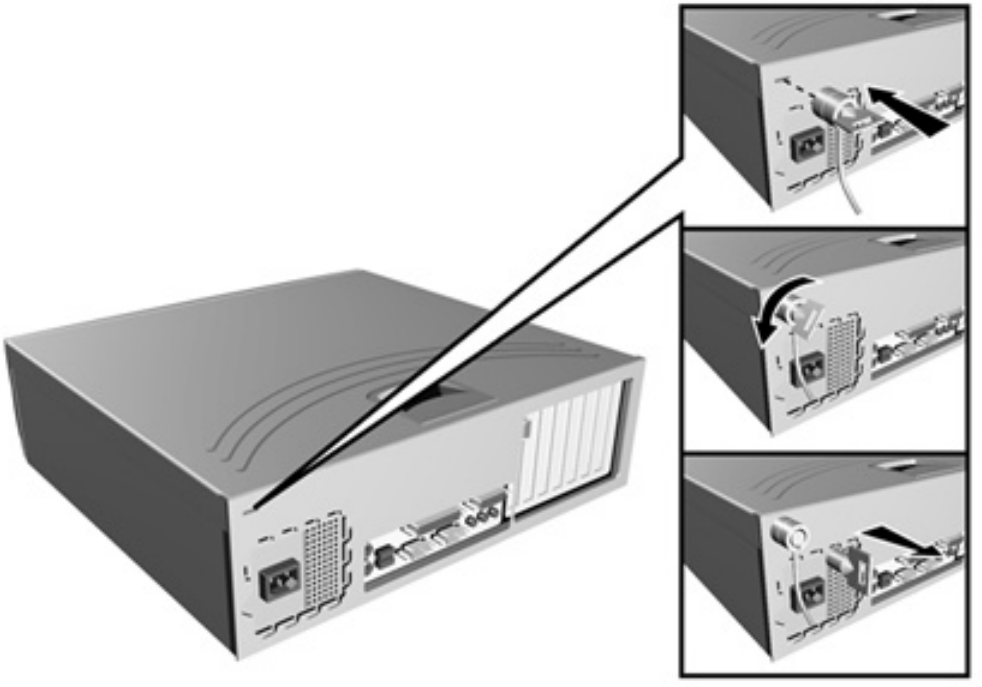
You can secure the PC to your desk, or any other fixed object, using a Kensington™ security cable. Using a security cable will also lock the cover onto the PC.

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.

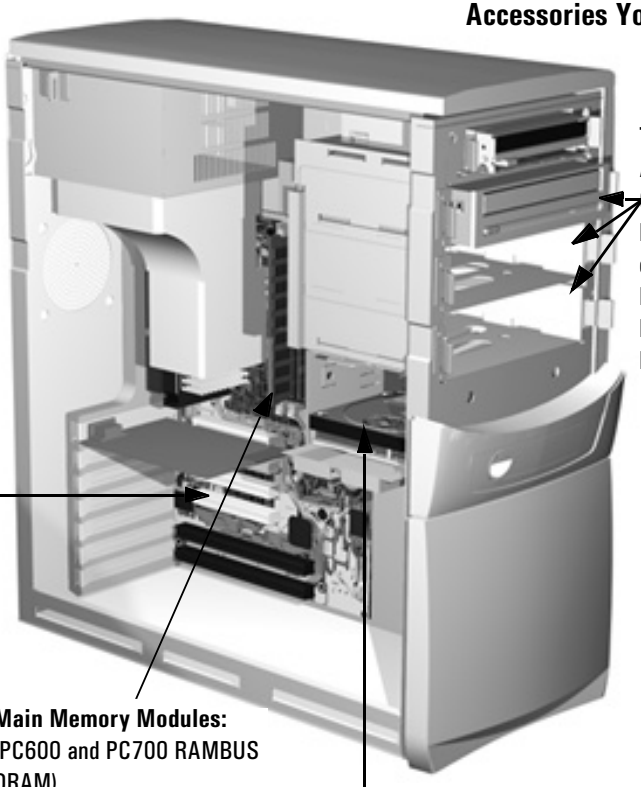
3 Remove the key and store it in a safe place.



NOTE

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

Accessories You Can Install



Two or Three Free Front-Access Device Shelves
CD-ROM, DVD-ROM or CD-RW drive (already installed on some models), DVDdrive, Tape drive, CD-RW drive, Zipdrive, Power Protection Device

Up to Seven Accessory Boards
Some slots may come with pre-installed boards.

Main Memory Modules:
(PC600 and PC700 RAMBUS DRAM)
64 MB kit
128 MB kit
256 MB kit

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

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/pcaccessories**.

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 telecommunications network. If a power protection device is fitted to your PC, you must remove the power cord then wait for a complete shutdown of your system before removing the cover. Remove the power protection device cables before any servicing operation. Always replace the cover before switching the PC on again.

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 Unlock the cover (with the key) at the rear of the PC if a lock is installed.

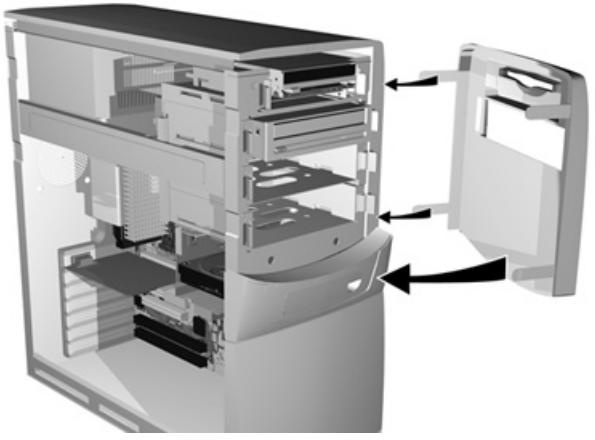
3 Open the latch and remove the side panel.

4 Remove the front panel (required if you are adding a front-access device).

Replacing the Cover

1 Ensure that all internal cables are properly connected and safely routed (not trapped or snagging on anything.)

2 Replace the front panel.

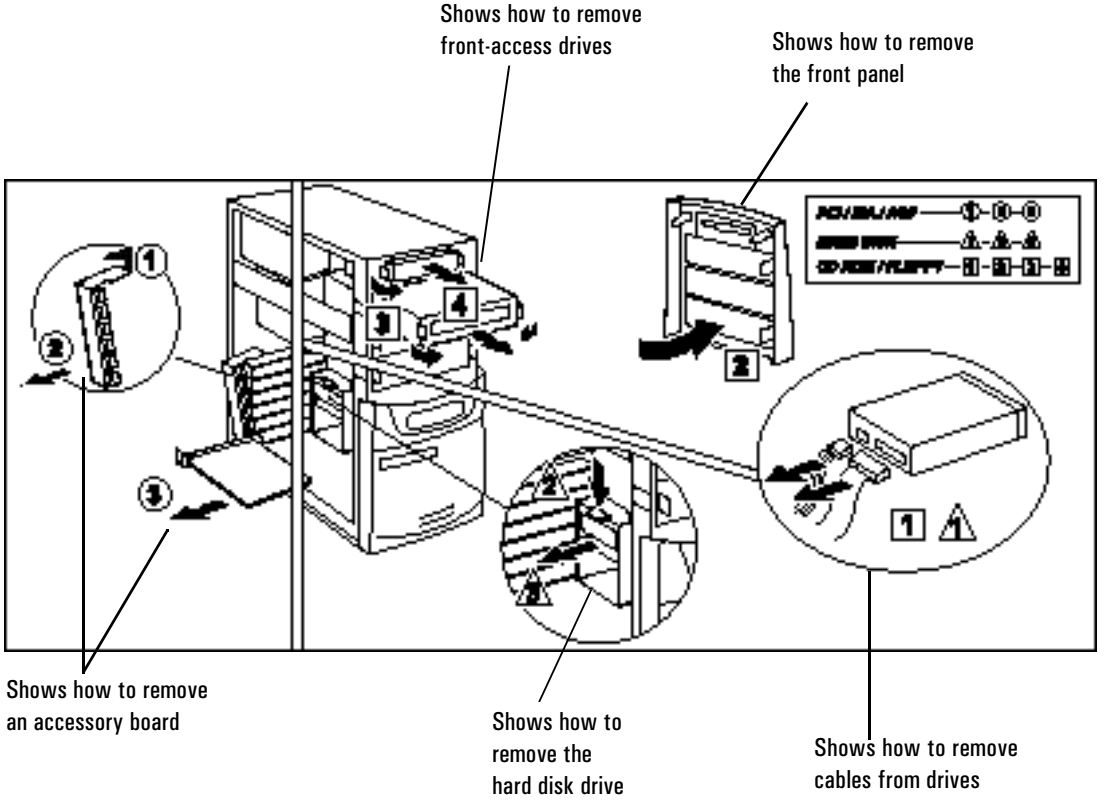


3 Replace the side panel, making sure you align the hinges properly.

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.



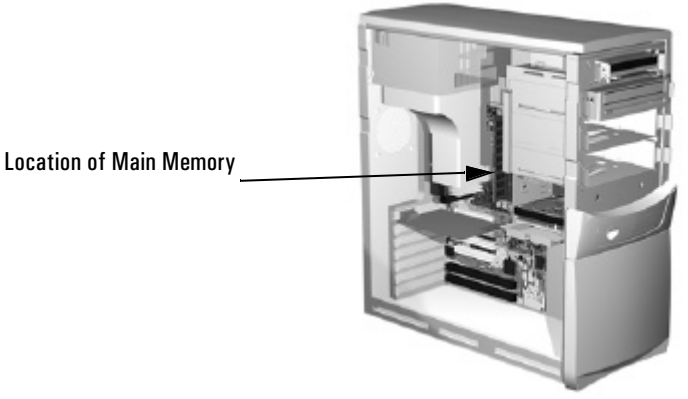
Upgrading the Main Memory

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/pcaccessories**.

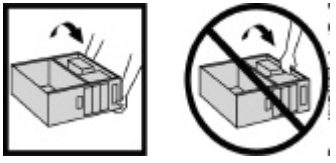
If you are installing only one memory module, install it in the slot nearest the processor. Fill the remaining slot with a continuity module. Continuity modules are flat on both sides (they have no soldered components) and are lower than memory modules.

You can install up to a total of 512 MB (two 256 MB modules) and up to 1GB when 512MB modules become available.

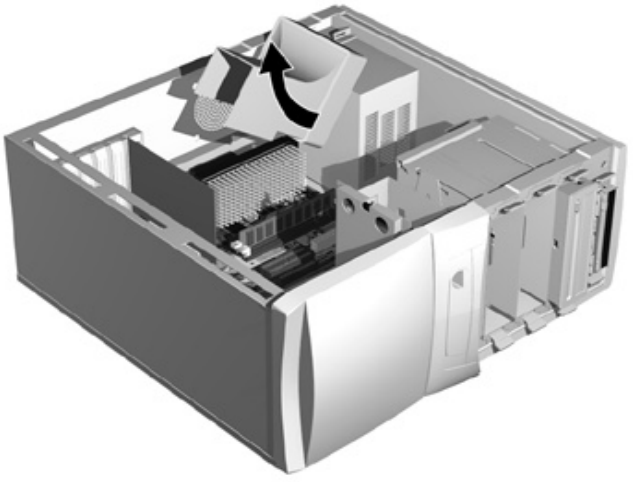


1 Remove the PC's cover (described in this chapter).

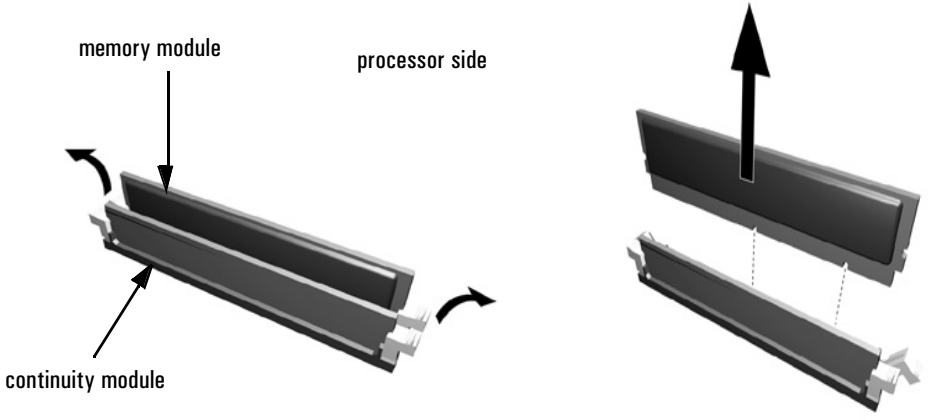
2 Lay the minitower on its side.



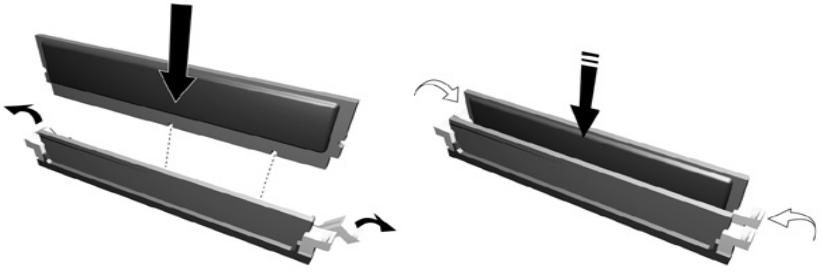
3 Remove the airflow guide.



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



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



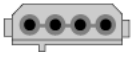
6 Replace the cover (described in this chapter).

Upgrading Mass Storage Devices

Connecting Devices

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

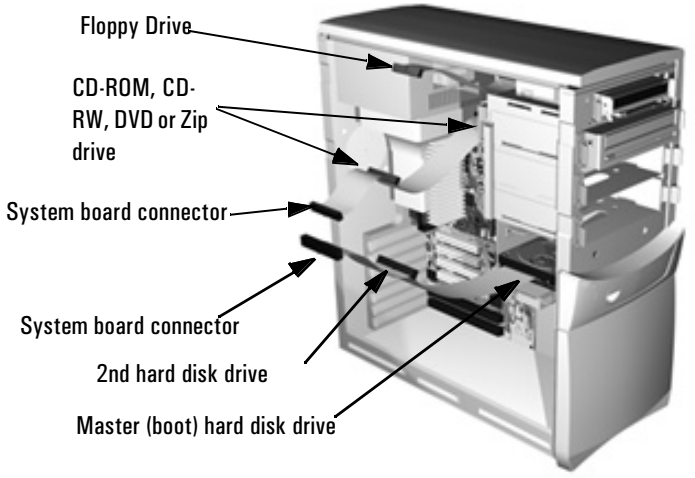
IDE hard disk drives should always be connected to the primary IDE controller. CD-ROM, DVD-ROM and CD-RW drives should always be connected to the secondary IDE controller. **PRIMARY** and **SECONDARY** are printed on the system board to help you locate the connectors.

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

NOTE

Do not connect a hard drive on the one hand and a CD-ROM, CD-RW or DVD drive on the other to the same IDE cable as this would adversely affect the drives' performance.

The IDE cables in your PC are *cable select*. You must, therefore, set any IDE devices you install to cable select. See the documentation for the device for more information.



Which IDE 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.

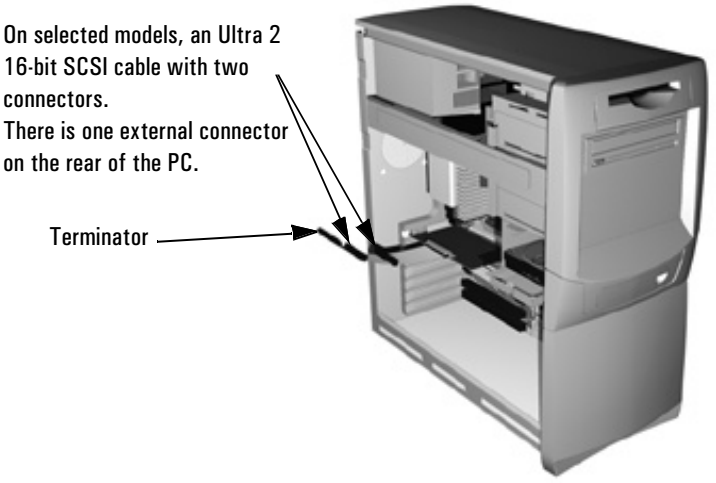
Selecting the Bootable Hard Disk Drive

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.

SCSI Models



Before Installing a Hard Drive

Refer to the drive's installation guide to see if you must set jumpers or if there is a special installation procedure to follow. The cables provided with your PC are *cable select*. This means that you do not need to change the jumper settings on a hard drive if you set the drive to cable select.

Upgrading the Hard Disk Drive

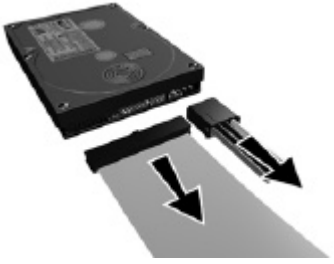
CAUTION Handle the hard disk drive with care. Avoid shocks and violent movement as this can cause damage to the hard disk drive's internal components.

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).

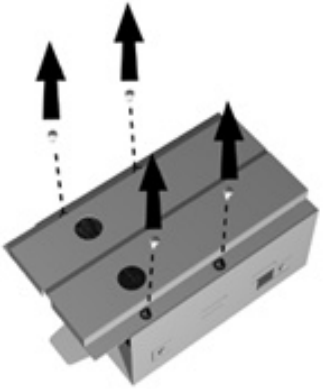
2 Remove the drive's connectors.



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

CAUTION Hold the tray firmly while removing it.

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



5 Slide the drive tray back into the bay until it clicks into place.

6 Attach the 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 *Image Creation & 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.

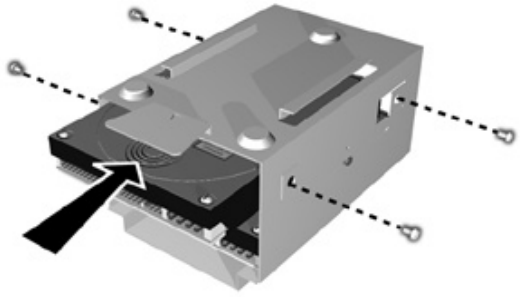
Make sure that you back up your files before you install a hard disk drive. Refer to your operating system documentation for information on how to do this.

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

2 Remove the connectors from the already installed hard drive.

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

4 Slide in the new hard drive in the position shown and fasten the four screws to secure it in position in the drive tray.



5 Slide the drive tray back into the bay.

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

NOTE You must use the end connector (marked DRIVE 0) with the master hard drive. This is the drive you intend to boot your PC from.

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 *HP Image Creation & 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.

The IDE cables in your PC are *cable select*. You must, therefore, set the jumpers on any IDE devices you install to cable select. See the documentation for the device for more information.

Configuring a SCSI Device After Installation

To configure a SCSI drive:

1 Switch on the computer.

2 Press **F6** when the message **Press F6 to start Configuration Utility...** is displayed during the PC's startup routine.

3 Check or change the configuration of the new drive, as required. For more information on configuring a SCSI hard drive, refer to the *SCSI Administrator's Guide* available on HP's Web site at **www.hp.com/go/vectrasupport**

4 When configuration is complete, exit the SCSI Configuration Utility and reboot the computer to save any changes.

Installing Removable Media

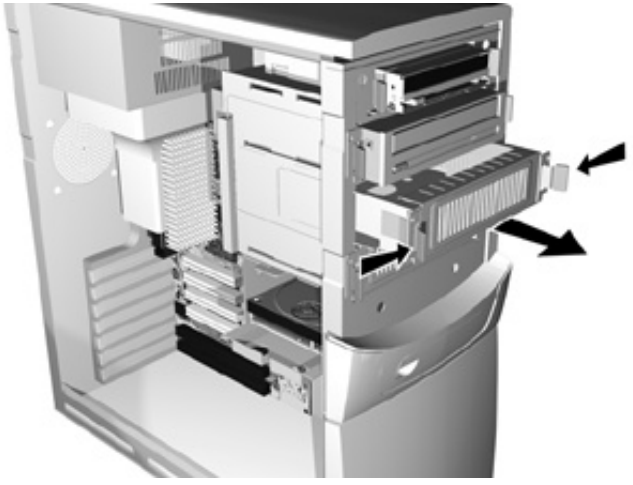
WARNING To avoid electric shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM drive for power requirements and wavelength. This 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 Press the two latches inward and slide out the drive tray in which you want to install a new device.

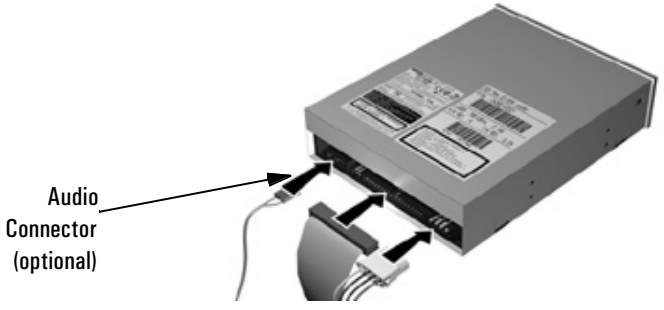


3 Remove the tray's metal RFI shield.

4 Place the new device in the drive tray with the correct orientation and secure it in place with the four screws (two on each side).

5 Slide the device tray into the PC.

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



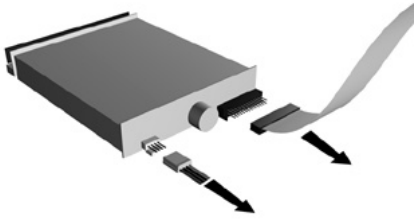
7 Replace the cover (described in this chapter).

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.

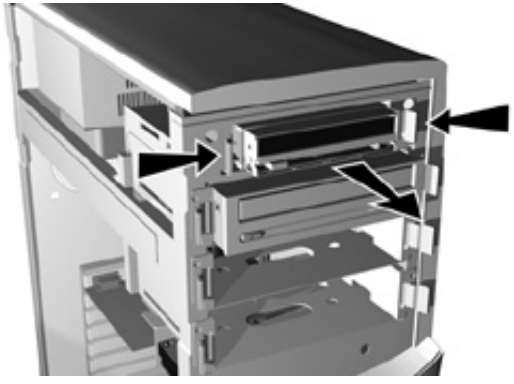
Replacing the Floppy Drive

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

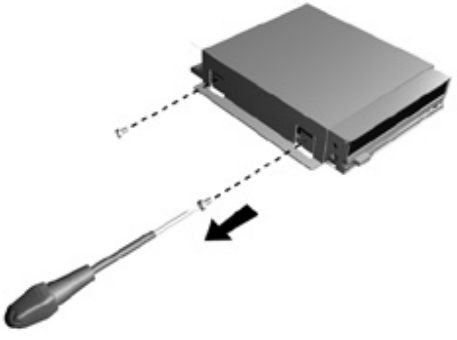
2 Remove the drive's connectors.



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



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



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

6 Slide the floppy drive back into the PC.

7 Attach the data and power connectors.

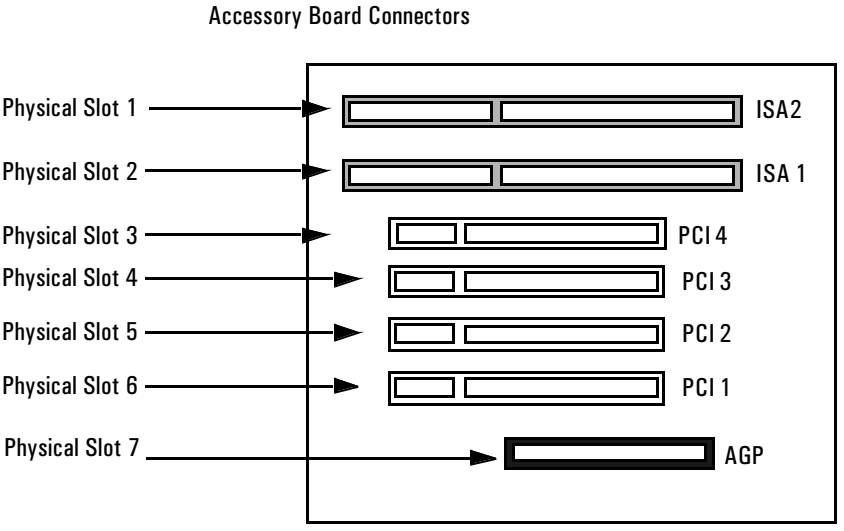
8 Replace the cover (described in this chapter).

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 seven accessory board slots.



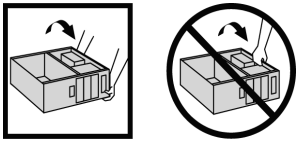
- Physical slot 1 (the outermost slot) can be used for a full-length 16-bit ISA board.
- Physical slot 2 can be used for a full-length 16-bit ISA board.
- Physical slot 3 can be used for a full-length 32-bit PCI board.
- Physical slot 4 can be used for a full-length 32-bit PCI board.
- Physical slot 5 can be used for a full-length 32-bit PCI board.
- Physical slot 6 can be used for a full-length 32-bit PCI board.
- Physical slot 7 (the innermost slot) can be used for an AGP board.

NOTE It is recommended that you install a LAN card in Physical Slot 4 (PCI 3).

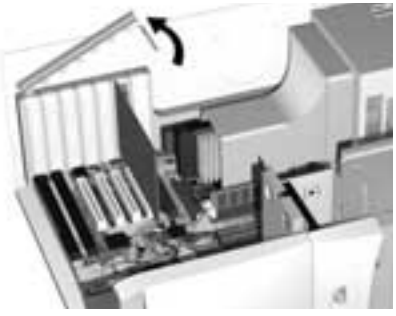
Installing an Accessory Board

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

2 Lay the minitower on its side.

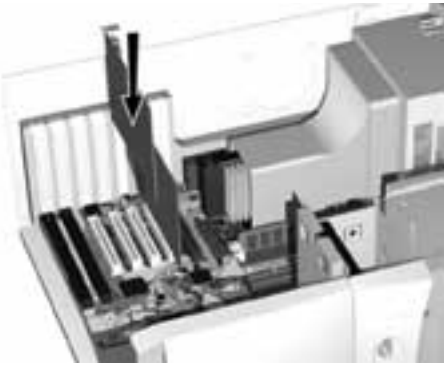


3 Remove the retaining bracket.



4 Remove the slot cover.

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

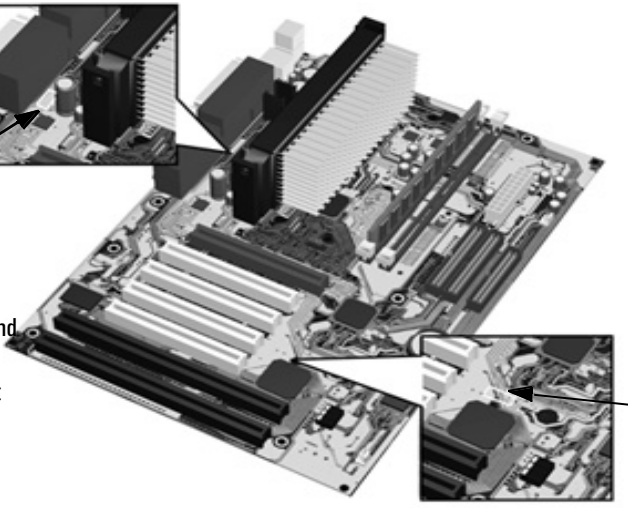


6 If you slid out the system board to allow access to a lower slot, replace it.

7 Replace the retaining bracket.

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

- WOL (Wake on LAN) connector to the network card (not necessary with PCI 2.2-compliant network cards).
- 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, Windows 98 and Windows 2000

Operating systems that support Plug and Play, such as Windows95, Windows 98 and Windows 2000 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 WindowsNT4.0, refer to the operating system documentation for information about installing accessory boards.

In WindowsNT4.0, 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 132. Some operating systems, such as Windows95, 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.

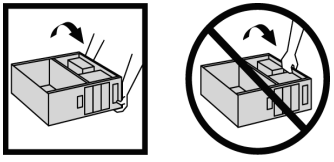
Resetting the PC's Configuration Data

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.

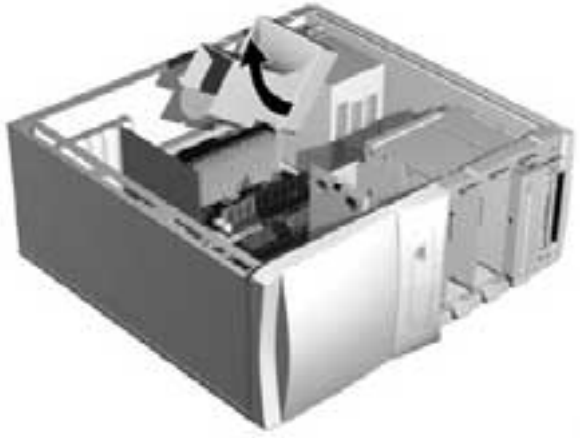
Replacing the Processor

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

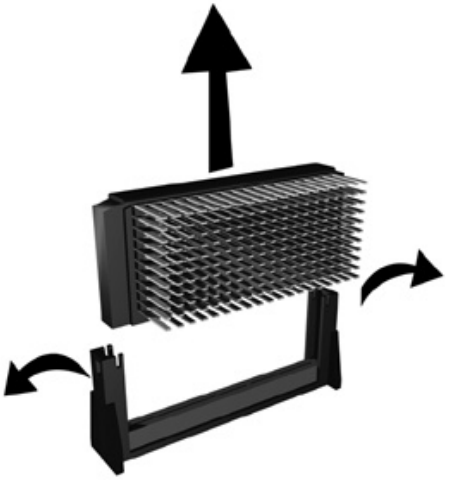
2 Lay the minitower on its side.



3 Remove the airflow guide.



4 Remove the old processor.



5 Install the new processor and clip it into place.

6 Replace the airflow guide.

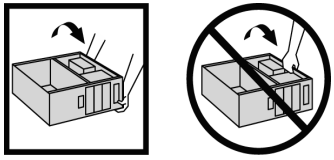
7 Replace the cover (described in this chapter).

8 Ensure that the latest version of BIOS is installed on your PC. To learn which version of BIOS is currently installed on your PC, press **ESC** during startup. To get the latest BIOS version for your PC, connect to the web site **www.hp.com/go/vectrasupport**.

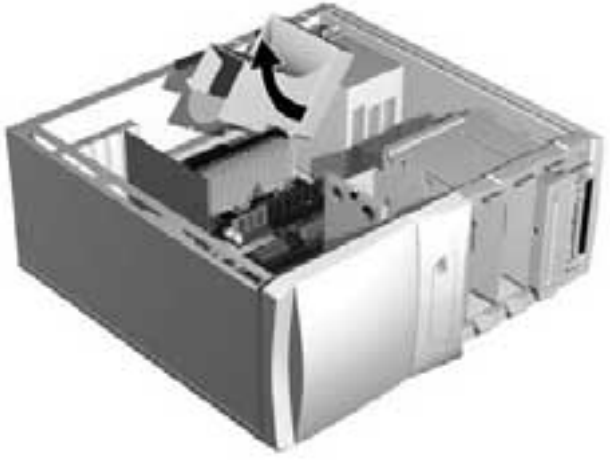
Replacing the System Board

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

2 Lay the minitower on its side.



3 Remove the airflow guide.



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

5 Remove the old system board by unfastening the six screws that secure the board in position and lifting it out of the PC.

6 Insert the new system board in the PC and fasten the screws to secure the board in place.

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

8 Replace the airflow guide.

9 Replace the cover (described in this chapter).

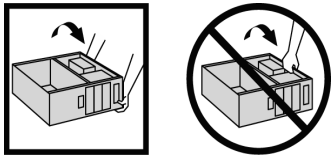
Replacing the Power Supply

WARNING

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

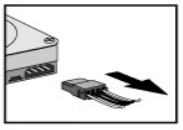
1 Remove the computer's cover (described in this chapter).

2 Lay the minitower on its side.

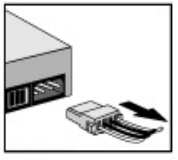


3 Remove the airflow guide by squeezing it on both sides, then lifting it out.

4 Remove *all* internal power supply connectors.

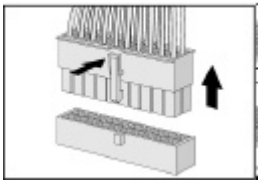


Hard drive(s)



DVD, CD-ROM, CD-RW drive(s)

Floppy drive

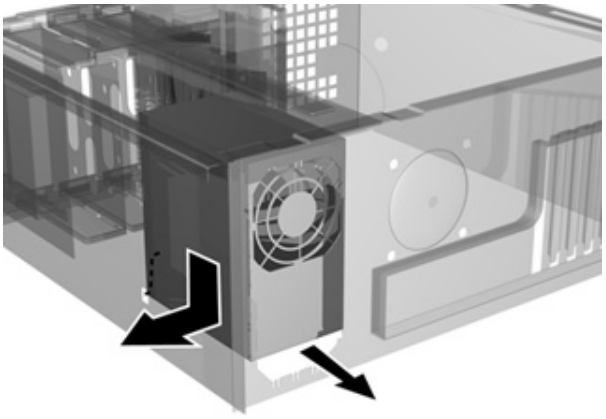


Main power (located on system board near memory modules)

5 Remove the three screws securing the power supply.

6 Slide the old power supply forward and remove it.

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



8 Replace the screws to secure the power supply.

9 Replace the airflow guide.

10 Reconnect *all* internal power supply connectors.

11 Replace the cover (described in this chapter).

12 Select the correct voltage setting for your country.

Changing the Battery

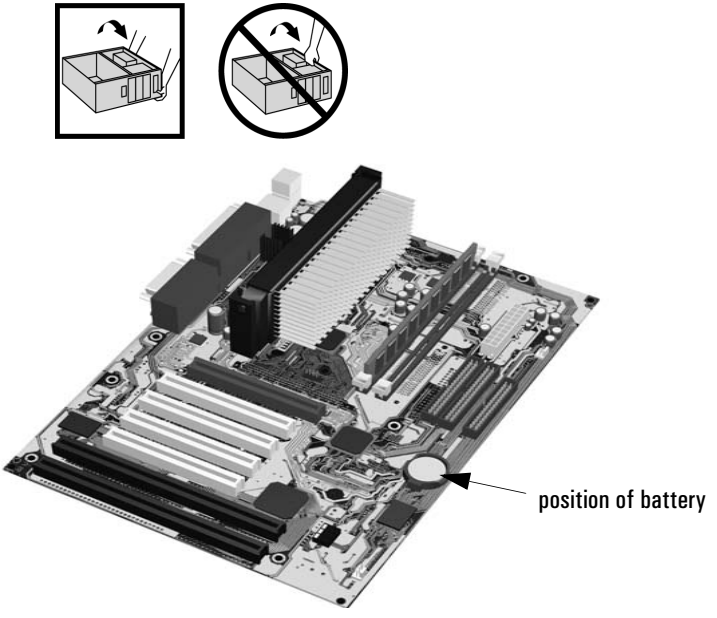
WARNING

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.

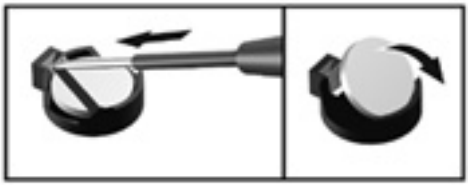
You should order replacement battery HP 1420-0356 from your local Sales and Service office, or a “CR2032 type” battery, which is available from most local stores.

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

2 Lay the minitower on its side.



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



4 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.

Replacing a Power Protection Device

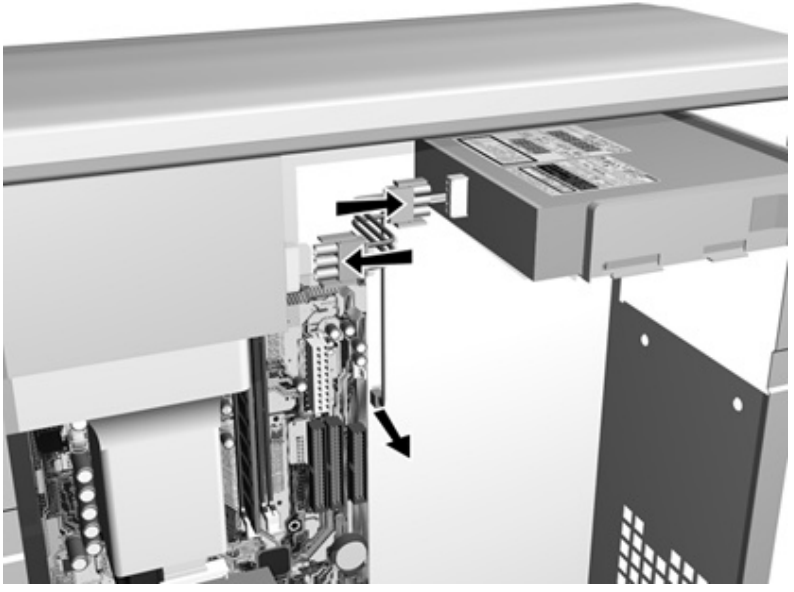
WARNING

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

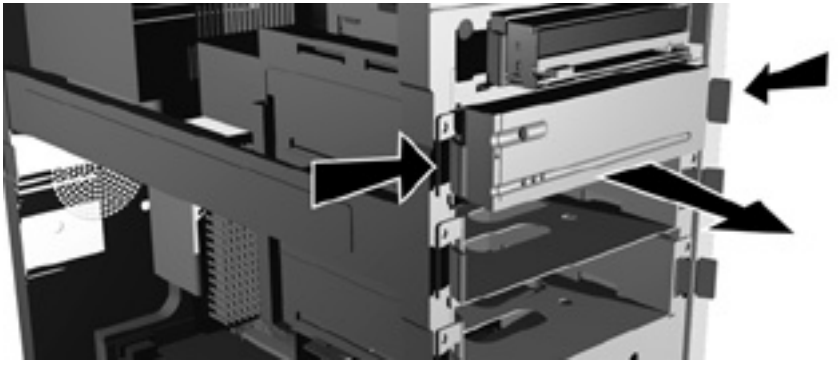
1 Remove the computer's cover and front panel (described in this chapter).

2 Remove the power alert and passthru cables from the power protection device, and from the power supply unit and system board

   For more information, refer to the *Installation Guide* that comes with this device.



3 Press the two latches inward and slide out the device.



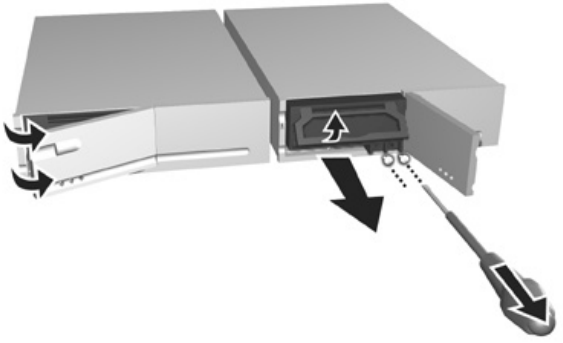
4 Remove the power protection device from the tray by removing the two retaining screws.

5 Attach the new device to the tray and secure it into position with the two retaining screws.

6 Slide the device back into the PC.

7 Replace the power alert and passthru cables to the power protection device, and to the power supply unit and system board.

8 Remove the battery compartment cover and retaining screws.



9 Slide the battery into the battery compartment and secure into position with the retaining screws.

10 Replace the battery compartment cover.

11 Replace the cover and front panel (described in this chapter).

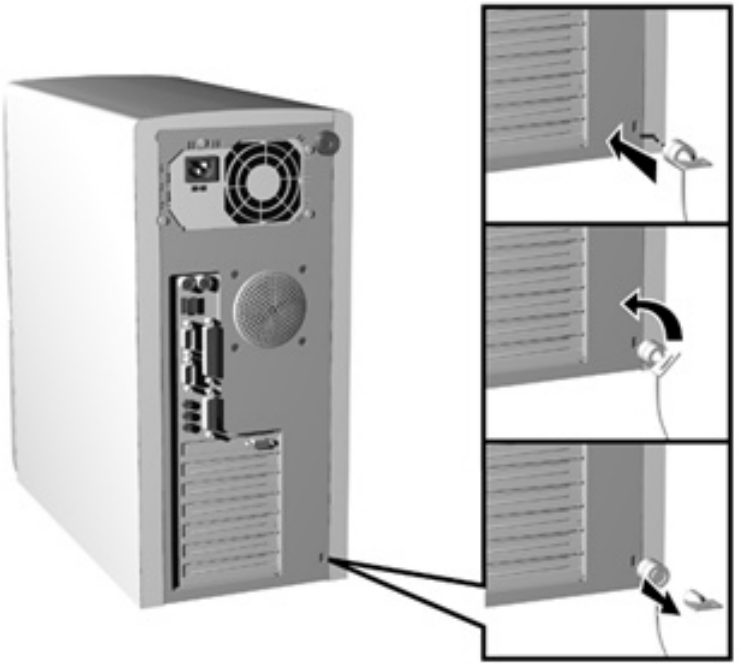
Installing a Security Cable

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

Managing Your PC

This chapter explains how to manage your PC using features like the HP *Setup* Program and HP TopTools hardware monitoring. It also describes security features of the PC and how to clear CMOS settings.

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.

Refer to "HP Setup Program" on page 124 for more information on using the *Setup* program.

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 keyboard 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.

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, Windows 98 and WindowsNT4.0 models. These and a Windows 2000 version (when it becomes available) can be obtained free of charge from 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**.

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, Windows 98 or Windows 2000, use the **`Shut Down ⇨ Restart your computer`** command in the **`Start`** menu. This command will automatically exit the operating system and restart 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

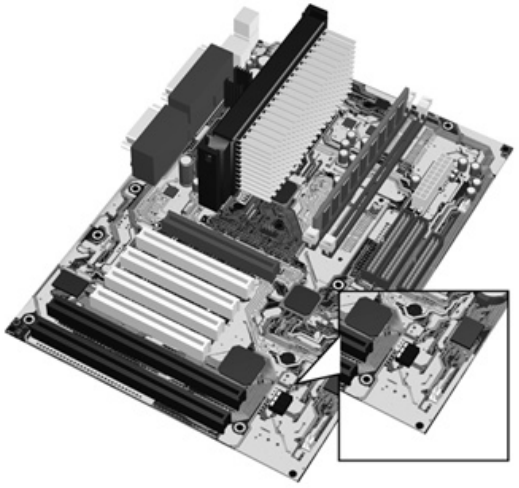
In the *Setup* program, you can also select the hard disk drive to boot from if there is more than one hard disk drive installed. To do this, go to the "Hard Disk Drives" submenu of the Boot menu in the *Setup* program.

NOTE

If your PC comes with an IDE hard disk drive, it will by default boot from the hard 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.

System Board Switches

The position of system board switches is shown below:



SWITCH BLOCK (SW 1)		
Switch	Switch function:	
1	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.
2	CMOS	OFF = normal (default) ON = clear CMOS and reload default values in *Setup*
3	Password	OFF = enabled (default) ON = disabled/clear User and Administrator passwords

Clearing your PC's BIOS (CMOS) Settings

CMOS is a chip that keeps a record of installed components hen your PC is turned off. Clearing CMOS settings may help you resolve some common problems. For example:

- when your PC cannot detect an accessory board or other device
- when you are having problem booting the PC.

You can clear CMOS settings:

- by using your PC's *Setup* program (recommended method)
- by opening your PC and clearing CMOS manually (recommended if you cannot solve the problem by using *Setup*).

Clearing CMOS Using the Setup Program

If you are able to gain access to your PC's *Setup* program, use the following simple method to clear CMOS settings:

1 To enter *Setup*, restart the PC and press **F2** when the Vectra logo appears on screen.

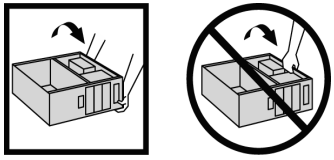
2 Press **F9** to load *Setup* defaults.

3 Exit *Setup,* saving changes.

Manually Clearing CMOS

1 Remove the PC's cover. Refer to page 47.

2 If you have a minitower, lay it on its side.



3 Change the position of switch 2 to ON to clear both CMOS and passwords. If you want to clear passwords only, set switch 3 to ON.

4 Replace the PC's cover and reconnect the power cord.

5 Switch on the PC.

6 Shut down the PC, remove the cover and power cord and set switch 2 to OFF. Set switch 3 to OFF if you reset it earlier instead of 1.

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/pcaccessories**.

See your PC's *User's Guide* or the documentation provided with the accessory for instructions on how to install the master pass key system.

Technical Information

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

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.

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

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

Acoustic Noise Emission

Acoustic Noise Emission[1] (Measured according to ISO 7779)	Desktop Models		Minitower Models	
	Sound Power (typical)	Sound Pressure (typical)	Sound Power (typical)	Sound Pressure (typical)
Operating (idle)	LwA ≤ 37 dB	LpA ≤ 32 dB	LwA ≤ 37 dB	LpA ≤ 32 dB

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

Physical Characteristics

Characteristic	Desktop PC
Weight (excl. display and keyboard)	10 kg (22 pounds)
Dimensions	Width: 43.5 cm (17.13 inches), Height: 13.5 cm (5.32 inches), Depth: 43 cm (16.93 inches)
Footprint	0.187 m^2 (2.01 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 4.0A, 200 – 240V 2.0A ac (voltage selection switch) Input frequency: 50/60 Hz Maximum output power: 120W continuous

Characteristic	Minitower PC
Weight (excl. display and keyboard)	13.4 kg (29.5 pounds)
Dimensions	Width: 20.6 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

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