

Dell™ Dimension™ 4500

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HINT: A HINT indicates important information that helps you make better use of your computer.



NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

For a complete list of abbreviations and acronyms, see the [Tell Me How](#) help file.

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Advanced Troubleshooting

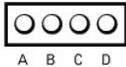
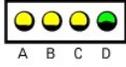
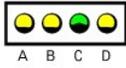
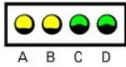
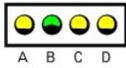
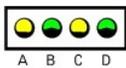
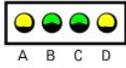
Dell™ Dimension™ 4500

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Diagnostic Codes

Your computer is equipped with four diagnostic lights, which are labeled "A," "B," "C," and "D" on the back of the computer. Each of the four lights can be yellow, green, or off as shown in the following table. When the computer is turned on or restarted and it is functioning normally, the lights flash during POST. After the computer starts, the lights remain green to signify normal computer operation.

If a malfunction is detected and the computer fails to start, the lights display a code that identifies the problem. Write down the diagnostic code displayed and look it up in the following table.

Diagnostic Code	Definition	Corrective Action
	Power up default.	Make sure that the computer is connected to a known working electrical outlet, and then check whether the front-panel power light on the power button is on or off. If the power light is off, check the power supply. If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance. See " Safety Instructions ," and then remove all cards . If the computer still does not start, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Recovery mode from BIOS failure.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Microprocessor has failed a BIOS test.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Memory modules are detected, but a memory failure has occurred.	<ol style="list-style-type: none"> 1 If you have one memory module installed, reinstall it, and then restart the computer. 1 If you have two or more memory modules installed, remove the modules, reinstall one module, and then restart the computer. If the computer starts normally, reinstall an additional module. Continue until you have identified a faulty connector or reinstalled all modules without error. 1 If available, install properly working memory of the same type into your computer. <p>If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	PCI bus failure has occurred.	<ol style="list-style-type: none"> 1. Determine if a conflict exists by removing a card and then restarting the computer. 2. If the problem persists, reinstall the card that you removed, remove a different card, and then restart the computer. 3. Repeat this process for each card. If the computer starts normally, troubleshoot the last card removed from the computer for resource conflicts (see "Resolving Software and Hardware Incompatibilities"). <p>If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	Video controller failed to initialize or respond.	<ol style="list-style-type: none"> 1 If the computer has a video card, remove the card and reinstall it. <p>If the problem persists or the computer has integrated video, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	IDE bus failure has occurred.	Reseat the drive cables. If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	No memory modules are detected.	<ol style="list-style-type: none"> 1 Reseat all memory modules, and then restart the computer. 1 To eliminate the possibility of a faulty memory connector, remove all memory modules, reinstall

		<p>one memory module (if the computer supports a single module), and then restart the computer. If the computer starts normally, move the memory module to a different connector and restart the computer. Continue until you have identified a faulty connector or reinstalled all modules without error.</p> <p>If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	System board failure.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Memory modules are detected, but a memory configuration or compatibility error exists.	<ol style="list-style-type: none"> 1 Be sure that there are no special memory module/memory connector placement requirements. 1 Verify that the memory modules that you are installing are compatible with the computer. <p>If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	USB port or a device connected to it has failed initialization.	Disconnect the device from the USB connector . If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
	Other failure.	<ol style="list-style-type: none"> 1 Ensure that the cables are properly connected from the hard drive, CD drive, and DVD drive to the system board. <p>If the problem persists, see "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.</p>
	Computer has started and turned over control to the operating system.	No action is necessary.
<p> = yellow = green = off </p>		

Beep Codes

If the monitor cannot display errors or problems, during POST the computer might emit a series of beeps, or beep code, that identifies the problem. The POST beep codes are listed below.

Beep Codes	Possible Cause	Corrective Action
1	A memory refresh failure occurred.	Reseat the memory modules.
2	Memory parity cannot be reset.	Reseat the memory modules.
3	A failure occurred in the first 64 KB of memory.	Reseat the memory modules.
4	The system timer is not operational.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
6	8042 Gate A20 cannot be toggled.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
7	An exception interrupt error occurred.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
8	A read/write error occurred in the display memory.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
10	A CMOS shutdown register test error occurred.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
11	An invalid BIOS is installed.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.

System Messages

Message	Possible Cause	Corrective Action
8042 Gate-A20 error	The keyboard controller failed its test.	If you receive this message after making changes in the system setup program , enter the program and restore the original value(s).
Address Line Short!	Error in the address decoding circuitry in the memory.	Reset the memory modules.
C: Drive Error C: Drive Failure	The hard drive is not working or is not configured correctly.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program .
Cache Memory Bad, Do Not Enable Cache	Cache memory is not operating.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CH-2 Timer Error	An error is occurring on the timer on the system board.	See "Contacting Dell" in the Dell <i>Owner's Manual</i> for instructions on obtaining technical assistance.
CMOS Battery State Low CMOS Checksum Failure CMOS System Options Not Set CMOS Display Type Mismatch CMOS Memory Size Mismatch CMOS Time and Date Not Set	The system configuration information in the system setup program is incorrect, or the battery charge may be low.	Enter the system setup program and verify the system configuration; then restart the computer.
Diskette Boot Failure	Drive A or B is present but has failed the BIOS POST.	Ensure that the drive is installed correctly in the computer and defined correctly in the system setup program . Check the interface cable at both ends.
DMA Error DMA 1 Error DMA 2 Error	Error in the DMA controller on the system board.	The keyboard or system board may need to be replaced.
FDD Controller Failure HDD Controller Failure	BIOS cannot communicate with the floppy drive or hard drive controller.	Ensure that the floppy drive or the hard drive is installed correctly in the computer and defined correctly in the system setup program . Check the interface cable at both ends.
INTR1 Error INTR2 Error	Interrupt channel on the system board failed to POST.	The keyboard or system board may need to be replaced.
Invalid Boot Diskette	The operating system cannot be located on drive A or drive C.	Enter the system setup program and confirm that drive A or drive C is properly identified.
Keyboard Error	The BIOS has detected a stuck key.	Make sure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
KB/Interface Error	An error occurred with the keyboard connector.	Make sure that nothing is resting on the keyboard; if a key appears to be stuck, carefully pry it up. If the problem persists, you may need to replace the keyboard.
No ROM Basic	The operating system cannot be located on drive A or drive C.	Enter the system setup program and confirm that drive A or drive C is properly identified.

Using System Restore

The Microsoft® Windows® XP operating system provides System Restore to allow you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. See Windows Help for information on using System Restore. To access Windows Help, see "[Finding Help Information](#)."



NOTICE: Make regular backups of your data files. System Restore does not monitor your data files or recover them.

Creating a Restore Point

1. Click the **Start** button.
2. Click **Help and Support**.
3. Click **System Restore**.
4. Follow the instructions on the screen.

Restoring the Computer to an Earlier Operating State

If problems occur after installing a device driver, first try using [Device Driver Rollback](#). If that is unsuccessful, then use System Restore.

 **NOTICE:** Before restoring the computer to an earlier operating state, save and close all open files and close all open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click the **Start** button, point to **All Programs—> Accessories—> System Tools**, and then click **System Restore**.
2. Ensure that **Restore my computer to an earlier time** is selected, and then click **Next**.
3. Click a calendar date to which you want to restore your computer.

The **Select a Restore Point** screen provides a calendar that allows you to see and select restore points. All calendar dates with available restore points appear in bold.

4. Select a restore point, and then click **Next**.

If a calendar date has only one restore point, then that restore point is automatically selected. If two or more restore points are available, click the restore point that you prefer.

5. Click **Next**.

The **Restoration Complete** screen appears after System Restore finishes collecting data, and then the computer automatically restarts.

6. After the computer restarts, click **OK**.

To change the restore point, you can either repeat the steps using a different restore point, or you can undo the restoration.

Undoing the Last System Restore

 **NOTICE:** Before undoing the last system restore, save and close all open files and close all open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click the **Start** button, point to **All Programs—> Accessories—> System Tools**, and then click **System Restore**.
2. Select **Undo my last restoration** and click **Next**.
3. Click **Next**.

The **System Restore** screen appears, and then the computer automatically restarts.

4. After the computer restarts, click **OK**.

Enabling System Restore

If you reinstall Windows XP with less than 200 MB of free hard drive space available, System Restore is automatically disabled. To see if System Restore is enabled:

1. Click the **Start** button, and then click **Control Panel**.
2. Click **Performance and Maintenance**.
3. Click **System**.
4. Click the **System Restore** tab.
5. Make sure that **Turn off System Restore** is unchecked.

Reinstalling Drivers

 **NOTICE:** The Dell | Support website and the *Dell Dimension ResourceCD* provide approved drivers for Dell™ computers. If you install drivers obtained from other sources, your computer might not work correctly.

A driver is a software program that allows a hardware device controller to function properly and to communicate with the computer. Sometimes you can fix a device problem by reinstalling its driver.

Using Windows® XP Device Driver Rollback

Windows XP Device Driver Rollback replaces a device driver with the previously installed version if you install a new driver that causes system instability. If Device Driver Rollback does not resolve the problem, then try using [System Restore](#) to return your operating system to the operating state it was in before you installed the new device driver.

To use Device Driver Rollback:

1. Click the **Start** button, and then right-click **My Computer**.
2. Click **Properties**.
3. Click the **Hardware** tab, and then click **Device Manager**.
4. In the **Device Manager** window, right-click the device for which the new driver was installed, and then click **Properties**.
5. Click the **Drivers** tab.
6. Click **Roll Back Driver**.

Using the Dell Dimension ResourceCD

If using Device Driver Rollback or System Restore does not resolve the problem, then reinstall the driver from the *Dell Dimension ResourceCD*:

1. With the Windows desktop displayed, insert the ResourceCD into the CD or DVD drive.

If this is your first time to use the ResourceCD, go to [step 2](#). If not, go to [step 5](#).

2. When the ResourceCD installation program starts, follow the prompts on the screen.
3. When the **InstallShield Wizard Complete** window appears, remove the ResourceCD and click **Finish** to restart the computer.
4. When you see the Windows desktop, reinsert the ResourceCD into the CD or DVD drive.
5. At the **Welcome Dell System Owner** screen, click **Next**.

 **HINT:** The ResourceCD displays drivers only for the hardware that came on your computer. If you installed additional hardware, the drivers for the new hardware might not be displayed by the ResourceCD. If those drivers are not displayed, exit the ResourceCD program. For drivers information, see the documentation that came with that product.

A message stating that the ResourceCD is detecting hardware in your computer appears.

The drivers that are used by your computer are automatically displayed in the **My Drivers—The ResourceCD has identified these components in your system** window.

6. Click the driver that you want to reinstall and follow the instructions on the screen.

If a particular driver is not listed, then that driver is not required by your operating system.

Resolving Software and Hardware Incompatibilities

Microsoft® Windows® XP IRQ conflicts occur if a device either is not detected during the operating system setup or is detected but incorrectly configured.

To check for conflicts on a computer running Windows XP:

1. Click the **Start** button, and then click **Control Panel**.
2. Click **Performance and Maintenance**, and then click **System**.
3. Click the **Hardware** tab, and then click **Device Manager**.
4. In the **Device Manager** list, check for conflicts with the other devices.

Conflicts are indicated by a yellow exclamation point (!) beside the conflicting device or a red x if the device has been disabled.

5. Double-click any conflicting device listed to bring up the **Properties** window to determine what needs to be reconfigured or removed from the Device Manager.

Resolve these conflicts before checking specific devices.

6. Double-click the malfunctioning device type in the **Device Manager** list.
7. Double-click the icon for the specific device in the expanded list.

The **Properties** window appears.

8. Resolve any IRQ conflicts, as described in [step 5](#).

If an IRQ conflict exists, the **Device** status area in the **Properties** window reports the cards or devices that share the device's IRQ.

You can also use the Windows XP Hardware Troubleshooter:

1. Click the **Start** button.
 2. Click **Help and Support**.
 3. Type `hardware troubleshooter` in the **Search** field, and then click the arrow to start the search.
 4. Click **Hardware Troubleshooter** in the **Search Results** list.
 5. In the **Hardware Troubleshooter** list, click **I need to resolve a hardware conflict on my computer**.
 6. Click **Next**.
-

Reinstalling Windows® XP

Before reinstalling the Microsoft® Windows XP operating system to correct a problem, try correcting the problem by performing a Windows XP [System Restore](#). The reinstallation process can take 1 to 2 hours, and you will need to reinstall your drivers, virus protection program, and other software when the process is complete.

- ➡ **NOTICE:** The *Operating System* CD provides options for reinstalling your Windows XP operating system. The options can potentially overwrite files installed by Dell and possibly affect programs installed on your hard drive. Therefore, Dell does not recommend that you reinstall your operating system unless instructed to do so by a Dell technical support representative.
- ➡ **NOTICE:** To prevent conflicts with Windows XP, you must disable any virus protection software installed on your computer before you reinstall Windows XP.

To reinstall Windows XP:

1. To reinstall Windows XP, insert the *Operating System* CD into the CD or DVD drive.

Close any program or utility that might run after you insert the CD into the drive.

2. [Turn off the computer](#), and then turn the computer on again.
3. **When the blue DELL™ logo appears, press <F12> immediately.**

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then shut down the computer and try again.

4. Use the arrow keys to select the CD-ROM option, and then press <Enter>.
5. When the **Windows XP Setup** screen appears, press <Enter> to select **To set up Windows now**.
6. Read the information in the **License Agreement** window, and then press <F8> on your keyboard to agree with the license information.
7. If your computer already has Windows XP installed and you want to recover your current Windows XP data, type \pm to select the repair option, and then go to [step 16](#).

If you want to install a new copy of Windows XP, press <Esc> to select the fresh copy option, and then press <Enter> on the next screen to select the highlighted partition (recommended). Then follow the instructions on the screen.

The **Windows XP Setup** screen appears and Windows XP begins to copy files and install the devices. The computer automatically restarts multiple times before it requires additional input.

8. When the **Welcome to Microsoft** screen appears, click the green arrow icon at the bottom of the screen to continue. Follow the directions on the screen to finish.
9. When the **Regional Settings** screen appears, select the settings for your locale, and then click **Next**.
10. Enter your name and organization in the **Personalize Your Software** screen, and then click **Next**.
11. If you are reinstalling Windows XP Home Edition, enter a name for your computer when the **Computer Name** window appears, and then click **Next**.

If you are reinstalling Windows XP Professional, enter a name for your computer and a password when the **Computer Name and Administrator Password** window appears, and then click **Next**.

12. If the **Modem Dialing Information** screen appears, enter the requested information. Then click **Next**.
13. Enter the date, time, and time zone in the **Date and Time Settings** window, and then click **Next**.
14. If you have a network card in your computer, select the appropriate network settings.

If you do not have a network card, this option does not appear.

Windows XP begins to install its components and configure the computer. The computer automatically restarts.

15. When the **Welcome to Microsoft** screen appears, click the green arrow icon at the bottom of the screen to continue. Follow the directions on the screen to finish.
16. Remove the CD from the drive.
17. Reinstall the chipset INF driver.
18. [Reinstall the appropriate drivers](#).
19. Reinstall your virus protection software.
20. Reinstall your other software programs.

See the documentation supplied with the software for instructions.

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Documentation

Dell™ Dimension™ 4500

- [Finding Information for Your Computer](#)
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Finding Information for Your Computer

What Are You Looking For?	Find it Here
<ul style="list-style-type: none"> 1 A diagnostic program for my computer 1 Drivers for my computer 1 My computer documentation 1 My device documentation 	<p>ResourceCD</p>  <p>You can use this CD to access documentation, reinstall drivers, or run diagnostics tools.</p>
<ul style="list-style-type: none"> 1 How to set up a printer 1 How to troubleshoot and solve problems 1 How to add parts 1 How to contact Dell 1 Warranty information 	<p>Owner's Manual</p> 
<ul style="list-style-type: none"> 1 Express Service Code and Service Tag Number 1 Windows® License Label 	<p>Express Service Code and Product Key</p>  <p>Located on your computer.</p>
<ul style="list-style-type: none"> 1 How to reinstall my operating system 	 <p>Operating System CD</p> <p>If you reinstall your operating system, use the ResourceCD to reinstall drivers for the devices that came with your computer.</p>
<ul style="list-style-type: none"> 1 Latest drivers for my computer 1 Answers to technical service and support questions 1 Online discussions with other users and technical support 1 Documentation for my computer 	<p>Dell Support website</p> <p>support.dell.com</p> <p>The Dell Support website provides several online tools, including:</p> <ul style="list-style-type: none"> 1 Knowledge Base — hints, tips, and online courses 1 Customer Forum — online discussion with other Dell customers

	<ul style="list-style-type: none"> 1 Upgrades — upgrade information for components, such as memory, the hard drive, and the operating system 1 Customer Care — contact information, order status, warranty, and repair information 1 Downloads — drivers, patches, and software updates 1 Reference — computer documentation, product specifications, and white papers
<ul style="list-style-type: none"> 1 How to set up my computer 	<p>Start Here setup diagram</p> 
<ul style="list-style-type: none"> 1 Tips on using Windows 1 How to clean my computer 1 How to use my mouse and keyboard 	<p>Tell Me How help file</p> <ol style="list-style-type: none"> 1. Click the Start button, and then click Help and Support. 2. Click User and system guides, and then click User's guides. 3. Click Tell Me How.
<ul style="list-style-type: none"> 1 How to use Microsoft® Windows XP 1 Documentation for my computer and devices 	<p>Windows XP Help and Support Center</p> <ol style="list-style-type: none"> 1. Click the Start button, and then click Help and Support. 2. Type a word or phrase that describes your problem, and then click the arrow icon. 3. Click the topic that describes your problem. 4. Follow the instructions shown on the screen.

Printed Documentation

 **HINT:** You must right-click the link for a portable document format (PDF) file and save the file to your hard drive. Attempting to open large PDF files through your browser causes your computer to freeze.

To save PDF files (files with an extension of **.pdf**) to your hard drive, right-click the document title, click **Save Target As** in Microsoft® Internet Explorer or **Save Link As** in Netscape Navigator, and specify a location on your hard drive.

Right-click *only* the following links:

[Dell Dimension 4500 Owner's Manual \(.pdf\) \(2.04 MB\)](#) — Provides information on adding upgrades, performing basic troubleshooting procedures, and reinstalling drivers. It also provides technical specifications.

 **HINT:** PDF files require Adobe™ Acrobat Reader, which can be downloaded from the Adobe World Wide Web site at <http://www.adobe.com/acrobat/>. To view a PDF file, launch Acrobat Reader. Click **File**—> **Open** and select the PDF file.

Online Documentation

The *Tell Me How* help file is already loaded on your hard drive when you receive your computer. To open the file, click the **Start** button on the Windows® desktop, point to **Programs**—> **User's Guides**, and then click **Tell Me How**.

 **HINT:** *Tell Me How* help files (files with an extension of **.chm**) require Microsoft Internet Explorer 4.0 or later.

The *Tell Me How* help file allows you to search for information in multiple ways. You can quickly link to information on the following topics:

- 1 Hardware and software features of your computer
- 1 The Windows desktop, where you can change your wallpaper and screen saver, create shortcuts, and position icons
- 1 Software access, installation, and removal
- 1 Basic file management, such as finding, copying, deleting, and renaming files
- 1 Tips on using your computer hardware

Downloading the *Tell Me How* Help File and Associated Files

1. Right-click the following link to the **hhactivex.dll** file: [hhactivex.dll](#).
2. Click **Save Target As** in Microsoft Internet Explorer or **Save Link As** in Netscape Navigator, and specify **c:\windows\system**.
3. Click the **Start** button on the Microsoft Windows desktop, and then click **Run**.

4. Type `regsvr32 hhactivex.dll` and then press <Enter>.
5. Click **OK** when the installation is complete.
6. Right-click the following link to the file: [Dell Dimension 4500 Tell Me How \(.chm\) \(1.02 MB\)](#).
7. Click **Save Target As** in Microsoft Internet Explorer or **Save Link As** in Netscape Navigator, and specify a location on your hard drive.

Viewing the *Tell Me How* Help File

1. Click the **Start** button on the Windows desktop, point to **Programs**, and then click **Windows Explorer**.
2. Navigate to the directory in which you saved the *Tell Me How* help file.
3. Double-click the file (`tellhow.chm`).

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Adding Parts

Dell™ Dimension™ 4500

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- [Opening the Computer Cover](#)
- [Adding Cards](#)
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- [Replacing an AGP Card](#)
- [Adding a Second Hard Drive](#)
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- [Replacing the Microprocessor](#)
- [Removing the Front I/O Panel](#)
- [Replacing the Power Supply](#)
- [Replacing the System Board](#)
- [Closing the Computer Cover](#)

Safety Instructions

Use the following safety guidelines to help protect your computer from potential damage and to ensure your own personal safety.

When Using Your Computer

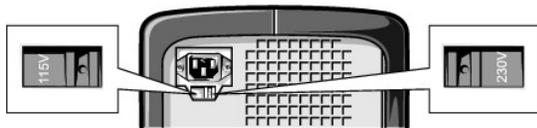
As you use your computer, observe the following safe-handling guidelines.

⚠ CAUTION: Do not operate your computer with any cover(s) (including computer covers, bezels, filler brackets, front-panel inserts, and so on) removed.

- 1 To help avoid damaging your computer, be sure the voltage selection switch on the power supply is set to match the AC power available at your location.
 - o 115 volts (V)/60 hertz (Hz) in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
 - o 100 V/50 Hz in eastern Japan and 100 V/60 Hz in western Japan

🔧 NOTE: The voltage selection switch must be set to the 115V position even though the AC supply in Japan is 100 V.

- o 230 V/50 Hz in most of Europe, the Middle East, and the Far East



🔧 NOTE: Auto-select power supplies do not require a voltage selection switch. Your power supply may not have this switch.

Also be sure that your monitor and attached devices are electrically rated to operate with the AC power available in your location.

- 1 Before working inside the computer, unplug the computer to help prevent electric shock or system board damage. Certain system board components continue to receive power any time the computer is connected to AC power.
- 1 To help avoid possible damage to the system board, wait 15 seconds after turning off the computer before disconnecting a device from the computer.
- 1 To help prevent electric shock, plug the computer and device power cables into properly grounded power sources. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.



- 1 To help protect your computer from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- 1 Be sure nothing rests on your computer's cables and that the cables are not located where they can be stepped on or tripped over.
- 1 Do not spill food or liquids on your computer. If the computer gets wet, consult your *Owner's Manual*.

- 1 Do not push any objects into the openings of your computer. Doing so can cause fire or electric shock by shorting out interior components.

Keep your computer away from radiators and heat sources. Also, do not block cooling vents. Avoid placing loose papers underneath your computer; do not place your computer in a closed-in wall unit or on a bed, sofa, or rug.

When Working Inside Your Computer

Before you open the computer cover, perform the following steps in the sequence indicated.

 **CAUTION:** Do not attempt to service the computer yourself, except as explained in your online Dell documentation or otherwise provided to you. Always follow installation and service instructions closely.

 **NOTICE:** To help avoid possible damage to the system board, wait 5 seconds after turning off the computer before removing a component from the system board or disconnecting a device from the computer.

1. Perform an orderly computer shutdown using the operating system menu.
2. Turn off your computer and any devices.
3. Ground yourself by touching an unpainted metal surface on the chassis, such as the metal around the card-slot openings at the back of the computer, before touching anything inside your computer.

While you work, periodically touch an unpainted metal surface on the computer chassis to dissipate any static electricity that might harm internal components.

4. Disconnect your computer and devices from their power sources. Also, disconnect any telephone or telecommunication lines from the computer.

Doing so reduces the potential for personal injury or shock.

In addition, take note of these safety guidelines when appropriate:

- 1 When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, make sure both connectors are correctly oriented and aligned.
- 1 Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a microprocessor chip by its edges, not by its pins.

There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Protecting Against Electrostatic Discharge

Static electricity can harm delicate components inside your computer. To prevent static damage, discharge static electricity from your body before you touch any of your computer's electronic components, such as the microprocessor. You can do so by touching an unpainted metal surface on the computer chassis.

As you continue to work inside the computer, periodically touch an unpainted metal surface to remove any static charge your body may have accumulated.

You can also take the following steps to prevent damage from electrostatic discharge (ESD)

- 1 When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component in your computer. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
- 1 When transporting a sensitive component, first place it in an antistatic container or packaging.
- 1 Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads and workbench pads.

The following notice may appear throughout this document to remind you of these precautions:

 **NOTICE:** See "Protecting Against Electrostatic Discharge" in the safety instructions at the front of this guide.

Ergonomic Computing Habits

 **CAUTION:** Improper or prolonged keyboard use may result in injury.

 **CAUTION:** Viewing the monitor screen for extended periods of time may result in eye strain.

For comfort and efficiency, observe the ergonomic guidelines in the *Owner's Manual* when setting up and using your computer.

Battery Disposal



Your computer uses a lithium battery. The lithium battery is a long-life battery, and it is very possible that you will never need to replace it. However, should you need to replace it, see your *Owner's Manual*.

Do not dispose of the battery along with household waste. Contact your local waste disposal agency for the address of the nearest battery deposit site.

Shutting Down the Computer

 **NOTICE:** To prevent data loss, you must turn off your computer through the **Start** menu rather than by pressing the power button.

 **HINT:** If you are having difficulty turning off your computer, see "[General Problems](#)."

Windows XP

1. Save and close any open files and exit any open programs.
2. Click the **Start** button and then click **Turn off Computer**.
3. Click **Turn off**.

The computer automatically turns off after the shutdown process finishes.

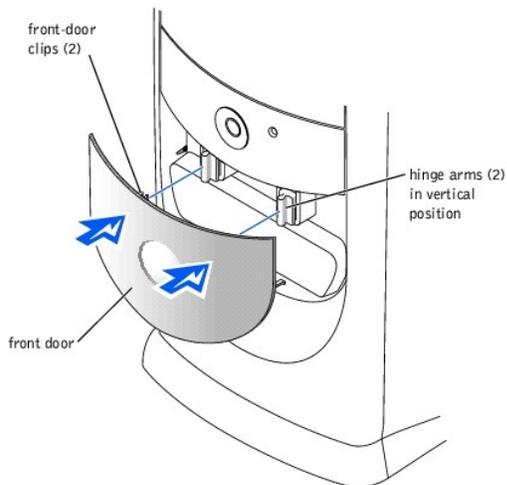
 **NOTICE:** Turn off your monitor and any other devices connected to power.

Reattaching the Front Door and Hinge Arms

To prevent damage to your computer, the front door is designed to "break away" if it is lifted up too far. If the front door breaks away, you might need to reattach both the front door and the hinge arms.

Reattaching the Front Door

1. [Shut down the computer](#).
2. Lower the hinge arms to the vertical position.
3. Align the two clips on the inside of the front door with the two hinge arms.
4. Press inward on the front door until it clips to both hinge arms.



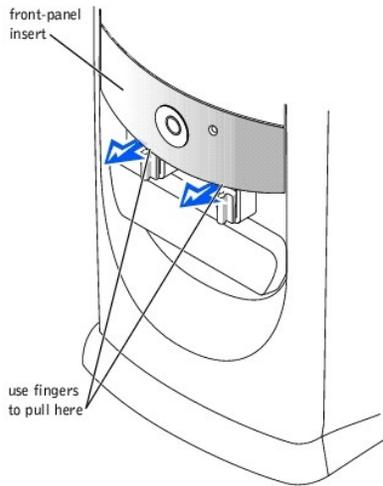
Reattaching the Hinge Arms

1. [Shut down the computer](#).
2. Disconnect the power cable from your computer.
3. Remove the front door, if it is attached.

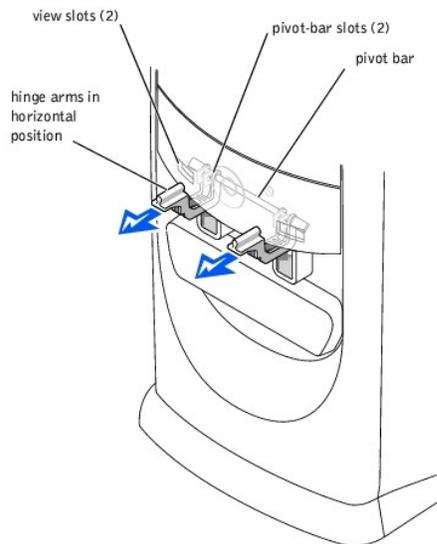
The front door snaps off of the two hinge arms.

4. Remove the front-panel insert above the front-door bay area.

Pull the bottom of the insert with your fingers to remove it.



5. Lift both hinge arms to the horizontal position.
6. Use the two view slots to align the pivot bar with the two pivot-bar slots.



👉 **NOTICE:** Using excessive force to pull the hinge arms into place may damage the arms or the front panel.

7. Pull the arms toward you until they snap into place.
If the hinge arms don't snap back into place on the first attempt, slightly reposition the arms and try again.
8. After the hinge arms clip into place, lower and raise the arms two or three times to properly seat them.
9. Reattach the front-panel insert.
10. Reconnect the power cable to your computer.
11. Reattach the front door as described in "[Reattaching the Front Door.](#)"

Opening the Computer Cover

⚠️ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions.](#)"

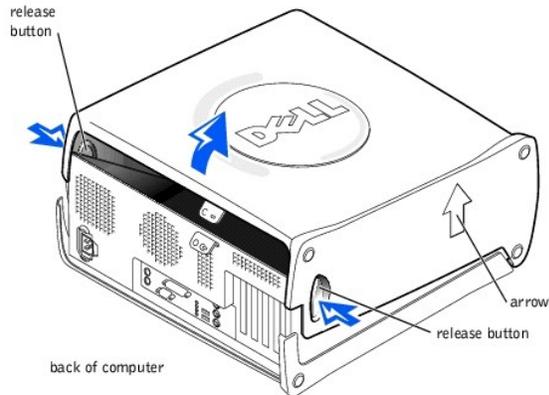
1. [Shut down the computer.](#)

➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.

➡ **NOTICE:** Ensure that there is sufficient space to support the open cover—at least 30 cm (1 ft) of desk top space.

4. Lay the computer on its side so that the arrow on the bottom of the computer points up.
5. Locate the *two* release buttons shown in the illustration. Then, press the *two* release buttons as you lift the cover.



Adding Cards

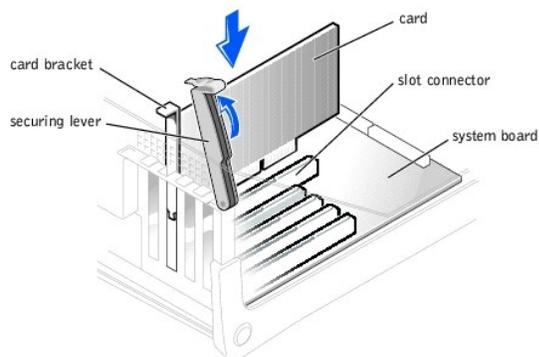
⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

⚠ **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before [opening the cover](#).

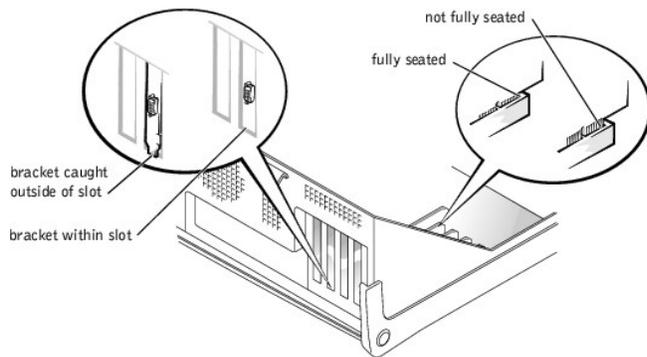
1. [Shut down the computer](#).

➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover](#).
5. To raise the securing lever, press the tab until it is free from the latch and then lift the lever.
6. Insert the card into the connector.



7. Ensure that the card is fully seated in the connector.



8. Lower the plastic securing lever.
9. Connect any cables that should be attached to the card.

See the documentation that came with the card for information about the card cable connections.

10. [Close the computer cover.](#)

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

11. Connect your computer and devices to their electrical outlets, and turn them on.
12. Install any drivers required for the card as described in the documentation that came with the card.

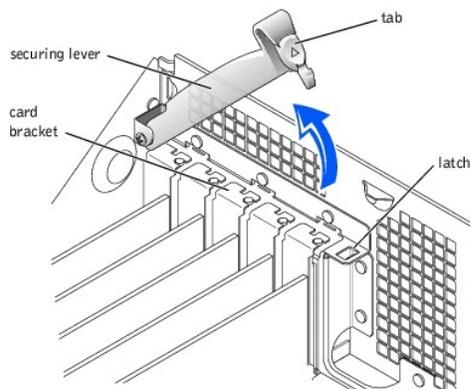
Removing Cards

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions.](#)"

1. [Shut down the computer.](#)

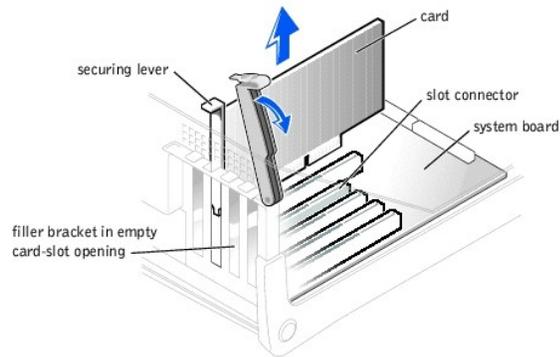
NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover.](#)
5. If necessary, disconnect any cables connected to the card.
6. To raise the securing lever, press the tab until it is free from the latch and then lift the lever.



7. To remove the card, grasp the card by the top corners and lift it out.

If the card is difficult to remove, gently ease the card back and forth to remove it from the connector.



HINT: Installing filler brackets over empty card-slot openings is necessary to maintain Federal Communications Commission (FCC) certification of the computer. The brackets also keep dust and dirt out of your computer.

8. If you are not replacing the card, install a filler bracket in the empty card-slot opening.

If you are adding a card, see "[Adding Cards](#)."

9. Lower the securing lever.
10. [Close the computer cover](#).

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

11. Connect your computer and devices to their electrical outlets, and turn them on.

Adding Memory

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

You can increase your computer memory by installing memory modules on the system board. For information on the type of memory supported by your computer, see "[Memory](#)" in "Technical Specifications."

HINT: Memory purchased from Dell is covered under your computer warranty.

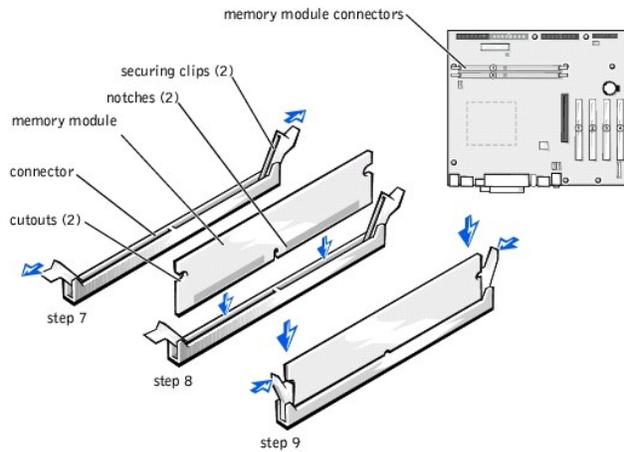
1. [Shut down the computer](#).

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. [Open the computer cover](#).
5. [Remove the AGP card](#).
6. If necessary, remove a memory module:
 - a. Press out the securing clip at each end of the memory module connector.
 - b. Grasp the module and pull up.

If the module is difficult to remove, gently ease the module back and forth to remove it from the connector.

7. To insert a module, press out the securing clip at each end of the memory module connector.



8. Align the notches on the bottom of the module with the crossbars in the connector.

➡ **NOTICE:** To avoid breaking the memory module, do not press near the middle of the module.

9. Insert the module straight down into the connector, ensuring that it fits into the vertical guides at each end of the connector. Press firmly on the ends of the module until it snaps into place.

During most installations, the securing clips snap into the cutouts at each end of the module. During some installations, you have to use your fingers to gently push the clips into the cutouts.

➡ **NOTICE:** Visually inspect the position of the securing clips and make sure that they have snapped into the vertical position in the cutouts on the ends of the memory modules. Otherwise, the securing clips may prevent the AGP card from being properly reinstalled.

10. [Reinstall the AGP card.](#)

11. [Close the computer cover.](#)

➡ **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

12. Connect your computer and devices to their electrical outlets, and turn them on.

13. Right-click the **My Computer** icon and then click **Properties**.

14. Click the **General** tab.

15. To verify that the memory is installed correctly, check the amount of memory (RAM) listed.

Replacing an AGP Card

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

1. [Shut down the computer.](#)

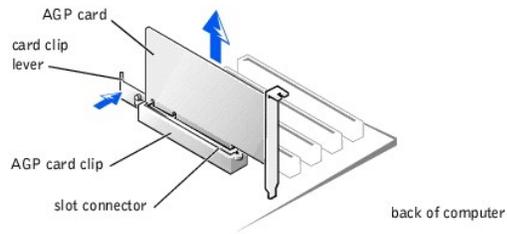
➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.

3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.

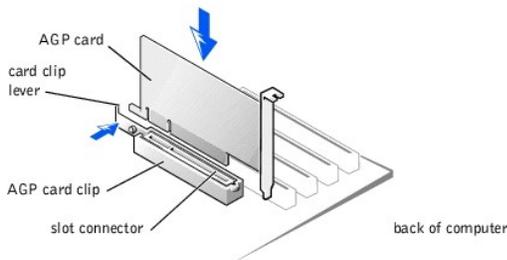
4. [Open the computer cover.](#)

5. Press the card clip lever on the side of the AGP card to release the card from the slot connector, and remove the card.



🔔 **NOTICE:** Visually inspect the position of the securing clips on the memory connectors and make sure that they are secured in the vertical position in the cutouts on the ends of the memory modules. Otherwise, the securing clips may prevent the AGP card from being properly reinstalled.

6. To replace the AGP card, gently press it down into the slot connector until it clicks into place. Press the card clip lever while inserting the card into the slot connector.



7. [Close the computer cover.](#)

🔔 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

8. Connect your computer and devices to their electrical outlets, and turn them on.

Adding a Second Hard Drive

⚠️ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions.](#)"

Your computer includes one hard drive. To add a second hard drive:

1. [Shut down the computer.](#)

🔔 **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the computer power cable from the wall outlet, and then press the power button to ground the system board.
4. Unpack the drive and prepare it for installation.

See the drive documentation to ensure that the drive is set up for your computer.

5. [Open the computer cover.](#)

🔍 **HINT:** Two sets of rails are attached to the inside of the computer cover. Use the two longer rails on 5.25-inch drives. Use the shorter rails for 3.5-inch drives. Rails for a second hard drive are attached inside the hard-drive bay.

6. Remove the two green plastic rails from the inside of the hard-drive bay.

These rails are not attached to the inside of the hard-drive bay with screws. To remove the rails, gently pull the rails up and out of the bay.

7. Attach the rails to the hard drive using the two screws attached to the rails.

Ensure that the rail tabs are positioned at the back of the hard drive.

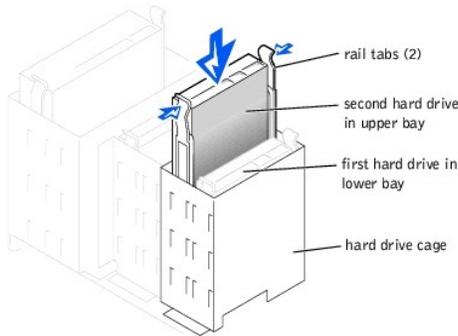
8. Remove the first hard drive from the upper bay and install it in the lower bay.
 - a. Disconnect the power cable and the data cable from the back of the first hard drive.

- b. Press in the two green rail tabs and pull the first hard drive out of the upper bay.

NOTICE: Do not install any drive into the lower hard-drive bay until after you have removed the green drive rails from the inside of the hard-drive cage.

- c. Gently slide the first hard drive into the lower bay until you hear a click.
- d. Reconnect the power cable and the data cable to the back of the first hard drive.

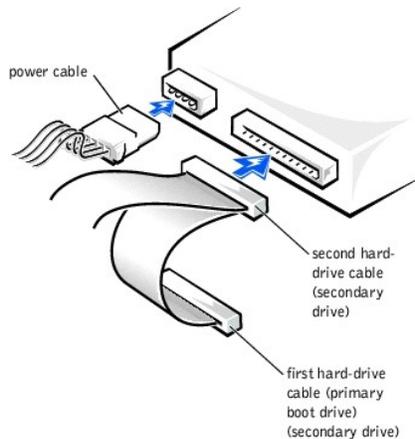
9. Gently slide the new hard drive into the upper bay until you hear a click.



NOTICE: Match the colored strip on the cable with pin 1 on the drive.

10. Locate the extra connector on the drive cable that is attached to your first hard drive, and attach the connector to the second hard drive.

HINT: Your computer uses cable-select drive cables. This means that the device connected to the end connector of the drive cable is the master device and the device connected to the middle connector is the slave device. Be sure that the jumper setting on the new device is set for "cable select" (see the documentation that came with the drive for information).



11. [Close the computer cover.](#)

NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

12. Connect your computer and devices to their electrical outlets, and turn them on.
13. See the documentation that came with the drive for instructions on installing any software required for drive operation.

Adding Other Drives

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions.](#)"

HINT: Drives sold by Dell come with their own operating software and documentation. After you install a drive, refer to the documentation that came with the drive for instructions on installing and using the drive software.

NOTICE: To avoid possibly damaging the drive by electrostatic discharge (ESD), ground yourself by periodically touching an unpainted metal surface on the back of the computer.

Your computer includes a floppy drive and a CD or DVD drive. You can add other devices, such as a Zip drive, a CD-RW drive, or a tape drive.

5.25-Inch Devices

⚠ CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

1. [Shut down the computer](#).

🔌 NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. Unpack the drive and prepare it for installation.

See the documentation that came with the drive to ensure that the drive is set up for your computer.

🔍 HINT: Two sets of rails are attached to the inside of the computer cover. Use the two longer rails on 5.25-inch drives. Use the shorter rails on 3.5-inch drives. Rails for a second hard drive are attached inside the hard-drive bay.

5. Remove the two longer, green plastic rails from the inside of the computer cover.

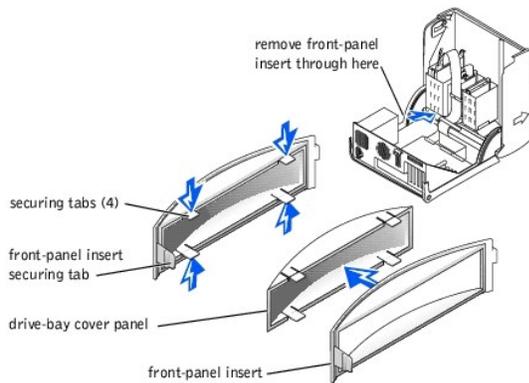
To remove the rails, gently ease the rails up and out.

6. Attach the rails to the drive using the screws supplied with the drive.

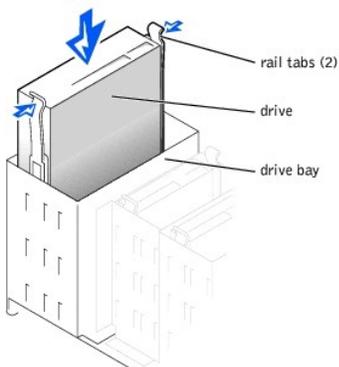
Ensure that the rail tabs are positioned at the back of the drive.

7. [Open the computer cover](#).

8. To remove the drive-bay cover panel, carefully press the panel out from the inside of the computer.



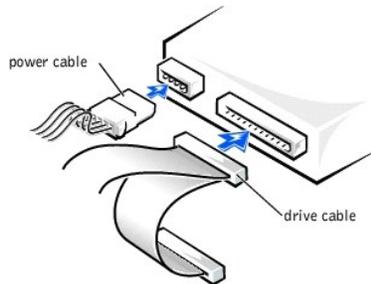
9. Gently slide the drive into the bay until you hear a click.



10. Connect a power cable to the drive.

See the documentation that came with the drive for instructions on connecting a drive cable to the drive and system board.

HINT: Your computer uses cable-select drive cables. This means that the device connected to the end connector of the drive cable is the master device and the device connected to the middle connector is the slave device. Be sure that the jumper setting on the new device is set for "cable select" (see the documentation that came with the drive for information).



NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

11. Connect your computer and devices to their electrical outlets, and turn them on.

See the documentation that came with the drive for instructions on installing any software required for drive operation.

3.5-Inch Devices

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

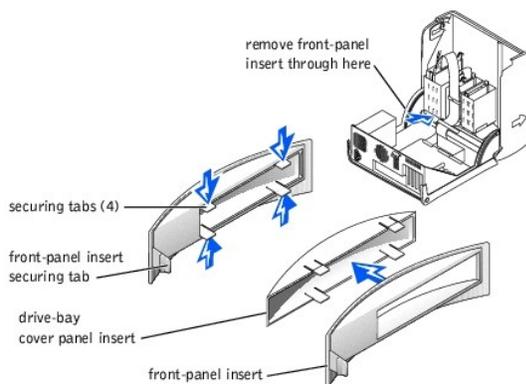
1. [Shut down the computer](#).

NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. Unpack the drive and prepare it for installation.

See the documentation that came with the drive to ensure that the drive is set up for your computer.

5. [Open the computer cover](#).
6. To remove the drive-bay cover panel, carefully press the panel out from the inside of the computer.
7. To remove the drive-bay cover panel insert, press the four securing tabs and pull the insert away from the panel.



HINT: Two sets of rails are attached to the inside of the computer cover. Use the two longer rails on 5.25-inch drives. Use the shorter rails for 3.5-inch drives. Rails for a second hard drive are attached inside the hard-drive cage.

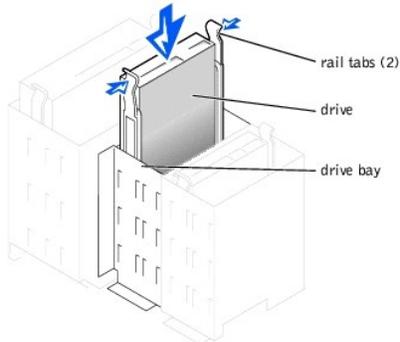
8. Remove the two shorter, green plastic rails from the inside of the computer cover.

These rails are not attached to the computer cover with screws. To remove the rails, firmly pull the rails from the drive cage.

9. Attach the rails to the drive using the screws supplied with the drive.

Ensure that the rail tabs are positioned at the back of the drive.

10. Gently slide the drive into the bay until you hear a click.



11. Carefully replace the drive bay cover.

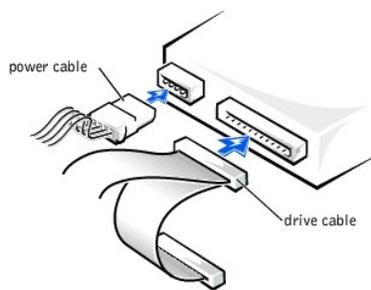
You do not need to replace the cover insert.

12. [Close the computer cover.](#)

13. Connect a power cable to the drive.

See the documentation that came with the drive for instructions on connecting a drive cable to the drive.

HINT: Your computer uses cable-select drive cables. This means that the device connected to the end connector of the drive cable is the master device and the device connected to the middle connector is the slave device. Be sure that the jumper setting on the new device is set for "cable select" (see the documentation that came with the drive for information).



NOTICE: To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

14. Connect your computer and devices to their electrical outlets, and turn them on.
15. Install any drivers required for the drive as described in the documentation that came with the drive.

Replacing the Microprocessor

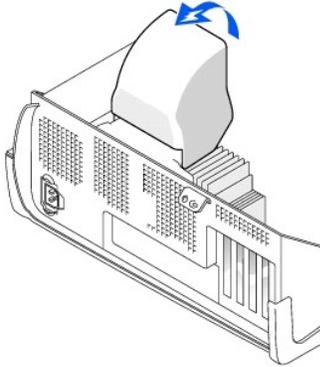
CAUTION: Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

1. [Shut down the computer.](#)

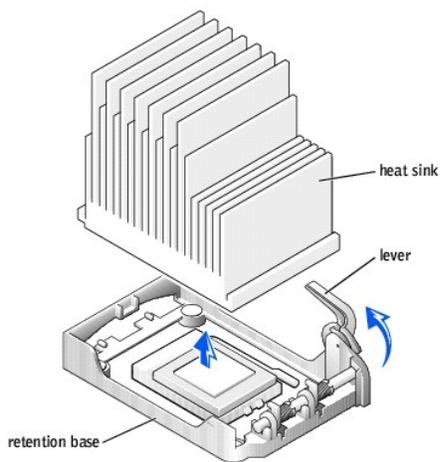
NOTICE: To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.

4. [Open the computer cover.](#)
5. Disconnect the cooling fan power cable from the [CR3F1 connector](#) on the system board.
6. Disconnect the +12-VDC [P2 DC power cable](#) from the [J4B1 connector](#) on the system board.
7. Lift up the airflow shroud.



8. Remove the heat sink.
 - a. Press and lower the green lever on the retention mechanism until it is parallel to the system board.



➡ **NOTICE:** Gently rock the heat sink and then lift it to remove it.

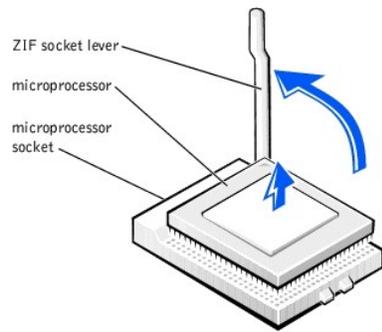
9. Lift the heat sink away from the microprocessor.

➡ **NOTICE:** Do not discard the original heat sink unless you are installing a microprocessor upgrade kit from Dell. If you are *not* installing a microprocessor upgrade kit from Dell, reuse the original heat sink and blower when you install your new microprocessor.

10. Pull the socket lever up straight up until the microprocessor is released.

The microprocessor uses a ZIF socket with a lever-type handle that secures or releases the microprocessor.

➡ **NOTICE:** Be careful not to bend any of the pins when you remove the microprocessor package from the ZIF socket. Bending the package pins can permanently damage the microprocessor.



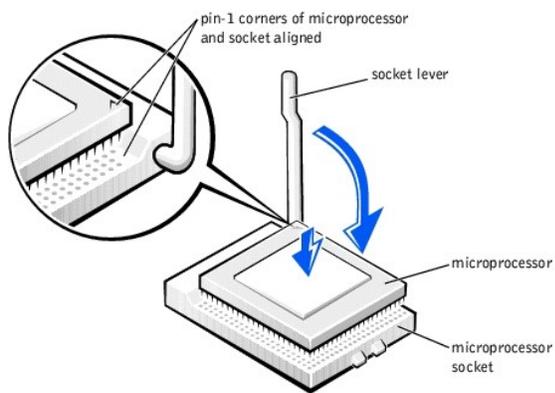
11. Remove the microprocessor from the socket.

Leave the release lever extended in the release position so that the socket is ready for the new microprocessor.

Installing the Microprocessor

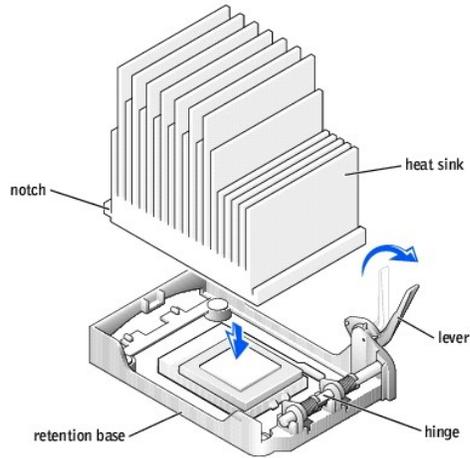
➔ **NOTICE:** You must position the microprocessor package correctly in the socket to avoid permanent damage to the microprocessor and the computer.

1. If the release lever on the ZIF socket is not extended to the release position, move it to that position.
2. Align pin-1 (the beveled corner) of the microprocessor package and pin-1 of the socket.



➔ **NOTICE:** The microprocessor pins are delicate. To avoid damage, ensure that the microprocessor aligns properly with the socket, and do not use excessive force when installing the processor.

3. Carefully set the microprocessor in the socket and press it down lightly to seat it.
4. Rotate the lever back toward the system board until it snaps into place, securing the microprocessor package.
5. If you are installing a new heat sink, remove the film covering the bottom of the heat sink.
6. Lower the heat sink to the microprocessor so that the heat sink fits in the retention base.



7. Raise the retention lever and press until the heat sink is secured. You will feel the lever pause once it is at a 90-degree angle. Keep pressing the lever another 30 degrees, ensuring that it is in the locked position.
8. Lower the airflow shroud over the heat sink.
9. Reconnect the cooling fan power cable to the [CR3F1 connector](#) on the system board.
10. Plug the +12-VDC [P2 DC power cable](#) into the [J4B1 connector](#) on the system board.
11. [Close the computer cover.](#)

🔔 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

12. Connect your computer and devices to their electrical outlets, and turn them on.

If you are installing a microprocessor replacement kit from Dell, return the original heat sink assembly and microprocessor package to Dell in the same package in which your replacement kit was sent. Your microprocessor replacement kit should include a replacement microprocessor heat sink and one replacement securing clip.

Removing the Front I/O Panel

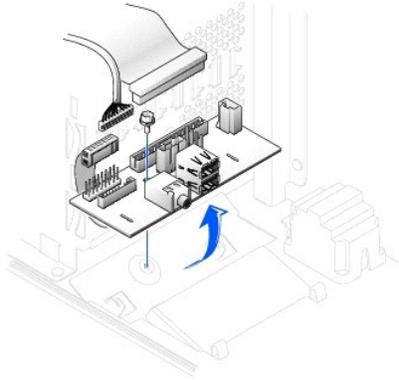
⚠️ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions.](#)"

1. [Shut down the computer.](#)

🔔 **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover.](#)
5. Disconnect the control panel cable from the control panel connector. Disconnect the I/O cable from the connector on the system board.

Note the routing of the control panel cable as you remove it from the computer so that you can replace it correctly.



6. Remove all cables that are connected to the front I/O panel.
 7. From inside the computer cover, remove the mounting screw that secures the front I/O panel to the computer.
 8. Remove the front I/O panel from the computer.
 9. Reinstall the front I/O panel by reversing steps 5 through 7.
 10. [Close the computer cover.](#)
- 🔑 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.
11. Connect your computer and devices to their electrical outlets, and turn them on.

Replacing the Power Supply

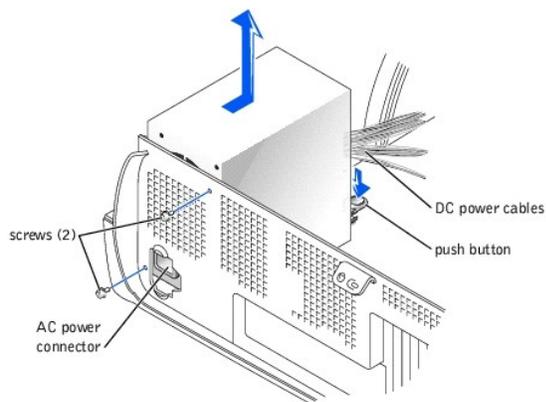
Removing the Power Supply

⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions.](#)"

1. [Shut down the computer.](#)

🔑 **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover.](#)
5. Be sure that the AC power cable is disconnected from the back of the power supply. Then disconnect the DC power cables from the system board and the drives.



Note the routing of the DC power cables underneath the tabs in the computer frame as you remove them from the system board and drives. It is important to route these cables properly when you replace them to prevent them from being pinched or crimped.

6. Remove the two screws that secure the power supply to the back of the computer.
7. Press the "PUSH" button located on the floor of the computer frame.
8. Slide the power supply toward the front of the system approximately 1 inch.
9. Lift the power supply up and out of the computer.

Replacing the Power Supply

1. Slide the power supply into place.
2. Replace the two screws that secure the power supply to the back of the computer frame.
3. Reconnect the DC power cables.
4. [Close the computer cover.](#)

➡ **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

5. Connect your computer and devices to their electrical outlets, and turn them on.

Replacing the System Board

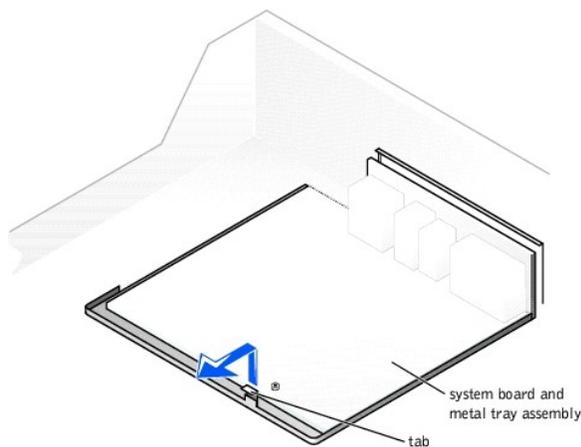
Removing the System Board

⚠ **CAUTION:** Before you begin any of the procedures in this section, see "[Safety Instructions.](#)"

1. [Shut down the computer.](#)

➡ **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

2. Turn off any attached devices and disconnect them from their electrical outlets.
3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
4. [Open the computer cover.](#)



➡ **NOTICE:** The system board and the metal tray are attached and are removed as one piece.

5. Remove or move any components that restrict access to the system board.
6. Disconnect all cables from the system board.

Before you remove the existing system board, visually compare the replacement system board to the existing system board to make sure that you have the correct part.

7. Pull up on the tab and slide the system board toward the front of the computer; lift it up and away.
8. Place the system board that you just removed next to the replacement system board.

Replacing the System Board

1. Transfer components from the existing system board to the replacement system board:

- a. Remove the memory modules and install them on the replacement board.

 **CAUTION:** The microprocessor package and heat sink assembly can get hot. To avoid burns, be sure that the package and assembly have had sufficient time to cool before you touch them.

- b. Remove the fan/heat sink assembly and microprocessor package from the existing system board and transfer them to the replacement system board.

2. Configure the settings of the replacement system board. Set the jumper on the replacement system board so it is identical to the one on the existing board.

 **NOTICE:** Some components and connectors on the replacement system board may be in different locations from the corresponding connectors on the existing system board.

3. Orient the replacement board by aligning the notches on the bottom to the tabs on the computer frame floor.

4. Slide the board toward the back of the computer until it clicks into place.

5. Replace any components and cables that you removed from the system board.

 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

6. Reconnect all cables to their connectors at the back of the computer, [close the computer cover](#), and reconnect the computer and devices to their power sources and turn them on.

Closing the Computer Cover

1. Ensure that all cables are connected, and fold cables out of the way.
2. Ensure that no tools or extra parts are left inside the computer.
3. Pivot the cover down and ensure that the release buttons click into place.

 **NOTICE:** To connect a network cable, first plug the cable into the network wall jack and then plug it into the computer.

4. Connect your computer and devices to their electrical outlets, and turn them on.

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Solving Problems

Dell™ Dimension™ 4500

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Finding Help Information

To access the *Tell Me How* help file

1. Click the **Start** button, and then click **Help and Support**.
2. Click **User and system guides**, and then click **User's guides**.
3. Click **Tell Me How**.

To access Windows help

1. Click the **Start** button, and then click **Help and Support**.
2. Type a word or phrase that describes your problem, and then click the arrow icon.
3. Click the topic that describes your problem.
4. Follow the instructions shown on the screen.

To locate additional information for your computer — See "[Finding Information for Your Computer](#)."

Battery Problems

- ⚠ **CAUTION:** There is a danger of a new battery exploding if it is incorrectly installed. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
- ⚠ **CAUTION:** Before you begin any of the procedures in this section, follow the "[Safety Instructions](#)."

Replace the battery — If you have to repeatedly reset time and date information after turning on the computer, or if an incorrect time or date displays during start-up, replace the battery. If the battery still does not work properly, contact Dell. See "Contacting Dell" in the Dell *Owner's Manual* for the correct number to call.

Drive Problems

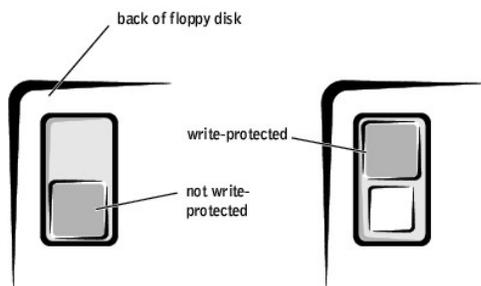
Floppy drive problems

Ensure that Windows® recognizes the drive — Click the **Start** button, and then click **My Computer**. If the floppy drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Test the drive

1. Insert another disk to eliminate the possibility that the original floppy disk is defective.
1. Insert a bootable floppy disk and reboot the computer.

Ensure that the disk is not full or write-protected — Ensure that the disk has available space and that it is not write-protected (locked). See the following illustration.



➔ **NOTICE:** Do not attempt to clean drive heads with a swab. You may accidentally misalign the heads, which can render the drive inoperable.

Clean the drive — Use a commercially available cleaning kit.

CD drive problems

🔍 **HINT:** High-speed CD drive vibration is normal and may cause noise. This does not indicate a defect in the drive or the CD.

Adjust the Windows volume control — Click the speaker icon in the lower-right corner of your screen.

- 1. Ensure that the volume is turned up by clicking the slider and dragging it up.
- 1. Ensure that the sound is not muted by clicking any boxes that are checked.

Test the drive with another CD — Insert another CD to eliminate the possibility that the original CD is defective.

Check the speakers and subwoofer — See "[Sound and Speaker Problems](#)."

Ensure that Windows recognizes the drive — Click the **Start** button, and then click **My Computer**. If the CD drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Clean the disc — See the *Tell Me How* help file for instructions on cleaning your CDs.

Problems writing to a CD-RW drive

Close other programs — The CD-RW drive must receive a steady stream of data when writing. If the stream is interrupted, an error occurs. Try closing all programs before writing to the CD-RW.

See the CD-RW program's Help file for CD-RW recording instructions — See the CD-RW program's online help information for complete instructions on how to record CD-RWs.

DVD drive problems

🔍 **HINT:** Because of different regions worldwide and different disc formats, not all DVD titles work in all DVD drives.

Test the drive with another DVD — Insert another DVD to eliminate the possibility that the original DVD is defective.

Ensure that Windows recognizes the drive — Click the **Start** button, and then click **My Computer**. If the DVD drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

Clean the disc — See the *Tell Me How* help file for instructions on cleaning your DVDs.

Hard drive problems

Run Check Disk

1. Click the **Start** button, and then click **My Computer**.
2. Right-click the drive letter (local disk) that you want to scan for errors, and then click **Properties**.
3. Click the **Tools** tab.
4. Under **Error-checking**, click **Check Now**.
5. Click **Start**.

E-Mail, Modem, and Internet Problems

 **HINT:** Connect the modem to an analog telephone jack only. The modem does not operate while it is connected to a digital telephone network.

Check the telephone line connection — Verify that the telephone line is connected to the jack on the modem. (The jack has either a green label or a connector-shaped icon next to it.) Ensure that you hear a click when you insert the telephone line connector into the modem.
Check the telephone jack — Disconnect the telephone line from the modem and connect it to a telephone. Listen for a dial tone.
Connect the modem directly to the telephone wall jack — If you have other telephone devices sharing the line, such as an answering machine, fax machine, surge protector, or line splitter, then bypass them and use the telephone to connect the modem directly to the telephone wall jack.
Use a different telephone line — If you are using a line that is 3 m (10 ft) or more in length, try a shorter one.
Run the Modem Helper diagnostics — Click the Start button, point to All Programs , and then click Modem Helper . Follow the instructions on the screen to identify and resolve modem problems. (Modem Helper is not available on all computers.)
Verify that the modem is communicating with Windows® <ol style="list-style-type: none">1. Click the Start button, and then click Control Panel.2. Click Printers and Other Hardware.3. Click Phone and Modem Options.4. Click the Modems tab.5. Click the COM port for your modem.6. Click Properties, click the Diagnostics tab, and then click Query Modem to verify that the modem is communicating with Windows. <p>If all commands receive responses, the modem is operating properly.</p>
Turn off call waiting (catch-phone) — See your telephone directory for instructions on deactivating this feature. Then adjust the dial-up networking connection properties. <ol style="list-style-type: none">1. Click the Start button, and then click Control Panel.2. Click Printers and Other Hardware, and then click Phone and Modem Options.3. Click your connection type to highlight it.4. Click the Dialing Rules tab, and then click Edit.5. Click the To Disable Call Waiting box to place a checkmark in it.6. Select the disable code from the drop-down menu (for example, *70).7. Click Apply, and then click OK.
Ensure that you are connected to the Internet — With the Outlook Express e-mail program open, click File . If Work Offline has a checkmark next to it, click the checkmark to remove it and connect to the Internet.
Ensure that you have subscribed to an Internet service provider — Contact an Internet service provider to subscribe.
Contact your Internet service provider — Contact your Internet service provider for assistance.
Check for interrupt request conflicts — See " Resolving Software and Hardware Incompatibilities ."

Error Messages

A filename cannot contain any of the following characters: \ / : * ? " < > — Do not use these characters in filenames.
A required .DLL file was not found — The program that you are trying to open is missing an essential file. To remove and then reinstall the program: <ol style="list-style-type: none">1. Click the Start button.2. Click Control Panel.3. Click Add or Remove Programs.4. Select the program you want to remove.5. Click the Change or Remove Program icon.6. See the program documentation for installation instructions.
Insert bootable media — The operating system is trying to boot to a nonbootable floppy disk or CD. Insert a bootable floppy disk or CD.
Non-system disk error — A floppy disk is in the floppy drive. Remove the floppy disk and restart the computer.
Not enough memory or resources. Close some programs and try again — You have too many programs open. Close all windows and open the program that you want to use. In some cases, you might have to restart your computer to restore computer resources. If so, try running the program that you want to use first.
Operating system not found — Contact Dell. See "Contacting Dell" in the Dell <i>Owner's Manual</i> for the correct number to call.
The file being copied is too large for the destination drive — The file that you are trying to copy is too large to fit on the disk. Try copying the file to a blank disk or using a larger-capacity disk.
x:\ is not accessible. The device is not ready — Insert a disk into the drive and try again.

General Problems

The computer stops responding

Turn the computer off — If your computer locks up and you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off. Then press the power button again

to turn on the computer. You might lose data if you are unable to perform an operating system shutdown.

A program stops responding

End the program

1. Press <Ctrl><Alt><Delete> simultaneously.
2. Click **Task Manager**, and click **Applications**.
3. Click the program that is no longer responding.
4. Click **End Task**.

A program crashes repeatedly

 **HINT:** Software usually includes installation instructions in its documentation or on a floppy disk or CD.

Check the software documentation — Many software manufacturers maintain websites with information that may help you solve the problem. Ensure that you properly installed and configured the program. If necessary, uninstall and then reinstall the program.

A program is designed for an earlier Windows operating system

Run the Program Compatibility Wizard

Windows XP provides a Program Compatibility Wizard that configures a program so it runs in an environment similar to non-Windows XP operating system environments.

1. Click the **Start** button, point to **All Programs**—> **Accessories**, and then click **Program Compatibility Wizard**.
2. In the welcome screen, click **Next**.
3. Follow the instructions on the screen.

A solid blue screen appears

Turn the computer off — If the computer does not respond to a keystroke or a proper shutdown, press the power button for at least 8 to 10 seconds until the computer turns off. Press the power button again to restart the computer. The chkdsk program automatically runs during the start-up process. Follow the instructions on the screen.

Other software problems

Check the software documentation or contact the software manufacturer for troubleshooting information

Back up your files immediately — If your computer has a CD-RW drive or a zip drive installed, see the drive's documentation for instructions.

Ensure that you have not made an error while entering data — See the program documentation to make sure that the values or characters you are entering are valid.

Check for viruses — Use a virus-scanning program to check the hard drive, floppy disks, or CDs.

Restart the computer — Save and close any open files, exit any open programs, and then shut down your computer through the **Start** menu instead of pressing the power button. Otherwise, you may lose data.

Check for compatibility

1. Ensure that the program is compatible with the operating system installed on your computer and that your computer meets the minimum hardware requirements needed to run the software. See the software documentation for information.
1. If necessary, uninstall and then reinstall the program.

Ensure that you properly installed and configured the program — See the software documentation for information. If necessary, uninstall and then reinstall the program.

Other technical problems

Go to the Dell | Support website — Go to support.dell.com for help with general usage, installation, and troubleshooting questions. See "Dell Technical Support Policy" in the *Owner's Manual* for a description of the hardware and software support provided by Dell.

E-mail Dell — Go to the Dell | Support website, and then click **E-Mail Dell** in the **Communicate** list. Send an e-mail message to Dell about your problem: you can expect to receive an e-mail message from Dell within hours. See "Dell Technical Support Policy" in the *Owner's Manual* for a description of the hardware and software support provided by Dell.

Call Dell — If you cannot solve your problem by using the Dell | Support website or e-mail service, call Dell for technical assistance (See

"Contacting Dell" in the Dell *Owner's Manual* for the correct number to call). See "Dell Technical Support Policy" in the Dell *Owner's Manual* for a description of the hardware and software support provided by Dell.

General hardware problems

If your computer exhibits one or more of the following symptoms, a device conflict may exist:

- 1 Your computer locks up, particularly while using a specific device.
- 1 A recently added device does not work.
- 1 A sound card emits noise or demonstrates other problems.
- 1 Unintelligible characters print from the printer.
- 1 The mouse pointer does not move or "stutters" when it moves.
- 1 Messages appear stating that the computer is not operating at maximum performance.
- 1 Errors occur and programs crash for no apparent reason.
- 1 Nothing displays on the monitor.

Remove any recently added hardware to see if it resolves the conflict — If removing the hardware resolves the conflict, see the hardware documentation for configuration and troubleshooting instructions. If the problem persists, contact the hardware manufacturer for technical assistance.

Check your operating system documentation for additional troubleshooting information

Check for interrupt request conflicts — See "[Resolving Software and Hardware Incompatibilities](#)."

Keyboard Problems

Restart the computer

- 1 If the mouse is functioning, [shut down the computer](#) through the **Start** menu. After the computer shuts down, press the [power button](#) to restart the computer.
- 1 If the computer does not respond to a keystroke or the mouse, press the power button for at least 8 to 10 seconds until the computer turns off. Press the power button again to restart the computer.

Check the keyboard cable

- 1 Ensure that the keyboard cable is firmly connected to the computer.
- 1 [Shut down the computer](#), reconnect the keyboard cable as shown on the *Start Here* setup diagram for your computer, and then restart the computer.
- 1 Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
- 1 Remove keyboard extension cables and connect the keyboard directly to the computer.

Test the keyboard — Connect a keyboard that works properly to the computer, and try using the keyboard. If the new keyboard works, the original keyboard is faulty.

Check for interrupt request conflicts — See "[Resolving Software and Hardware Incompatibilities](#)."

Mouse Problems

Restart the computer

1. Simultaneously press <Ctrl><Esc> to display the **Start** menu.
2. Type u, press the keyboard arrow keys to highlight **Shut down** or **Turn Off**, and then press <Enter>.
3. After the computer turns off, press the power button to restart the computer.

If you connected the mouse before turning on the computer, reconnect the mouse cable

1. Simultaneously press <Ctrl><Esc> to display the **Start** menu.
2. Type u, press the keyboard arrow keys to highlight **Shut down** or **Turn Off**, and then press <Enter>.
3. After the computer turns off, reconnect the mouse cable as shown on the *Start Here* setup diagram for your computer.
4. Start the computer.

If you connected the mouse after turning on the computer, remove the power cable, and then reconnect the mouse cable — If the mouse is connected after the power is turned on, the mouse appears to be nonfunctional. To make the mouse function properly:

1. While your computer is on, remove the power cable from the back of the computer.
2. Connect the mouse to the computer.
3. Reconnect the power cable.
4. Turn on your computer.

Pressing the power button does not clear the computer's settings and does not restore mouse functionality.

Check the mouse cable

- 1 Check the cable connector for bent or broken pins and for damaged or frayed cables. Straighten bent pins.
- 1 Ensure that the cable is firmly connected to the computer.

Test the mouse — Connect a mouse that works properly to the computer, and try using the mouse. If the new mouse works, the original mouse was faulty.

Check the mouse settings

1. Click the **Start** button, click **Control Panel**, and then click **Printers and Other Hardware**.
2. Click **Mouse**.
3. Try adjusting the settings.

Reinstall the mouse driver — See "[Reinstalling Drivers](#)."

Check for interrupt request conflicts — See "[Resolving Software and Hardware Incompatibilities](#)."

Network Problems

Check the network cable connector — Ensure that the network cable is connected as shown in the *Dell Owner's Manual*.

Check the network lights on the back of the computer — No light indicates that there is no network communication. Try replacing the network cable.



Restart the computer and try to log on to the network again

Check your network settings — Contact your network administrator or the person who set up your network to verify that your network settings are correct and that the network is functioning.

Check for interrupt request conflicts — See "[Resolving Software and Hardware Incompatibilities](#)."

Power Problems

CAUTION: Before you begin any of the procedures in this section, follow the "[Safety Instructions](#)."

HINT: If the [power light](#) on the front of the computer is steady green, the computer is operating normally.

Adjust the Power Properties — Your computer may be in standby or hibernate mode. For information on power conservation modes, see the *Tell Me How* help file, or search for the keyword *standby* or *hibernate* in Windows® Help.

If the power light is blinking green — The computer is in standby mode. Press a key on the keyboard or move the mouse to resume normal operation.

If the power light is off — The computer is either turned off or is not receiving power.

- 1 Ensure that the power cable is firmly inserted into both the [power connector](#) on the back of the computer and the electrical outlet.
- 1 If the computer is plugged into a power strip, ensure that the power strip is plugged into an electrical outlet and that the power strip is turned on.
- 1 Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
- 1 Ensure that the [voltage selection switch](#) is set to match the AC power at your location.
- 1 Bypass power protection devices, power strips, and power extension cables to verify that the computer turns on.
- 1 Swap the computer and monitor power cables to determine if the power cable is defective.
- 1 Ensure that the microprocessor power cable is securely connected to the [system board](#).
- 1 Ensure that the power supply cables are securely connected to the [system board](#).
- 1 Remove and then reinstall the [memory modules](#).
- 1 Remove and then reinstall any [cards](#).
- 1 If the problem persists, contact Dell. See "Contacting Dell" in the *Dell Owner's Manual* for the correct number to call.

If the power light is amber and green — The computer is receiving electrical power, but an internal power problem might exist.

- 1 Ensure that the microprocessor power cable is securely connected to the [system board](#).
- 1 If the problem persists, contact Dell. See "Contacting Dell" in the *Dell Owner's Manual* for the correct number to call.

Eliminate interference — Electrical appliances on the same circuit or operating near the computer can cause interference. Other causes of

interference are:

- 1 Power extension cables
- 1 Keyboard and mouse extension cables
- 1 Too many devices on a power strip
- 1 Multiple power strips connected to the same electrical outlet

Printer Problems

 **HINT:** Dell does not cover the printer's warranty. If you need technical assistance for your printer, call the printer's manufacturer. See the printer documentation for the correct phone number.

Check the printer documentation — See the printer documentation for setup and troubleshooting information.

Ensure that the printer is turned on — See the printer documentation for power button information.

Verify the printer cable connections

- 1 See the printer documentation for cable connection information.
- 1 Ensure that the printer cables are securely connected to the printer and the computer as shown in the Dell *Owner's Manual*.

Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

Verify that the printer is recognized by Windows®

1. Click the **Start** button.
2. Click **Control Panel**.
3. Click **Printers and Other Hardware**.
4. Click **View installed printers or fax printers**. If the printer is listed, right-click the printer icon.
5. Click **Properties**, and then select the **Ports** tab. For a parallel printer, ensure that the **Print to the following port(s)**: setting is **LPT1 (Printer Port)**. For a USB printer, ensure that the **Print to the following port(s)**: setting is **USB**.

Reinstall the printer driver — See the printer documentation for instructions.

Scanner Problems

 **HINT:** Dell does not cover the scanner's warranty. If you need technical assistance for your scanner, call the scanner's manufacturer. See the scanner documentation for the correct phone number.

Check the scanner documentation — See the scanner documentation for setup and troubleshooting information.

Unlock the scanner — Ensure that your scanner is unlocked if it has a locking tab or button.

Restart the computer and try the scanner again

Check the cable connections

- 1 If your scanner has a power cable, ensure that the power cable is firmly connected to a working electrical outlet and that the scanner is turned on.
- 1 Ensure that the scanner cable is firmly connected to the computer and to the scanner.

Verify that the scanner is recognized by Microsoft® Windows®

1. Click the **Start** button.
2. Click **Control Panel**.
3. Click **Printers and Other Hardware**.
4. Click **Scanners and Cameras**. If your scanner is listed, Windows recognizes the scanner.

Reinstall the scanner driver — See the scanner documentation for instructions.

Sound and Speaker Problems

No sound from speakers

 **HINT:** The volume control in some MP3 players overrides the Windows® volume setting. If you have been listening to MP3 songs, ensure that you did not turn the player volume down or off.

Check the speaker cable connections — Ensure that the speakers are connected as shown on the setup diagram supplied with the speakers.

Ensure that the subwoofer and the speakers are turned on — See the setup diagram supplied with the speakers. If your speakers have

volume controls, adjust the volume, bass, or treble to eliminate distortion.
Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.
Disconnect headphones from the headphone connector — Sound from the speakers is automatically disabled when headphones are connected to the computer's front-panel headphone connector.
Enable digital mode — Your speakers do not work if the CD drive is operating in analog mode. To enable digital mode: <ol style="list-style-type: none"> 1. Click the Start button, click Control Panel, and then click Sounds, Speech, and Audio Devices. 2. Click Sounds and Audio Devices. 3. Click the Hardware tab. 4. Double-click the name of your CD drive. 5. Click the Properties tab. 6. Check the Enable digital CD audio for this CD-ROM device box.
Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
Eliminate possible interference — Turn off nearby fans, fluorescent lights, or halogen lamps to check for interference.
Run the speaker diagnostics — Some speaker systems have self-diagnostics. See the speaker documentation for diagnostics instructions.
Reinstall the audio (sound) driver — See " Reinstalling Drivers ."
Check for interrupt request conflicts — See " Resolving Software and Hardware Incompatibilities ."

No sound from headphones

Check the headphone cable connection — Ensure that the headphone cable is securely inserted into the headphone connector .
Adjust the Windows volume control — Click or double-click the speaker icon in the lower-right corner of your screen. Ensure that the volume is turned up and that the sound is not muted.
Disable digital mode — Your headphones do not work if the CD drive is operating in digital mode. To disable digital mode: <ol style="list-style-type: none"> 1. Click the Start button, click Control Panel, and then click Sounds, Speech, and Audio Devices. 2. Click Sounds and Audio Devices. 3. Click the Hardware tab. 4. Double-click the name of your CD drive. 5. Click the Properties tab. 6. Uncheck the Enable digital CD audio for this CD-ROM device box.

Video and Monitor Problems

If the screen is blank

 **HINT:** See the monitor documentation for troubleshooting procedures.

Check the monitor power light — If the power light is off, firmly press the button to ensure that the monitor is turned on. If the power light is lit or blinking, the monitor has power. If the power light is blinking, press a key on the keyboard or move the mouse.
Check the monitor cable connection — Check the connector for bent or broken pins. (It is normal for monitor cable connectors to have missing pins.) Ensure that the video cable is connected as shown on the Start Here setup diagram for your computer.
Test the electrical outlet — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.
Swap the power cables — Swap the computer and monitor power cables to determine if the power cable is defective.
Test the video extension cable (if used) — If you are using a video extension cable and removing the cable solves the problem, the cable is defective.
Test another monitor — If another monitor is available, connect it to the computer.
Check the diagnostic lights — See " Diagnostic Codes ."

If the screen is difficult to read

Check the monitor settings — See the monitor documentation for instructions on adjusting the contrast and brightness, demagnetizing (degaussing) the monitor, and running the monitor self-test.
Move the subwoofer away from the monitor — If your speaker system includes a subwoofer, ensure that the subwoofer is at least 60 cm (2 ft) away from the monitor.
Move the monitor away from external power sources — Fans, fluorescent lights, halogen lamps, and other electrical devices can cause the screen image to appear "shaky." Turn off nearby devices to check for interference.
Rotate the monitor to face a different direction — Eliminate sunlight glare, which can cause poor picture quality.
Adjust the Windows® display settings <ol style="list-style-type: none"> 1. Click the Start button, and then click Control Panel. 2. Click Appearance and Themes. 3. Click Display, and then click the Settings tab.

4. Try different settings for **Screen resolution** and **Color quality**.

Restore the recommended settings — Restore the original resolution and refresh rate settings. See the *Tell Me How* help file for instructions.

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Technical Specifications

Dell™ Dimension™ 4500

Microprocessor	
Microprocessor type	Intel® Pentium® 4 microprocessor that runs at 1.60, 1.70, 1.80, 1.90, 2.00, 2.20, or 2.40 GHz internally and 400 MHz externally; and 2.26, 2.40, 2.53, 2.66, or 2.80 GHz internally and 533 MHz externally.
L1 cache	8 KB first-level
L2 cache	integrated 256-KB or 512-KB at full microprocessor speed

System Information	
System chip set	Intel 845E with DDR memory support
DMA channels	four
Interrupt levels	24
System BIOS chip	4 Mb (512 KB)
System clock	400- or 533-MHz data rate

Expansion Bus	
Bus types	PCI and AGP
Bus speed	PCI: 33 MHz; AGP: 66 MHz
AGP connector	one
AGP connector size	172 pins
AGP connector data width (maximum)	32 bits
AGP bus protocols	4x/2x modes at 1.5 V
PCI connectors	four
PCI connector size	120 pins
PCI connector data width (maximum)	32 bits

Memory	
Architecture	DDR SDRAM
Memory connectors	two
Memory capacities	128-, 256-, and 512-MB non-ECC DDR SDRAM
Minimum memory	128 MB
Maximum memory	1 GB
Memory type	DDR (non-ECC)
BIOS address	F8000h

Drives	
Externally accessible	two 5.25-inch bays two 3.5-inch bays
Internally accessible	two bays for 1-inch-high IDE hard drives
Available devices	ATA-100 Ultra DMA hard drive, CD drive, Zip drive, DVD drive, DVD+RW drive, and CD-RW drive

Ports and Connectors	
Externally accessible:	
Serial	9-pin connector; 16550C-compatible
Parallel	25-hole connector (bidirectional)
Video	15-hole connector
Keyboard	6-pin mini-DIN connector or USB connector
Mouse	6-pin mini-DIN connector or USB connector
USB	two front-panel and four back-panel USB-compliant connectors

Headphone	front-panel miniature connector
Audio ¹	three miniature connectors for line-in, line-out, and microphone
Internally accessible:	
Primary IDE channel	40-pin connector on PCI local bus
Secondary IDE channel	40-pin connector on PCI local bus
Floppy drive	34-pin connector
¹ Present only on computers with integrated audio capabilities.	

Audio²	
Audio controller	ADI 1981A
² Present only on computers with integrated audio capabilities.	

Video	
Video controller	AGP 4X

Controls and Lights	
Power control	push button
Power light	green light on power button—blinking green in sleep state; solid green for power-on state; solid amber for possible internal power problem
Hard-drive access light	green
Diagnostic code lights	four bicolor (amber and green) located on back panel

Power	
DC power supply:	
Wattage	250 W
Heat dissipation	850 BTU (fully-loaded computer without monitor)
Voltage (switch-selectable on back panel)	90 to 135 V at 50/60 Hz; 180 to 265 V at 50/60 Hz; 100 V at 50/60 Hz for Japanese computers
Backup battery	3-V CR2032 coin cell

Physical	
Height x Width x Depth	42.5 x 18.1 x 44.7 cm (16.7 x 7.1 x 17.6 inches)
Weight	12.7 kg (28 lb)

Environmental	
Temperature:	
Operating	10° to 35°C (50° to 95°F) ³
Storage	-40° to 65°C (-40° to 149°F)
Relative humidity	20% to 80% (noncondensing)
Maximum vibration:	
Operating	0.25 G at 3 to 200 Hz at 1/2 octave/min
Storage	0.5 G at 3 to 200 Hz at 1/2 octave/min
Maximum shock:	
Operating	bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 inches/sec)
Storage	23-G faired-square wave with a velocity change of 508 cm/sec (200 inches/sec)
Altitude:	
Operating	-15.2 to 3048 m (-50 to 10,000 ft) ³
Storage	-15.2 to 10,670 m (-50 to 35,000 ft)
³ At 35°C (95°F), the maximum operating altitude is 914 m (3000 ft).	

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System Setup Program

Dell™ Dimension™ 4500

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 - [Entering the System Setup Program](#)
 - [Main Screen](#)
 - [Advanced Screen](#)
 - [Security Screen](#)
 - [Power Screen](#)
 - [Boot Screen](#)
 - [Exit Screen](#)
 - [Clearing Forgotten Passwords](#)
 - [Enabling the Processor Serial Number](#)
-

Overview

Each time you turn on or restart your computer system, the computer compares the hardware installed in the computer to the hardware listed in the configuration information stored in NVRAM on the system board. If the computer detects a discrepancy between the two, it generates error messages that identify the incorrect configuration settings. The computer then prompts you to enter the system setup program to correct the setting.

 **NOTICE:** Unless you are an expert computer user, don't change the settings for this program. Certain changes might make your computer work incorrectly.

You can use the system setup program as follows:

- 1 To change the system configuration information after you add, change, or remove any hardware in your computer
- 1 To set or change user-selectable options—for example, the user password

Dell recommends that you write down the system setup program screen information for future reference.

The system setup screens are organized as follows:

- 1 At the top is a menu bar for accessing the main program screens.
- 1 The box on the left side of each screen lists options that define the installed hardware in the computer. Fields beside the options contain settings or values. You can change those that are enclosed in brackets. Values that are grayed out contain status information reported by the computer.
- 1 The box on the right side of each screen displays help information for the option with a currently highlighted field.
- 1 The lower-right area lists keys and their functions for the currently displayed screen.

The menu bar provides access to the following screens:

- 1 [Main](#) screen — Provides settings for the basic computer configuration
- 1 [Advanced](#) screen — Provides detailed settings for some computer features
- 1 [Security](#) screen — Provides indications and settings for system password and setup password
- 1 [Power](#) screen — Provides settings for system power management features
- 1 [Boot](#) screen — Provides information about which device boots the computer
- 1 [Exit](#) screen — Provides selections for saving and loading the configurations and options

In addition to these screens, options identified by a right arrow provide access to submenus.

Entering the System Setup Program

1. Turn on (or restart) your computer.
2. When the blue DELL™ logo appears, press .

If you wait too long and the operating system begins to load into memory, let the computer complete the load operation. Then shut down the computer and try again.

Main Screen

Dell Dimension 4500 Setup

Dell Dimension 4500 Setup		
Main	Advanced	Security Power Boot Exit
BIOS Version	Axx	Item Specific Help
Processor Type	Intel® Pentium™ 4	
Processor Speed	(Displayed in MHz)	
System Bus Frequency	(Displayed in MHz)	
Cache RAM	(Displayed in KB)	
Service Tag	12ABC	
Total Memory	(Displayed in MB)	
Memory Bank 0	(Displayed in MB)	
Memory Bank 1	(Displayed in MB)	
System Time:	00:00:00	↔ Select Menu ↑↓ Select Item
System Date:	MO/DY/YR	Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
BIOS Version	Displays the version of the BIOS being used.
Processor Type	Displays the type of microprocessor installed.
Processor Speed	Displays the internal speed of the microprocessor.
System Bus Frequency	Displays the external speed of the microprocessor.
Cache RAM	Displays the cache random access memory.
Service Tag	Displays the service tag for the computer.
Total Memory	Displays the total computer memory.
Memory Bank 0	Displays the memory size and type in memory bank 0.
Memory Bank 1	Displays the memory size and type in memory bank 1.
Processor Serial Number	Displays the serial number of an Intel® Pentium® microprocessor when set to Enabled . Disabled (default) turns off this feature.
System Time	Resets the time on the computer's internal clock.
System Date	Resets the time on the computer's internal calendar.

Advanced Screen

Dell Dimension 4500 Setup		
Main	Advanced	Security Power Boot Exit
Setup Warning		Item Specific Help
Setting items on this menu to incorrect values may cause your system to malfunction		
▶ Boot Configuration		
▶ Peripheral Configuration		
▶ IDE Configuration		
▶ Diskette Configuration		
▶ Event Log Configuration		
▶ Video Configuration		
		↔ Select Menu ↑↓ Select Item
		Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
Boot Configuration	Displays the Boot Configuration submenu.
Peripheral Configuration	Displays the Peripheral Configuration submenu.

IDE Configuration	Displays the IDE Configuration submenu.
Diskette Configuration	Displays the Diskette Configuration submenu.
Event Log Configuration	Displays the Event Log Configuration submenu.
Video Configuration	Displays the Video Configuration submenu.

Boot Configuration Submenu

Dell Dimension 4500 Setup

Advanced

Plug and Play OS [No] Numlock [On]	Item Specific Help
	<p>↔ Select Menu ↑↓ Select Item</p> <p>Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help</p>

Option	Function
Plug and Play OS	<p>Determines whether the computer is configured to support Plug and Play devices from the operating system or from the system BIOS. Leave this option set to Yes so the operating system handles all Plug and Play operation.</p> <p>Be sure that this option is set to No before running Dell Diagnostics. Otherwise, some diagnostics may incorrectly fail.</p> <p>The system setup program automatically checks the configuration of a Simple Boot Flag-compatible operating system at POST. Depending on its configuration, the system setup program may automatically set this option to No or Yes.</p>
Numlock	Selects power-on state for Numlock.

Peripheral Configuration Submenu

Dell Dimension 4500 Setup

Advanced

Serial Port A: [Auto] Parallel Port: [Auto] Mode: [Bi-Directional]	Item Specific Help
Onboard Audio Device [Enabled] Legacy USB Support [Disabled]	
	<p>↔ Select Menu ↑↓ Select Item</p> <p>Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help</p>

Option	Function
Serial Port A	Configures the serial port. Set this option to Auto (default), Enabled , or Disabled . Depending on the port setting, you can set the following additional options:

	<p>1 Base I/O Address</p> <p>If the port is set to Enabled, available I/O addresses are 3F8, 3E8, 2F8, and 2E8.</p> <p>1 Interrupt</p> <p>If the port is set to Enabled, available interrupts are IRQ3 and IRQ4.</p>
Parallel Port	<p>Configures the parallel port. Set this option to Auto (default), Enabled, or Disabled. Depending on the port setting, you can set the following additional options:</p> <p>1 Mode</p> <p>If the port is set to Auto or Enabled, available modes are Output Only, Bi-Directional (default), ECP, and EPP.</p> <p>See the device manufacturer's documentation for information on which mode to use before changing this setting.</p> <p>1 Base I/O Address</p> <p>If the port is set to Enabled, available I/O addresses are 378 (default), 278, and 228.</p> <p>1 Interrupt</p> <p>If the port is set to Enabled, available interrupts are 7 and 5.</p>
Onboard Audio Device	Sets the integrated audio controller to either Enabled (default) or Disabled .
Legacy USB Support	Set to Enabled (default) to allow support for legacy USB. Set to Disabled if legacy USB support is not desired.

IDE Configuration Submenu

Dell Dimension 4500 Setup

Advanced		Item Specific Help
IDE Controller	[Both]	
PCI IDE Bus Master	[Enabled]	
▶ Primary IDE Master	[WDC WD204BA]	
▶ Primary IDE Slave	[Not Installed]	
▶ Secondary IDE Master	[CRD-8480C]	
▶ Secondary IDE Slave	[Not Installed]	
		<p>↕ Select Menu ↑↓ Select Item</p> <p>Enter Select ▶ Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help</p>

Option	Function
IDE Controller	Configures the integrated primary and secondary IDE controllers and detects the types of drives attached to them. If set to Primary , Secondary , or Both (default), the designated controller(s) are enabled, and the types of drives attached are displayed. If set to either Primary or Secondary , the other controller is not enabled and the IRQ it normally uses becomes available. If set to Disabled , the computer cannot detect any drives attached to the controllers and displays None for all four IDE drive options.
PCI IDE Bus Master	Set to Disabled to disable the computer's PCI IDE Bus Master functions. Set Enabled (default) to enable the features.
Primary IDE Master	Identifies the first drive attached to the primary IDE interface, usually the boot hard drive. See " Primary IDE Master Submenu ."
Primary IDE Slave	Identifies the second drive attached to the primary IDE interface, usually a second hard drive. The format of this submenu is the same as the one described in " Primary IDE Master Submenu ."
Secondary IDE Master	Identifies the first drive attached to the secondary IDE interface, if there is one. The format of this submenu is the same as the one described in " Primary IDE Master Submenu ."
Secondary IDE Slave	Identifies the second drive attached to the secondary IDE interface, usually a CD, CD-RW, or DVD drive. The format of this submenu is the same as the one described in " Primary IDE Master Submenu ."

Primary IDE Master Submenu

Dell Dimension 4500 Setup

Advanced	
Primary IDE Master	Item Specific Help
Drive Installed [WDC WD200DD-75AUA1] Type: [Auto] Maximum Capacity [20021 MB]	
Configuration Options Selected By BIOS	
LBA Mode [Supported] Block Mode [16 Sectors] PIO Mode [Mode 4] Ultra DMA [Mode 5] Cable Detected [80 Conductor]	
NOTE: The actual performance of the drive is dependent upon the operating system and IDE drivers.	←→ Select Menu ↑↓ Select Item Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
Drive Installed	Displays the primary IDE device type.
Type	Specifies the type of hard drive. Settings for this option are User , Auto , CD-ROM , ATAPI Removable , Other ATAPI , IDE Removable , and None .
Maximum Capacity	Displays the maximum capacity of the primary IDE device.
LBA Mode	Displays whether LBA mode control is enabled or not on the primary IDE device.
Block Mode	Displays the multi-sector transfer setting of the primary IDE device.
PIO Mode	Displays the PIO mode setting of the primary IDE device.
Ultra DMA	Displays the ultra DMA setting of the primary IDE device.
Cable Detected	Displays the type of cable connected to the primary IDE device.

Diskette Configuration Submenu

Dell Dimension 4500 Setup

Advanced	
Diskette Configuration	Item Specific Help
Diskette Controller: [Enabled]	
Floppy A: [1.44/1.25 MB 3 1/2"]	
Diskette Write Protect: [Disabled]	
	←→ Select Menu ↑↓ Select Item Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
Diskette Controller	Configures the floppy drive interface. Options are Enabled (default) and Disabled .
Floppy A	Selects the floppy drive type from Not Installed , 360 KB 5 1/4" , 1.2 MB 5 1/4" , 720 KB 3 1/2" , 1.44/1.25 MB 3 1/2" , or 2.88 MB 3 1/2" .
Diskette Write Protect	Protects a floppy disk from being written to when set to Enabled . When this option is set to Disabled (default), the floppy disk is not protected unless the write-protect tab is in place.

Event Log Configuration Submenu

Dell Dimension 4500 Setup

Advanced		Item Specific Help
Event Log Configuration		
Event Log	[Space Available]	
View Event Log		
Clear Event Log	[No]	
Event Logging	[Enabled]	↕ Select Menu ↑ Select Item
Mark Events As Read	[Enter]	Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
Event Log	Displays the space available for the event log.
View Event Log	Press <Enter> to view the event log.
Clear Event Log	Clears all event logs when the computer restarts if set to Yes . Retains the event log information if set to No (default).
Event Logging	Enables or disables event logging.
Mark Events As Read	Press <Enter>, and then select Yes or No to mark DMI events as either read or unread.

Video Configuration Submenu

Dell Dimension 4500 Setup

Advanced		Item Specific Help
Video Configuration		
AGP Aperture Size	[64 MB]	
Primary Video Adapter	[AGP]	
		↕ Select Menu ↑ Select Item
		Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
AGP Aperture Size	Sets the AGP aperture size to 64 MB (default) or 256 MB .
Primary Video Adapter	Supports the Windows® 2000 multiple-monitor feature. Select AGP (default) to specify the integrated AGP video controller as the primary video adapter. Select PCI to specify a PCI video card as the primary video adapter.

Security Screen

Dell Dimension 4500 Setup

Main	Advanced	Security	Power	Boot	Exit
Security		Item Specific Help			
Supervisor Password:	Not Installed				
User Password:	Not Installed				
Set Supervisor Password	[Enter]				
Set User Password	[Enter]				
		↕ Select Menu ↑↓ Select Item Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help			

Option	Function
Supervisor Password	Indicates whether a supervisor password has been assigned.
User Password	Indicates whether a user password has been assigned.
Set Supervisor Password	Sets and confirms a supervisor password. If a supervisor password is set, a User Access Level option appears that enables you to set the user access level as Full (default), Limited , No Access , or View Only .
Set User Password	Sets and confirms a user password.

Power Screen

Dell Dimension 4500 Setup

Main	Advanced	Security	Power	Boot	Exit
Suspend Mode		[S3]			
Restore on AC/Power Loss		[Stay Off]			
		↕ Select Menu ↑↓ Select Item Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help			

Option	Function
Suspend Mode	Determines the ACPI suspend state. Options are State 1 and State 3 (default).
Restore on AC/Power Loss	Determines what state the computer enters when AC power is restored after a power loss. Settings are as follows: <ul style="list-style-type: none"> 1 Last State Computer returns to the state it was in when power was lost. 1 Stay Off (default) Computer stays off when power is restored; you must press the power button to turn on the computer. 1 Power On

Computer turns on when power is restored.

Boot Screen

Dell Dimension 4500 Setup		
Main	Advanced	Security Power Boot Exit
Silent Boot	[Enabled]	Item Specific Help
Quick Boot	[Enabled]	
Boot Device Priority		
Hard Disk Drives		
Removable Devices		
ATAPI CD-ROM Drives		
		← → Select Menu ↑ ↓ Select Item Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
Silent Boot	Enabled (default) displays the DELL logo during POST. Disabled displays the normal POST messages.
Quick Boot	When set to Enabled , this option shortens POST by eliminating some tests. If set to Disabled (default), all POST tests occur. The system setup program automatically checks the configuration of a Simple Boot Flag-compatible operating system at POST. Depending on its configuration, the system setup program may automatically set this option to Enabled or Disabled .

Exit Screen

Dell Dimension 4500 Setup		
Main	Advanced	Security Power Boot Exit
► Exit Saving Changes		Item Specific Help
► Exit Discarding Changes		
► Load Optimal Defaults		
► Load Custom Defaults		
► Save Custom Defaults		
► Discard Changes		
		← → Select Menu ↑ ↓ Select Item Enter Select ► Submenu F9 Setup Defaults F10 Save and Exit ESC Exit F1 Help

Option	Function
Exit Saving Changes	Saves any changes you have made, exits the system setup program, and restarts the computer.
Exit Discarding Changes	Discards any changes you have made, exits the system setup program, and restarts the computer.

Load Optimal Defaults	Discards any changes you have made and reverts all options to their defaults, but does not exit the system setup program.
Load Custom Defaults	Discards any changes you have made and reverts all options to their defaults, but does not exit the system setup program.
Save Custom Defaults	Saves any changes you have made, but does not exit the system setup program.
Discard Changes	Discards any changes you have made and reverts all options to their last saved settings, but does not exit the system setup program.

Clearing Forgotten Passwords

 **CAUTION:** Before you begin any of the procedures in this section, follow the safety instructions in "[Safety Instructions](#)."

If you forget your supervisor or setup password, you cannot operate your computer or change settings in the system setup program until you clear the forgotten password(s).

 **NOTICE:** The following procedure resets all standard settings for your computer. Before proceeding, record all current settings so that you can restore them when you finish this procedure.

1. [Shut down the computer](#).
2. Turn off any attached devices and disconnect them from their electrical outlets.

 **NOTICE:** To disconnect a network cable, first unplug the cable from your computer and then unplug it from the network wall jack.

3. Disconnect the power cable from your computer, and then press the power button to ground the system board.
 4. [Open the computer cover](#).
 5. Locate the [configuration jumper](#) on the system board, and move the jumper plug so that pins 2 and 3 are jumpered (to "clear" the password when you turn on the computer).
 6. [Close the computer cover](#), connect your computer to an electrical outlet, and turn on the computer.
 7. Access the [system setup program](#) and assign a new supervisor or setup password in the **Maintenance** menu.
 8. Exit and save the system setup program settings.
 9. After the computer boots, turn it off, and unplug it from the electrical outlet.
 10. Open the computer cover again.
 11. Move the configuration jumper plug so that pins 1 and 2 are jumpered (the "normal" setting).
 12. Close the computer cover, connect your computer to an electrical outlet, and turn on the computer.
-

Enabling the Processor Serial Number

The Intel® Pentium® microprocessor includes a processor serial number feature designed to provide additional user security and manageability benefits. By default, this feature is disabled on Dell computers to protect your privacy. However, it can be enabled through the **Processor Serial Number** option in the system setup program.

 **NOTICE:** Do not change this setting by any means other than the system setup program. Otherwise, your computer may become unusable.

1. Enter the system setup program.
2. When the [Main](#) screen appears, press the down-arrow key to highlight the **Processor Serial Number** option, and then press <Enter>.
3. Select **Enabled** from the menu, and then press <Enter>.
4. Use the right-arrow key to highlight **Exit**, and then press <Enter>.
5. When prompted to confirm the changes you made, press <Enter>.
6. The computer restarts with the processor serial number feature enabled.

 **HINT:** The processor serial number feature remains enabled until you disable it in the system setup program.

To disable the processor serial number feature, repeat steps 1 through 5, selecting **Disabled** in step 3.

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Technical Overview

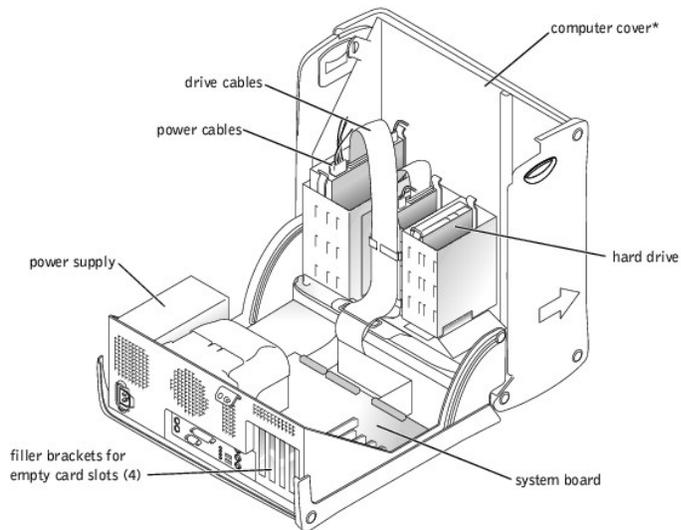
Dell™ Dimension™ 4500

- [Internal View](#)
 - [System Board Connectors and Sockets](#)
 - [Power Supply](#)
 - [DC Power Connectors](#)
 - [IDE Interface Cable Connections for Dell-Installed Drives](#)
 - [Placement of Dell-Installed Cards](#)
-

Internal View

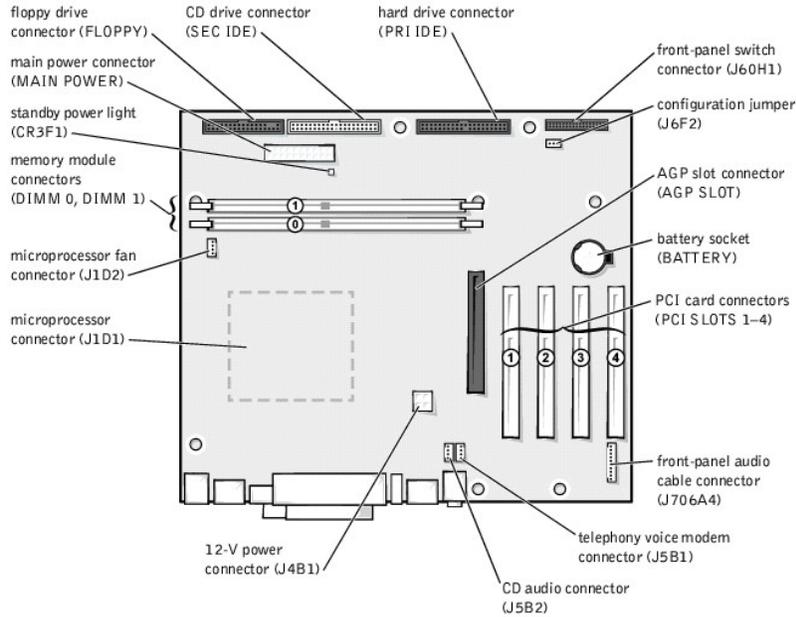
⚠ CAUTION: Before you begin any of the procedures in this section, read "[Safety Instructions](#)."

👉 NOTICE: Be careful when [opening the computer cover](#) to ensure that you do not inadvertently disconnect cables from the system board.



* Depending on the types of drives installed in your computer, the cover may not open as widely as shown in the figure.

System Board Connectors and Sockets



Power Supply

The 250-W power supply can operate from an AC power source of 115 VAC at 60 Hz or 230 VAC at 50 Hz. The power supply provides the DC operating voltages and currents listed in the following table.

Output Voltage ¹	Regulation	Minimum Current (A)	Maximum Current (A) ²
+12 VDC	+/-5%	0.0	14.0 ³
+5 VDC	+/-5%	1.0/0.2 ⁴	22.0
+3.3 VDC	+/-5%	0.1/0.0 ⁵	18.0
-12 VDC	+/-10%	0.0	1.0
+5 VFP	+/-5%	0.0	2.0

¹Outputs meet and do not exceed SELV requirements per electrical standards (UL 1950, IEC 950, or EN60950 Par. 2.3).

²Maximum continuous combined load on +5 VDC and +3.3 VDC outputs do not exceed 150 W.

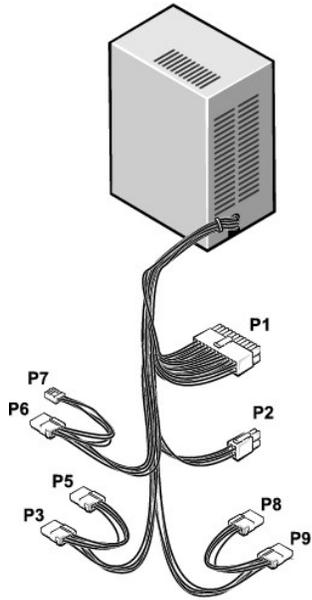
³Peak +12 VDC output power (up to 15.0 A) does not exceed 15 seconds in duration. Under this condition, tolerance on the +12 VDC output is allowed to be +/-10%.

⁴+5 VDC minimum load is 0.2 A when there is a minimum load of 0.3 A on the +12 VDC and 0.42 A on the +3.3 VDC outputs simultaneously. +5 V minimum load is 1 A for load transient tests.

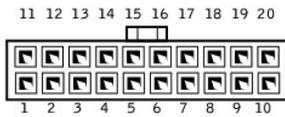
⁵In system configurations where +3.3 VDC is not used, all other outputs stay within regulation while the +3.3 VDC output is in a zero load condition.

DC Power Connectors

Power Supply DC Connector Pin Assignments



DC Power Connector P1



Pin Number	Signal name	18-AWG Wire
1	+3.3 VDC	Orange
2	+3.3 VDC	Orange
3	COM	Black
4	+5 VDC	Red
5	COM	Black
6	+5 VDC	Red
7	COM	Black
8	POK	Gray
9	+5 VFP	Purple
10	+12 VDC	Yellow
11	+3.3 VDC*	Orange
12	-12 VDC	Blue
13	COM	Black
14	PS ON	Green
15	COM	Black
16	COM	Black
17	COM	Black
18	+5 VDC	N/C
19	+5 VCD	Red
20	+5 VCD	Red

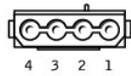
*Sense connector

DC Power Connector P2



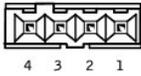
Pin Number	Signal Name	18-AWG Wire
1	COM	Black
2	COM	Black
3	+12 VDC	Yellow
4	+12 VDC	Yellow

DC Power Connectors P3, P5, P6, P8, and P9



Pin Number	Signal Name	18-AWG Wire
1	+12 VDC	Yellow
2	COM	Black
3	COM	Black
4	+5 VDC	Red

DC Power Connector P7



Pin Number	Signal Name	22-AWG Wire
1	+5 VDC	Red
2	COM	Black
3	COM	Black
4	+12 VDC	Yellow

IDE Interface Cable Connections for Dell-Installed Drives

IDE Channel IDE	Connector Location	Dell-Installed Drive
Primary IDE master	End connector on PRI IDE connector cable	Hard drive
Primary IDE slave	Middle connector on cable PRI IDE connector	Zip drive
Secondary IDE master	End connector on cable SEC IDE connector	CD or DVD drive
Secondary IDE slave	Middle connector on SEC IDE connector cable	CD-RW drive

Placement of Dell-Installed Cards

Card Connector	Card Description
AGP connector	Video
PCI1 connector	Network adapter, wireless network adapter, or swap box
PCI2 connector	Modem
PCI3 connector	Sound
PCI4 connector	1394 (FireWire)

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Controls and Lights

Dell™ Dimension™ 4500

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Front View



CD Activity Light

The CD activity light is on when the computer reads data from the CD drive.

CD Drive Eject Button

Press this button to eject your CD from the CD drive.

Floppy Drive Eject Button

Press this button to eject a disk from the floppy drive.

Hard-Drive Light

The hard-drive light is on when the computer reads data from or writes data to your hard drive.

Power Button

Press the power button to turn on the computer.

🔔 **NOTICE:** To turn off your computer, perform a Windows® shutdown instead of pressing the power button. Otherwise, you may lose data.

Floppy Drive Light

The floppy drive light is on when the computer reads data from or writes data to the floppy drive.

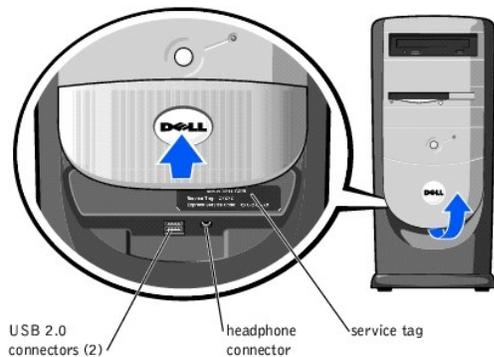
CD Headphone Connector

Use the CD headphone connector to attach headphones to the CD drive.

CD Volume Control Dial

Move the dial to adjust the volume of your audio CD.

🔧 **HINT:** To prevent damage to your computer, the front door is designed to "break away" if it is lifted up too far. For instructions on how to reattach the door, see "[Reattaching the Front Door and Hinge Arms.](#)"



USB 2.0 Connectors

NOTICE: This computer supports the use of a USB hub. However, do not connect two or more USB hubs to a USB connector. Doing so may cause the computer to unexpectedly reboot.

HINT: If you attach a USB device that was not included in your original computer order, you may need to install a specific driver to make the device work. Check the documentation that came with the device or contact the USB device manufacturer for more information.

For quick connections, Dell recommends using the front USB connectors for USB devices such as digital cameras, gaming controllers, and scanners. Use the back-panel USB connectors for USB devices that are seldom disconnected, such as USB mouse and keyboard devices.

Headphone Connector

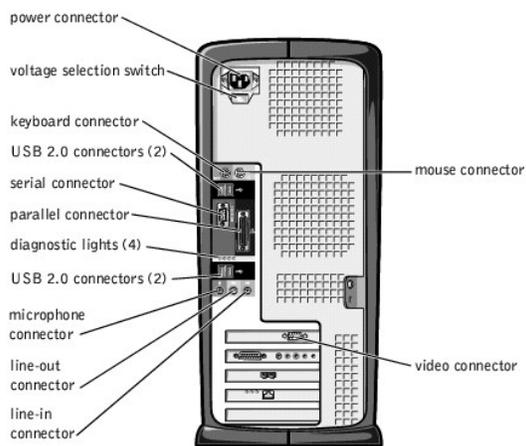
Use the headphone connector to attach headphones and most speakers for listening to all sounds from your computer, including your CD player and computer sounds such as beeps.

Service Tag

HINT: Express Service may not be available in some countries.

This label lists your computer's service tag and your Express Service Code (if applicable). If you call Dell technical support, use your Express Service Code to route the call directly to the correct support personnel. The Dell technical support staff will ask for your service tag information.

Back View



Power Connector

Plug one end of your computer power cable into the power connector, and plug the other end into an electrical outlet.

Voltage Selection Switch

The voltage selection switch must be set to match the AC power available at your location. The switch should be set for 115 V in most of North and South America and some Far Eastern countries such as Japan, South Korea, and Taiwan. For most of Europe, the Middle East, and the Far East, the switch should be

set for 230 V.

 **HINT:** The voltage selection switch must be set to the 115V position even though the AC supply in Japan is 100 V.

Parallel Connector

Connect a parallel device, such as a printer, to the parallel connector. If you have a USB printer, plug it into a USB connector.

Serial Connector

Connect a serial device, like a handheld device, to the serial connector.

Mouse Connector

Plug a standard mouse into the green mouse connector. If you have a USB mouse, plug it into a USB connector.

Keyboard Connector

If you have a standard keyboard, plug the keyboard into the purple keyboard connector. If you have a USB keyboard, plug it into a USB connector.

USB 2.0 Connectors

 **NOTICE:** This computer supports the use of a USB hub. However, do not connect two or more USB hubs to a USB connector. Doing so may cause the computer to unexpectedly reboot.

 **HINT:** If you attach a USB device that was not included in your original computer order, you may need to install a specific driver to make the device work. Check the documentation that came with the device or contact the USB device manufacturer for more information.

For quick connections, Dell recommends using the front USB connectors for USB devices such as digital cameras, gaming controllers, and scanners. Use the back-panel USB connectors for USB devices that are seldom disconnected, such as USB mouse and keyboard devices.

Line-Out Connector

Use the green line-out connector (available on computers with integrated sound) to attach headphones and most speakers with integrated amplifiers.

On computers with a sound card, the line-out connector is on the card.

Line-In Connector

Use the blue line-in connector (available on computers with integrated sound) to attach a record/playback device such as a cassette player, CD player, or VCR.

On computers with a sound card, the line-in connector is on the card.

Microphone Connector

Use the pink microphone connector (available on computers with integrated sound) to attach a personal computer microphone for voice or musical input into a sound or telephony program.

On computers with a sound card, the microphone connector is on the card.

Video Connector

Plug the cable from your monitor into the blue video connector.

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 - [Abbreviations and Acronyms](#)
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Hints, Notices, and Cautions



HINT: A HINT indicates important information that helps you make better use of your computer.



NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

Abbreviations and Acronyms

For a complete list of abbreviations and acronyms, see the [Tell Me How](#) help file.

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May 2002 Rev. A00

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